



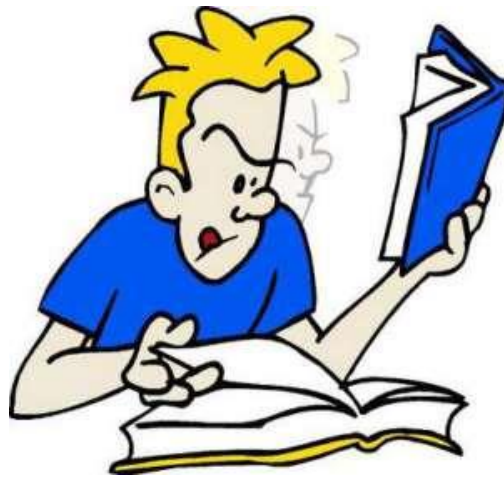
**SMK AIR TAWAR
KOTA TINGGI, JOHOR**

SCIENCE FORM 4

**NAME :
FORM :
TEACHER :**

**Prepared by:
Minah Selamat & Norhaiza Selamat
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A+ MATLAMAT SAYA



**Tiada kejayaan
tanpa usaha**



CHAPTER 2: BODY COORDINATION

PAPER 1

2.1

UNDERSTANDING BODY COORDINATION

TRIAL PAHANG 08

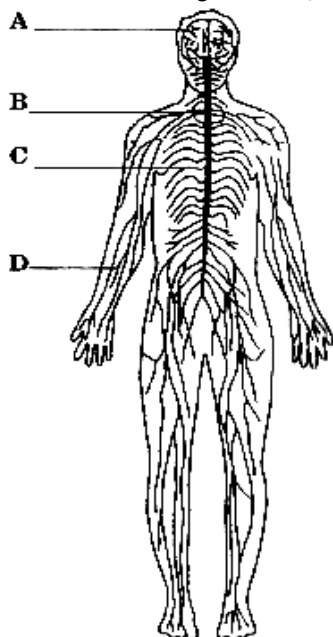
1. What is meant by body coordination?
Apakah maksud koordinasi badan?
 - A To coordinate body's growth
Menyelaras pertumbuhan badan
 - B To coordinate position and balance of the body
Menyelaras kedudukan dan keseimbangan badan
 - C To coordinate body's responses towards any stimuli
Menyelaras gerak balas badan terhadap sebarang rangsangan
 - D To coordinate secretion of hormone by endocrine gland
Menyelaras perembesan hormon oleh kelenjar endokrin

2.2

UNDERSTANDING THE HUMAN NERVOUS SYSTEM

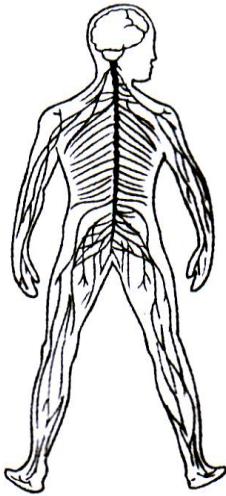
SPM 2008

2. Diagram shows the human nervous system. Which of the parts A, B, C or D is a spinal nerve?
Rajah menunjukkan sistem saraf manusia .
Antara bahagian A, B, C dan. D manakah merupakan saraf spina?



TRIAL SABAH 08

3. Diagram shows a system in a human body.
Rajah menunjukkan sistem dalam badan manusia.

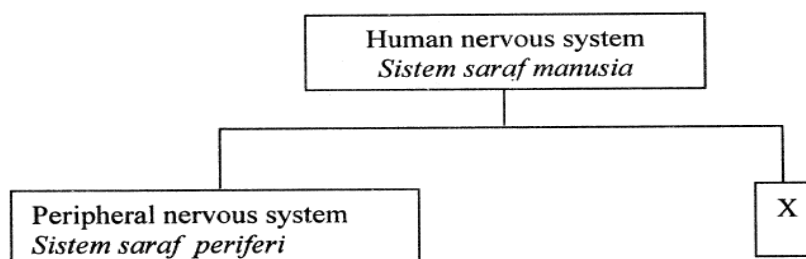


What is the system?
Apakah sistem tersebut?

- | | |
|---|---|
| A. Nervous system
<i>Sistem endokrin</i> | C. Endocrine system
<i>Sistem saraf</i> |
| B. Digestive system
<i>Sistem pencernaan</i> | D. Lymphatic system
<i>Sistem limfa.</i> |

TRIAL TERENGGANU 08

4. Diagram shows the components of the human nervous system.
Rajah menunjukkan komponen-komponen pada sistem saraf manusia.

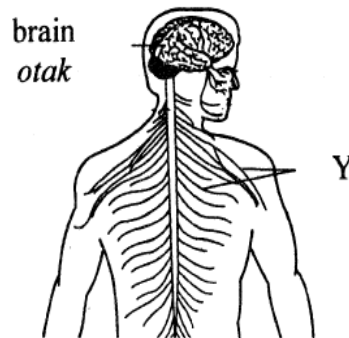


What is X?
Apakah X?

- | | |
|--|--|
| A. Sensory nervous system
<i>Sistem saraf deria</i> | C. Receptors and effectors
<i>Reseptor dan effektor</i> |
| B. Spinal nervous system
<i>Sistem saraf spina</i> | D. Central nervous system
<i>Sistem saraf pusat</i> |

TRIAL TERENGGANU 08

5. Diagram shows the human nervous system
Rajah menunjukkan sistem saraf manusia.



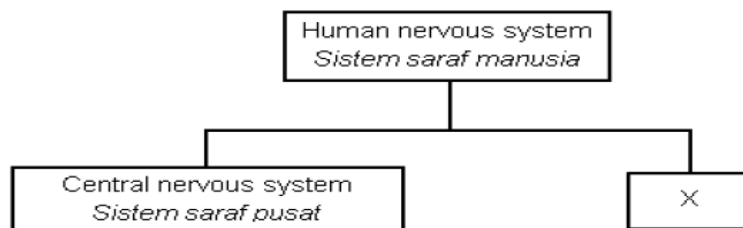
What is Y?

Apakah Y?

- | | | | |
|---|------------------------------|---|------------------------------------|
| A | Spinal nerves
Saraf spina | C | Autonomic nerves
Saraf autonomi |
| B | Spinal cord
Saraf tunjang | D | Cranial nerves
Saraf kranium |

TRIAL SABAH 09

6. Diagram shows the component of the human nervous system.
Rajah menunjukkan komponen pada sistem saraf manusia.



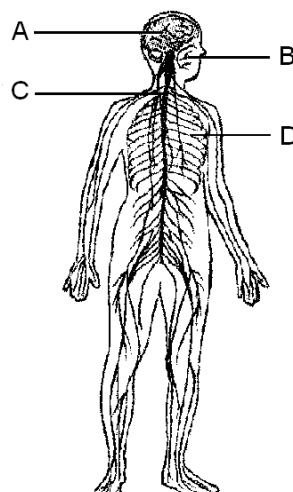
What is X?

Apakah X?

- | | | | |
|---|---|---|--|
| A | Sensory nervous system
Sistem saraf deria | C | Receptors and effectors
Reseptor dan effektor |
| B | Spinal nervous system
Sistem saraf tunjang | D | Peripheral nervous system
Sistem saraf periferi |

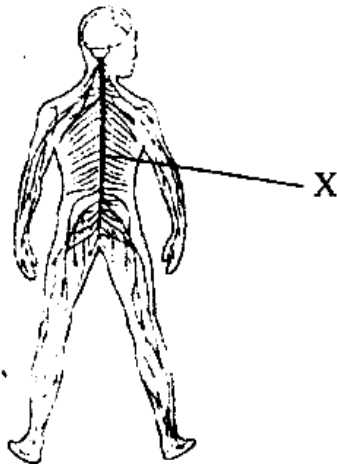
TRIAL SABAH 10

7. Diagram shows the human nervous system. Which of the part A, B, C and D is the cranium nerve?
Rajah menunjukkan sistem saraf manusia. Bahagian mana A, B, C dan D merupakan saraf kranium?



TRIAL KELANTAN 10

8. Diagram shows a human nervous system
Rajah menunjukkan satu sistem saraf manusia



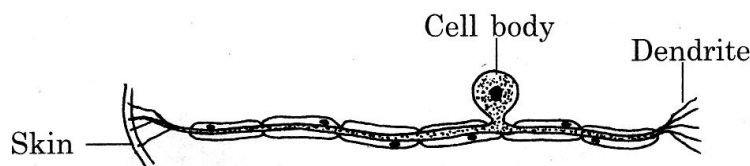
What is X?

Apakah X?

- | | |
|--------------------------------|---------------------------------------|
| A Spinal cord
Saraf tunjang | C Cranial nerves
Saraf kramium |
| B Spinal nerves
Saraf spina | D Peripheral nerves
Saraf periferi |

TRIAL PAHANG 08

9. Diagram shows a type of neurone.
Rajah menunjukkan sejenis neuron

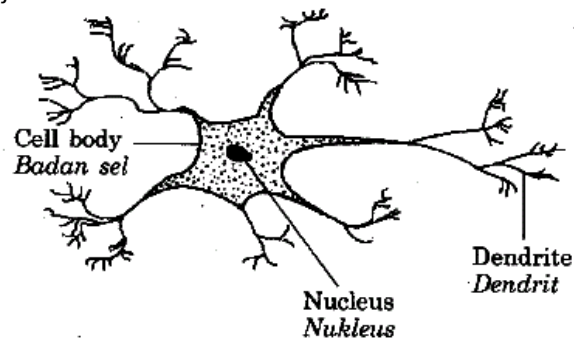


The neurone carries an impulse from
Neuron itu membawa impuls dari

- | |
|--|
| A the receptor to the central nervous system
reseptor ke sistem saraf pusat |
| B the effector to the central nervous system
effektor ke sistem saraf pusat |
| C the central nervous system to the effector
sistem saraf pusat ke efektor |
| D the central nervous system to the receptor
sistem saraf pusat ke reseptor |

SPM 2007

10. Diagram shows a type of neurone.
Rajah menunjukkan sejenis neuron.



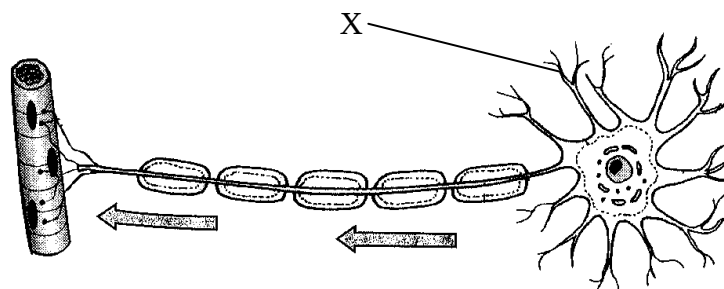
What is the function of this neurone?

Apakah fungsi neuron ini?

- A. Receives impulses from receptor
Menerima impuls dari reseptor
- B. Receives impulses from central nervous system
Menerima impuls dari sistem saraf pusat
- C. Transmits impulses from motor neurone to effector
Menghantar impuls dari neuron motor ke efektor
- D. Transmits impulses from sensory neurone to motor neurone
Menghantar impuls dari neuron deria ke neuron motor

TRIAL JOHOR 08

11. Diagram shows a type of neurone.
Rajah menunjukkan sejenis neuron.



What is labeled X?

Apakah label X?

- | | |
|-----------------------------|-------------------------------|
| A Axon
<i>Akson</i> | C Receptor
<i>Reseptor</i> |
| B Dendron
<i>Dendron</i> | D Dendrite
<i>Dendrit</i> |

TRIAL KEDAH 09

12. Diagram shows a type of neurone.
Rajah menunjukkan sejenis neuron

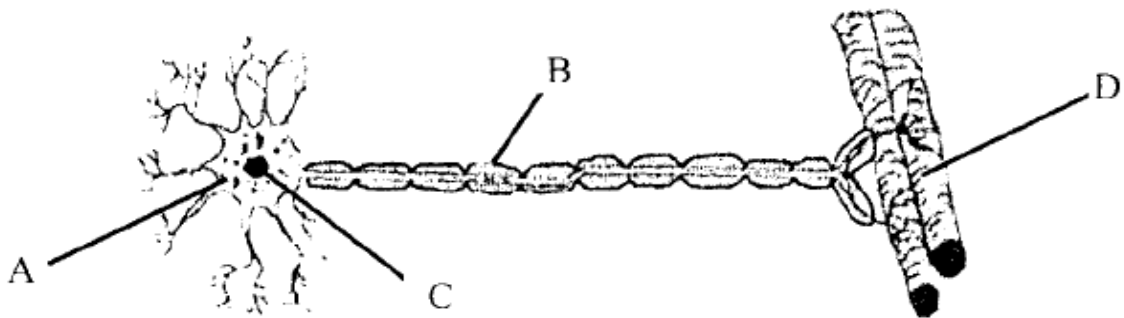


The neurone carries an impulse from
Neuron ini membawa impuls daripada

- A. Receptor to the central nervous system
Reseptor ke sistem saraf pusat
- B. The central nervous system to an effector
Sistem saraf pusat ke effektor
- C. The sensory neurone to the motor neurone
Neuron deria ke neuron motor
- D. Sensory neurone to the central nervous system
Neuron deria ke sistem saraf pusat

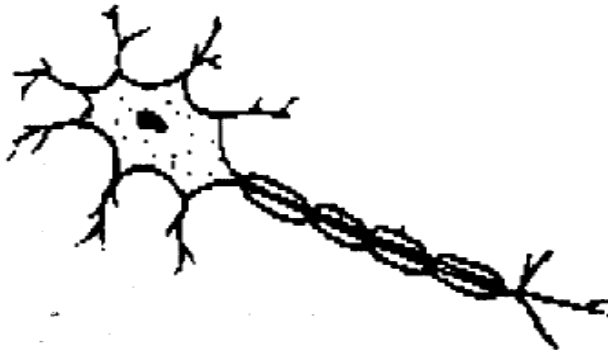
TRIAL KELANTAN 09

13. Diagram shows a motor neurone.
 Which of the parts A, B, C or D helps to speed up impulse transmission?
Rajah menunjukkan neuron motor. Antara bahagian A, B, C atau D yang manakah membantu mempercepatkan penghantaran impuls?



TRIAL PERLIS 09

14. Diagram shows a type of neurone.
Rajah menunjukkan sejenis neuron.

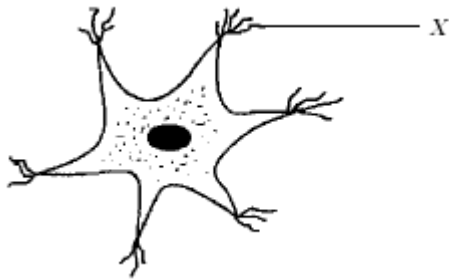


The neurone carries impulse from
Neuron itu membawa impuls dari

- A. Effector to the central nervous system
Efektor ke sistem saraf pusat
- B. The central nervous system to an effector
Sistem saraf pusat ke effektor
- C. Receptor to the central nervous system
Reseptor ke sistem saraf pusat
- D. Central nervous system to the receptor
Sistem saraf pusat ke reseptor

TRIAL SABAH 09

15. Diagram shows a neurone.
Rajah menunjukkan satu neuron



What is X?
Apakah X?

- | | | | |
|---|---------------------|---|------------------------|
| A | Axon
Akson | C | Dendrite
Dendrit |
| B | Dendrone
Dendron | D | Cell body
Badan sel |

2.3

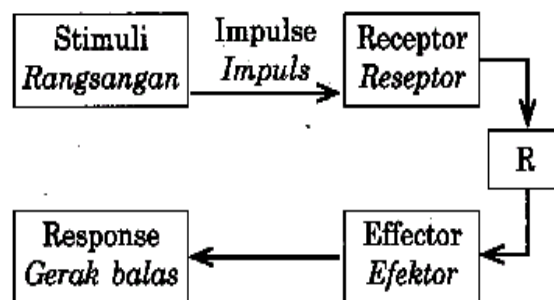
NERVOUS COORDINATION

TRIAL KEDAH 2010

16. Which of the following activity is a reflex action?
Antara berikut, yang manakah tindakan refleks?
- | | |
|----------------------------------|--|
| A. Cycling
Menunggang basikal | C. Reading a book
Membaca buku |
| B. Knee jerk
Sentakan lutut | D. Dancing with music
Menari dengan iringan muzik |

SPM 2007

17. Diagram shows the impulse pathway in nervous coordination.
Rajah 1 menunjukkan lintasan impuls dalam koordinasi saraf

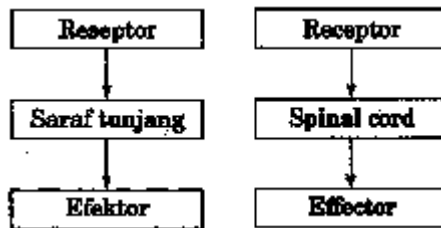


Which of the following represents R?
Antara yang berikut, yang manakah mewakili R?

- | | |
|------------------|-----------------------|
| A. Eyes
Mata | C. Glands
Kelenjar |
| B. Brain
Otak | D. Muscle
Otot |

SPM 2003

18. The figure shows the impulse pathway of an action
Rajah menunjukkan laluan impuls bagi satu tindakan.

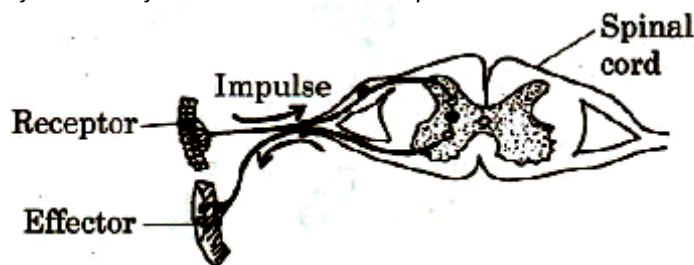


The action refers to
Tindakan tersebut ialah

- | | |
|--|---|
| <p>A. A knee jerk
<i>Lentingan lutut</i></p> <p>B. Chewing food
<i>Mengunyah makanan</i></p> | <p>C. Reading a book
<i>Membaca buku</i></p> <p>D. Walking on a rope
<i>Berjalan di atas tali</i></p> |
|--|---|

TRIAL PAHANG 07

19. The diagram shows an impulse pathway
Rajah menunjukkan satu lintasan impuls.

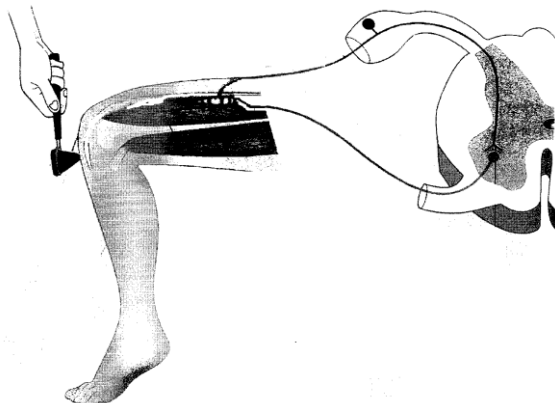


Which of the following actions involves the impulse pathway?
Antara tindakan berikut yang manakala melibatkan lintasan impuls itu?

- | | |
|--|--|
| <p>A. Swallowing food
<i>Menelan makanan</i></p> <p>B. Dancing with music
<i>Menari dengan iringan muzik</i></p> | <p>C. Walking on a tight rope
<i>Berjalan di atas tali yang diregangkan</i></p> <p>D. Blinking of the eyes to protect from dust
<i>Mengedip mat a untuk mencegah kemasukan habuk</i></p> |
|--|--|

TRIAL JOHOR 08

20. Diagram shows a reflex arc of a knee-jerk.
Rajah menunjukkan arka refleks bagi sentakan lutut.

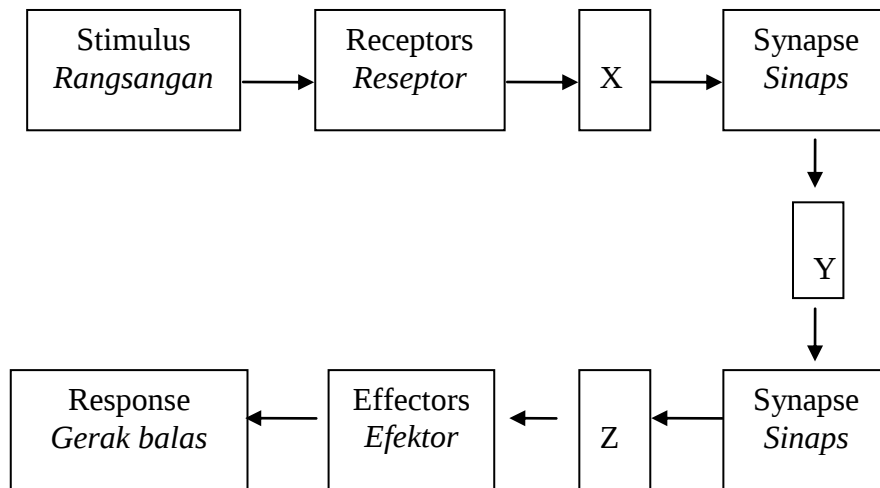


What types of neurons involve in this reaction?
Apakah jenis neuron yang terlibat dalam tindakbalas ini?

- A Relay neurone and motor neurone
Neuron perantaraan dan neuron motor
- B Sensory neurone and relay neurone
Neuron deria dan neuron perantaraan
- C Sensory neurone and motor neurone
Neuron deria dan neuron motor
- D Sensory neurone, relay neurone and motor neurone
Neuron deria, neuron perantaraan dan neuron motor

TRIAL SABAH 08

21. Diagram shows the path of impulse in a reflex action.
Rajah menunjukkan lintasan impuls dalam tindakan refleks.



What are X, Y and Z respectively?
Apakah yang diwakili oleh X, Y dan Z?

- | X | Y | Z |
|--|---|---|
| A. Sensory neurones
<i>Neuron deria</i> | Relay neurones
<i>Neuron perantaraan</i> | Motor neurones
<i>Neuron motor</i> |
| B. Motor neurones
<i>Neuron motor</i> | Sensory neurones
<i>Neuron deria</i> | Relay neurones
<i>Neuron perantaraan</i> |
| C. Sensory neurones
<i>Neuron deria</i> | Motor neurones
<i>Neuron motor</i> | Relay neurones
<i>Neuron perantaraan</i> |
| D. Relay neurones
<i>Neuron perantaraan</i> | Motor neurones
<i>Neuron motor</i> | Sensory neurones
<i>Neuron deria</i> |

TRIAL JOHOR 09

22. The information shows the components involved in a reflex action.
Maklumat menunjukkan komponen yang terlibat dalam tindakbalas refleks.

J	Relay neurone <i>Neuron perantaraan</i>
K	Effector <i>Efektor</i>
L	Sensory neurone <i>Neuron deria</i>
M	Motor neurone <i>Neuron motor</i>

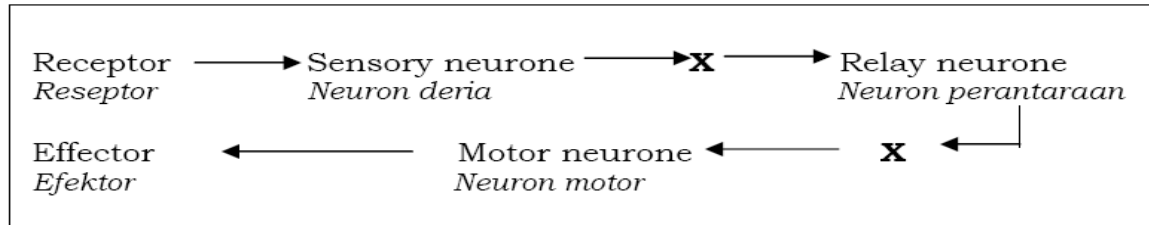
Aisyah accidentally touches a hot kettle. Which is the correct pathway of the impulse?
Aisyah tersentuh cerek panas. Laluan impuls yang manakah betul?

- A L → K → M → J
B J → K → L → M

- C L → J → M → K
D M → L → J → K

TRIAL KEDAH 09

23. The following information shows the path taken by an impulse in a reflex arc.
Maklumat berikut menunjukkan laluan impuls dalam arka refleks.



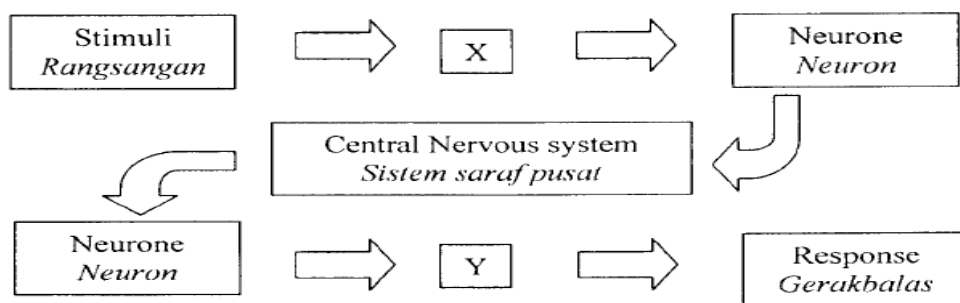
What is X?

Apakah X?

- A Axon
Akson
B Dendrone
Dendron
C Synapse
Sinaps
D Cell body
Badan sel

TRIAL KELANTAN 09

24. Flow chart shows an impulse pathway in nervous coordination.
Carta alir menunjukkan laluan impuls dalam koordinasi saraf.



What is X and Y?

Apakah X dan Y?

	X	Y
A	Impulse Impuls	Synapse Sinaps
B	Synapse Sinaps	Impulse Impuls
C	Receptor Reseptor	Effector Efektor
D	Effector Efektor	Receptor Reseptor

TRIAL KELANTAN 09

25. Diagram shows a daily human activity
Rajah menunjukkan satu aktiviti harian manusia

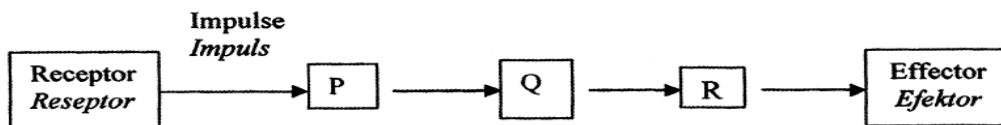


Which of the following is the correct flow chart referring to that activity?
 Carta alir yang manakah betul merujuk kepada aktiviti tersebut?

- A. Receptor → Brain → Effector
Reseptor → Otak → Efektor
- B. Receptor → Spinal cord → Effector
Reseptor → Saraf tunjang → Efektor
- C. Stretch receptor → Brain → Effector
Reseptor regang → Otak → Efektor
- D. Stretch receptor → Spinal cord → Effector
Reseptor regang → Saraf tunjang → Efektor

TRIAL TERENGGANU 10

26. The diagram shows the pathway of an impulse in a reflex arc.
 Rajah menunjukkan laluan impuls dalam arka refleks.



What are P, Q and R?
 Apakah P, Q and R?

	P	Q	R
A	Sensory neurone <i>Neuron deria</i>	Motor neurone <i>Neuron motor</i>	Relay neurone <i>Neuron Perantaraan</i>
B	Relay neurone <i>Neuron Perantaraan</i>	Motor neurone <i>Neuron motor</i>	Sensory neurone <i>Neuron deria</i>
C	Motor neurone <i>Neuron motor</i>	Sensory neurone <i>Neuron deria</i>	Relay neurone <i>Neuron Perantaraan</i>
D	Sensory neurone <i>Neuron deria</i>	Relay neurone <i>Neuron Perantaraan</i>	Motor neurone <i>Neuron motor</i>



2.4 PROPRIOCEPTORS

TRIAL SABAH 09

27. Diagram shows one of the receptor found in the human body.
 Rajah menunjukkan satu daripada reseptor yang terdapat dalam badan manusia.

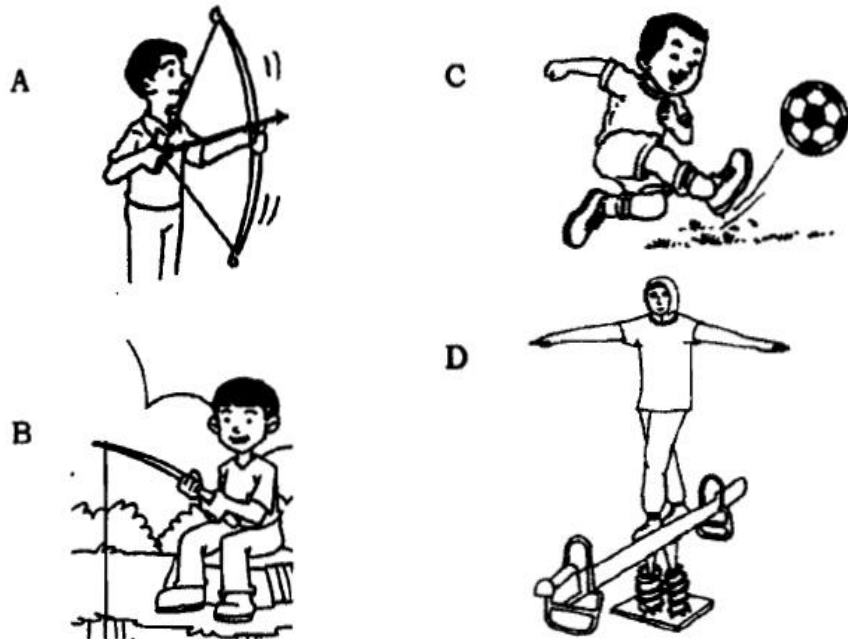


Which part of the body this receptor can be found?
 Dimanakah reseptor ini boleh didapati dalam badan?

- A Muscle
Otot
- B Skin
Kulit
- C Nose
Hidung
- D Eye
Mata

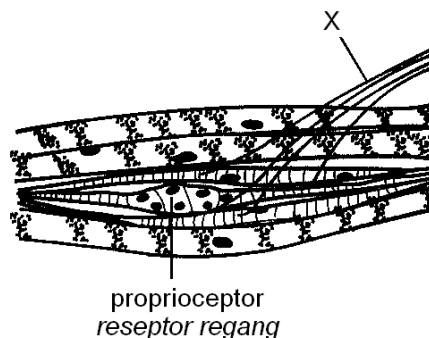
TRIAL KEDAH 2010

28. Which activity is controlled by a proprioceptor (stretched receptor)?
 Aktiviti yang manakah dikawal oleh proprioceptor (reseptor regang)?



TRIAL SABAH 10

29. Diagram shows the position of proprioceptors in the muscle.
 Rajah menunjukkan kedudukan reseptor regang di dalam otot.



What is the function of structure X?
 Apakah fungsi struktur X?

- A Sending impulse from the receptor to effector.
 Menghantar impuls dari reseptor ke efektor.
- B Sending impulse from the receptor to brain.
 Menghantar impuls dari reseptor ke otak.
- C Sending impulse from the brain to effector.
 Menghantar impuls dari otak ke efektor.
- D Sending impulse from the receptor to muscle
 Menghantar impuls dari reseptor ke otot.

TRIAL TERENGGANU 10

30. The diagram shows a blind folded student. He required arranging the boxes according to weight in ascending order.

Rajah menunjukkan seorang pelajar yang ditutup matanya. Dia dikehendaki untuk menyusun kotak-kotak mengikut tertib menaik berdasarkan berat.



Which of the following is involved in the above action?

Antara berikut, yang manakah terlibat dalam tindakan di atas?

- | | | | |
|---|--|---|--|
| A | Endocrine system
<i>Sistem endokrin</i> | C | Spinal cord
<i>Saraf tunjang</i> |
| B | Prorioceptor
<i>Deria kinestasis</i> | D | Medulla oblongata
<i>Medula oblongata</i> |

2.5

THE HUMAN BRAIN

TRIAL SELANGOR 2009

31. Which of the following is a characteristic of voluntary actions?
Antara yang berikut, yang manakah ciri bagi tindakan terkawal?
- A. It is controlled by the cerebellum.
Dikawal oleh serebelum.
 - B. Reaction is carried out by internal organs.
Gerakbalas dilakukan oleh organ dalaman
 - C. The impulse travels from the brain to certain muscles.
Impuls bergerak dari otak ke otot yang tertentu
 - D. It reacts unconsciously
Bergerak balas tanpa disedari

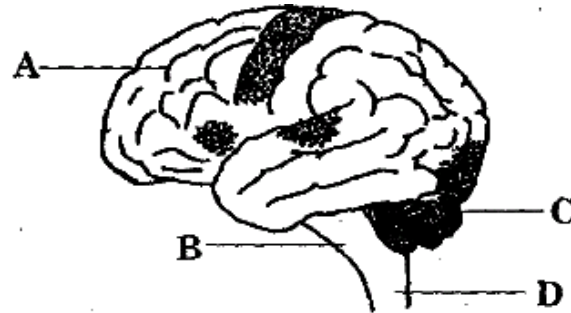
SPM 2003

32. Harris picks some tomatoes. What type of action is this?
Harris memetik beberapa biji buah tomato. Apakah jenis tindakan itu?
- | | |
|---|--|
| A. A reflex action
<i>Tindakan refleks</i> | C. A voluntary action
<i>Tindakan terkawal</i> |
| B. A capillary action
<i>Tindakan kapilari</i> | D. An involuntary action
<i>Tindakan luar kawal</i> |

TRIAL PAHANG 07

33. The diagram shows the structure of a human brain.

Gambar rajah menunjukkan struktur otak manusia.



Which part of the brain controls involuntary actions?

Bahagian otak yang manakah mengawal tindakan luar kawal?

TRIAL PAHANG 07

34. Salleh is walking on a piece of plank. What type of action is this?

Salleh berjalan di atas sekeping papan. Apakah jenis tindakan itu?

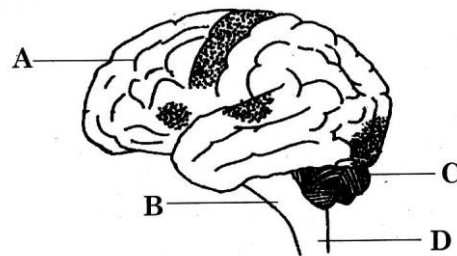
- A A reflex action
Tindakan refleks
B A voluntary action
Tindakan terkawal

- C A capillary action
Tindakan kalipari
D An involuntary action
Tindakan luar kawal

TRIAL PAHANG 08

35. The diagram shows the structure of a human brain. Which part of the brain controls involuntary actions?

Gambar rajah menunjukkan struktur otak manusia. Bahagian otak yang manakah mengawal tindakan luar kawal?

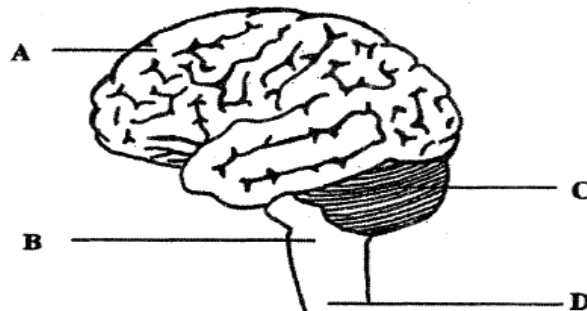


TRIAL TERENGGANU 08

36. Diagram shows the structure of a human brain.

Which of the parts A, B, C or D controls the body equilibrium?

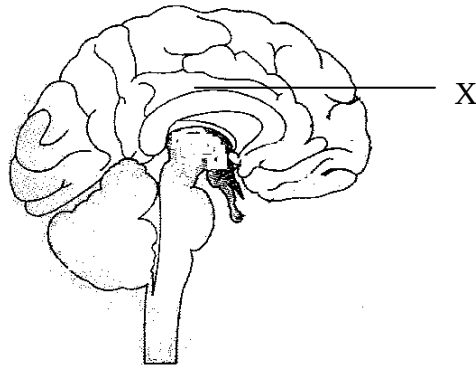
Rajah menunjukkan struktur otak manusia. Antara bahagian A, B, C atau D yang manakah mengawal keseimbangan badan.



TRIAL JOHOR 08

37. Diagram shows parts of the human brain.

Rajah menunjukan bahagian-bahagian otak manusia.



What is the function of part X?

Apakah fungsi bahagian X?

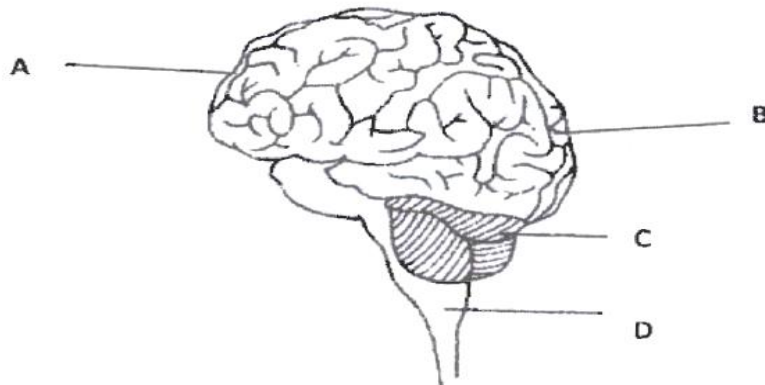
- A Control heartbeat
Mengawal denyutan jantung
- B Control sneezing
Mengawal bersin
- C Maintains posture and balance
Mengawal postur dan keseimbangan badan
- D Controls sensory functions, voluntary actions and mental functions
Mengawal fungsi ransangan, tindakan terkawal dan fungsi mental.

TRIAL JOHOR 09

38. Diagram shows parts of the human brain.

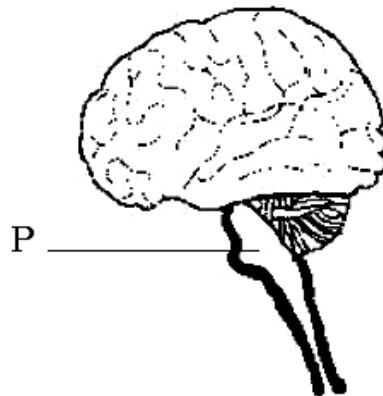
Which part A, B, C or D controls heartbeat and peristalsis?

Rajah menunjukkan bahagian utama otak manusia. Antara bahagian A, B, C atau D yang manakah mengawal degupan jantung dan peristalsis?



TRIAL KEDAH 09

39. Diagram shows the human brain.
Rajah menunjukkan otak manusia.



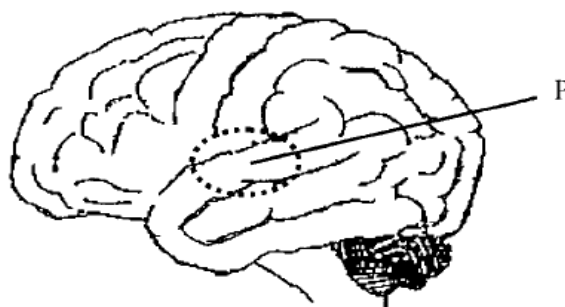
What is P?

Apakah P?

- | | |
|---------------------------|--|
| A Cerebrum
Serebrum | C Spinal cord
Saraf tunjang |
| B Cerebellum
Serebelum | D Medulla oblongata
Medulla oblongata |

TRIAL KELANTAN 09

40. Diagram shows a cerebrum.
Rajah menunjukkan serebrum



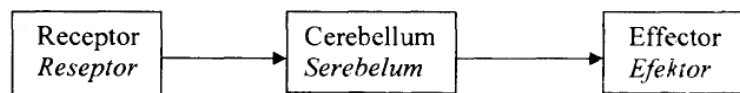
What is the function of part P?

Apakah fungsi bahagian P?

- | | |
|-------------------------|--|
| A Taste
Rasa | C Voluntary movement
Pergerakan terkawal |
| B Vision
Penglihatan | D Thinking and memory
Pemikiran dan ingatan |

TRIAL PERLIS 09

41. Diagram shows the impulse of an action.
Rajah menunjukkan laluan impuls bagi satu tindakan.



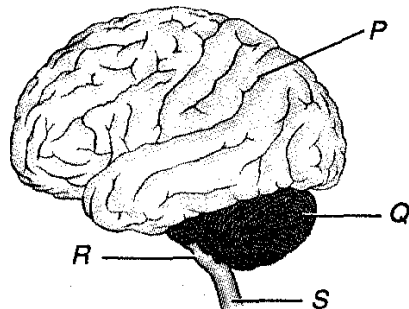
Which of the following actions involves the impulse pathway?

Antara tindakan berikut yang manakah melibatkan lintasan impuls itu?

- A. Reading a book
Membaca buku
- B. Swallowing food
Menelan makanan
- C. Walking on a tight rope
Berjalan di atas tali yang diregangkan
- D. Blinking of the eyes to protect from dust
Mengedip mata untuk mencegah kemasukan habuk.

TRIAL SABAH 10

42. Diagram shows a part of the human nervous system.
Rajah menunjukkan sebahagian daripada sistem saraf manusia.

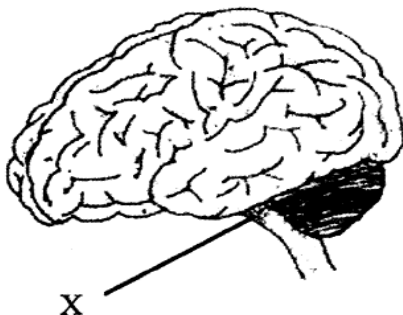


Which part of the structure controls voluntary action?
Manakah bahagian struktur yang mengawal tindakan terkawal?

- | | |
|------|------|
| A. P | C. R |
| B. Q | D. S |

TRIAL TERENGGANU 10

43. The diagram shows the structure of a human brain.
Rajah menunjukkan struktur otak manusia.

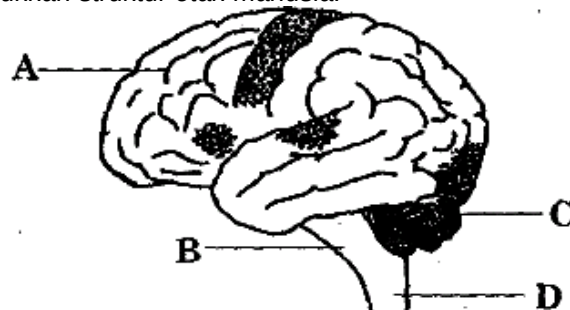


Which activity is controlled by X?
Aktiviti yang manakah dikawal oleh X?

- | | |
|---------------------------------------|---|
| A. Walking
<i>Berjalan</i> | C. Control heartbeat
<i>Mengawal denyutan jantung</i> |
| B. Knee-jerk
<i>Sentakan lutut</i> | D. Control body balance
<i>Mengawal keseimbangan badan</i> |

SPM 2005

44. The diagram shows the structure of a human brain.
Gambar rajah menunjukkan struktur otak manusia.



Which part of the brain controls involuntary actions?
Bahagian otak yang manakah mengawal tindakakan luar kawal?

TRIAL KELANTAN 10

45. Diagram shows the main part of the human brain.
Rajah menunjukkan bahagian utama otak manusia.



Name X, Y and Z.
Namakan X, Y dan Z.

	X	Y	Z
A	Medulla oblongata <i>Medulla oblongata</i>	Cerebellum <i>Serebelum</i>	Cerebrum <i>Serebrum</i>
B	Cerebellum <i>Serebelum</i>	Medulla oblongata <i>Medulla oblongata</i>	Cerebrum <i>Serebrum</i>
C	Cerebrum <i>Serebrum</i>	Cerebellum <i>Serebelum</i>	Medulla oblongata <i>Medulla oblongata</i>
D	Medulla oblongata <i>Medulla oblongata</i>	Cerebrum <i>Serebrum</i>	Cerebellum <i>Serebelum</i>

TRIAL TERENGGANU 10

46. The following information describes two types of action.
Maklumat berikut menerangkan dua jenis tindakan.

- W – Mohd Ameen sneezes when dust enters his nose.
Mohd Ameen bersin apabila habuk memasuki hidungnya.
- X – Umar plucks fruits from a tree
Umar memetik buah dari sepohon pokok.

What types of action W and X?
Apakah jenis tindakan W dan X?

	W	X
A	Voluntary action <i>Tindakan terkawal</i>	Involuntary action <i>Tindakan luar kawal</i>
B	Reflex action <i>Tindakan refleks</i>	Involuntary action <i>Tindakan luar kawal</i>
C	Involuntary action <i>Tindakan luar kawal</i>	Reflex action <i>Tindakan refleks</i>
D	Reflex action <i>Tindakan refleks</i>	Voluntary action <i>Tindakan terkawal</i>



HORMONAL COORDINATION

SPM 2008

47. A teenage girl has not shown the development of her secondary sexual characteristics. Which of the following is malfunctioning?

Seorang remaja perempuan tidak menunjukkan perkembangan ciri-ciri seks sekundernya.

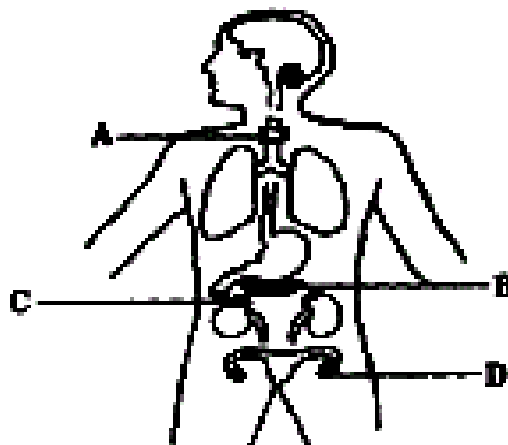
Antara yang berikut, yang manakah gagal berfungsi dengan baik?

- | | |
|-----------------------|-------------------------|
| A. Ovary
Ovari | C. Pancreas
Pankreas |
| B. Adrenal
Adrenal | D. Thyroid
Tiroid |

SPM 2004

48. The diagram shows the endocrine glands. Which of the following glands A, B, C or D is the pancreas?

Rajah menunjukkan kelenjar endokrin. Antara A, B, C, atau D yang manakah kelenjar pankreas?



SPM 2003

49. The figure shows one of the human endocrine glands.

Rajah menunjukkan satu daripada kelenjar endokrin manusia.



What is the immediate effect on a person if the gland is removed?

Apakah kesan serta merta yang dihadapi seseorang sekiranya kelenjar ini di buang?

- | | |
|--|---|
| A. The blood pressure increases
<i>Tekanan darah meningkat</i> | C. The blood sugar level increases
<i>Aras gula dalam darah naik</i> |
| B. The metabolic rate becomes low
<i>Kadar metabolisme badan rendah</i> | D. The secondary sex characteristic are not developed
<i>Ciri seks sekunder tidak berkembang</i> |

TRIAL PAHANG 07

50. Deficiency of which element causes the thyroid gland to swell?
Kekurangan unsur yang manakah menyebabkan kelenjar tiroid membengkak?
- | | |
|------------------------------|---------------------------|
| A. Calcium
<i>Kalsium</i> | C. Iron .
<i>Ferum</i> |
| B. Sodium.
<i>Natrium</i> | D. Iodine
<i>Iodin</i> |

TRIAL PAHANG 08

51. Diagram shows an effect of hormone imbalance in the human body.
Rajah menunjukkan kesan ketidakseimbangan hormon dalam badan manusia.



Which of the following endocrine glands causes the effect?
Antara kelenjar endokrin berikut, yang manakah menyebabkan kesan itu?

- | | |
|-----------|-------------|
| A Thyroid | B Pituitary |
| C Adrenal | D Pancreas |

TRIAL SABAH 08

52. Which of the following is **true** about hormones?
*Antara berikut yang manakah **benar** tentang hormon?*

- A. Hormones are impulses.
Hormon adalah impuls.
- B. Hormones are secreted to the neurons.
Hormon dirembeskan ke dalam neuron.
- C. Hormones are secreted by ductless glands.
Hormon dirembeskan oleh kelenjar tanpa duktus.
- D. Hormones only bring short term effects.
Hormon berkesan pada jangka masa yang pendek sahaja.

TRIAL SABAH 08

53. The below statements are disorders faced by a patient due to failure of one of his endocrine glands.
Pernyataan di bawah merupakan masalah yang dialami oleh pesakit akibat kegagalan fungsi salah satu daripada kelenjar endokrin.

- | |
|---|
| <ul style="list-style-type: none"> • Glucose is secreted in the urine
<i>Glukosa dirembeskan dalam air kencing</i> • The patient is diagnosed with diabetes
<i>Pesakit dikesan menghidap diabetis</i> |
|---|

What is the endocrine gland?
Apakah kelenjar endokrin tersebut?

- | | | | |
|---|-----------------------------|---|-------------------------------|
| A | Thyroid
<i>Tiroid</i> | C | Pituitary
<i>Pituitari</i> |
| B | Pancreas
<i>Pankreas</i> | D | Adrenal
<i>Adrenal</i> |

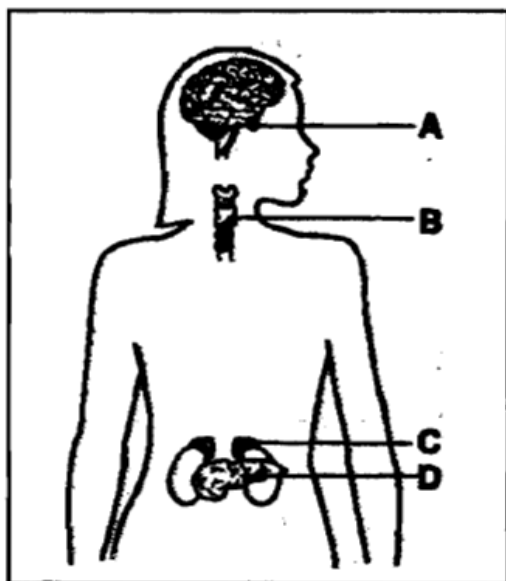
TRIAL SABAH 08

54. Which endocrine gland and what hormones are secreted when a person is in panic and stress?
Kelenjar endokrin dan hormon manakah yang dirembeskan apabila seseorang itu berada dalam keadaan panik dan tertekan?

	Endocrine gland <i>Kelenjar endokrin</i>	Hormones <i>Hormon</i>
A	Pancreas <i>Pankreas</i>	Insulin <i>Insulin</i>
B	Adrenal gland <i>Kelenjar adrenal</i>	Adrenaline <i>Adrenalin</i>
C	Adrenal gland <i>Kelenjar adrenal</i>	Thyroxine <i>Tiroksin</i>
D	Pancreas <i>Pankreas</i>	Adrenaline <i>Adrenalin</i>

TRIAL KEDAH 2010

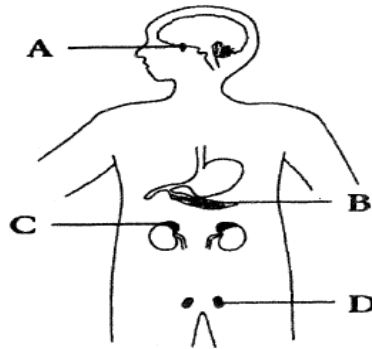
55. Diagram shows the endocrine glands in a human body.
Rajah menunjukkan kelenjar endokrin dalam badan manusia.



- Which of the following glands A, B, C and D secrete hormone in emergency situation?
Antara kelenjar A, B, C dan D yang manakah merembeskan hormon semasa situasi kecemasan?

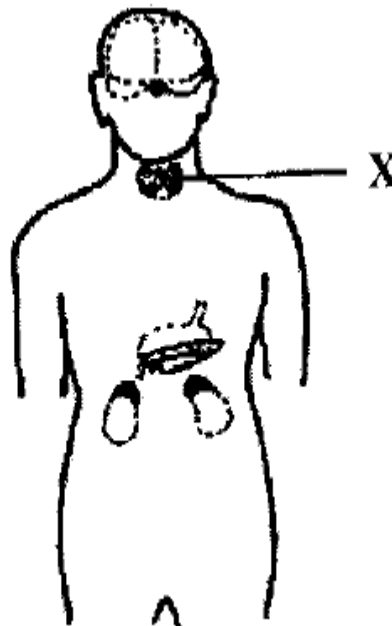
TRIAL TERENGGANU 08

56. The urine of a student contains glucose. Which endocrine gland is not functioning?
Air kencing pelajar mengandungi gula. Kelenjar endokrin manakah yang tidak berfungsi?



TRIAL PERAK 2009

57. Diagram shows an endocrine gland X.
Rajah menunjukkan kelenjar endokrin X.



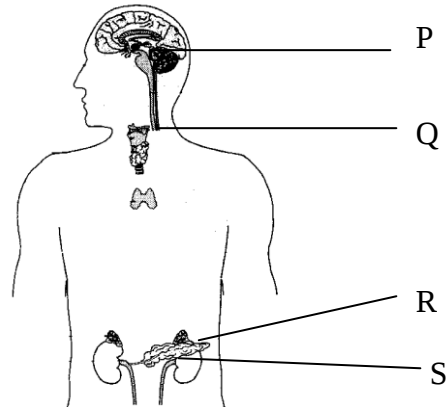
What is the function of X?

Apakah fungsi X?

- A. Controls mental and physical development of the body.
Mengawal perkembangan mental dan fizikal badan
- B. Prepares the body for emergency situation
Menyediakan badan untuk keadaan kecemasan
- C. Controls sugar level in blood
Mengawal aras gula dalam darah
- D. Stimulates milk production
Merangsang penghasilan susu

TRIAL JOHOR 08

58. Diagram shows a human endocrine system.
Rajah menunjukkan sistem endokrin badan.

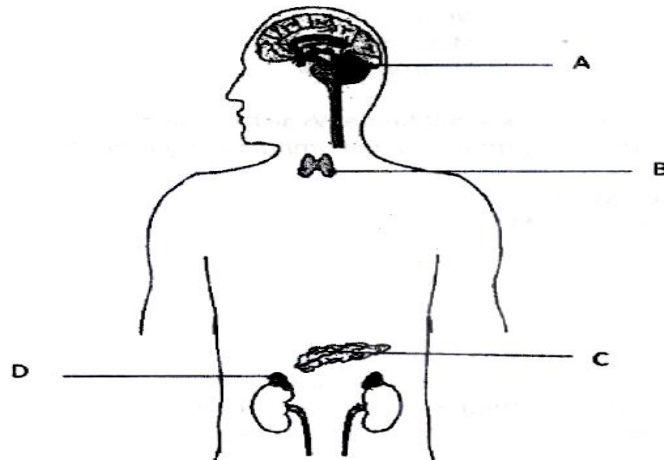


Which gland secretes insulin?
Kelenjar manakah yang menghasilkan insulin?

- | | | | |
|---|---|---|---|
| A | P | C | R |
| B | Q | D | S |

TRIAL JOHOR 09

59. Diagram shows the endocrine gland in the human body.
Which gland A, B, C or D secretes a type of hormone when this man is chased by a dog?
Rajah menunjukkan kelenjar endokrin dalam tubuh manusia. Kelenjar manakah A, B, C atau D yang merembeskan sejenis hormone apabila lelaki itu dikejar oleh seekor anjing?



TRIAL KEDAH 09

60. The following information shows the function of hormones produced by an endocrine gland.
Maklumat berikut menunjukkan fungsi hormone yang dihasilkan oleh kelenjar endokrin.

- Control the activities of other glands.
Mengawal aktiviti kelenjar-kelenjar lain.
- Controls the rate of growth.
Mengawal kadar tumbesaran.

- | | | | |
|---|----------------------|---|------------------------|
| A | Thyroid
Tiroid | C | Pituitary
Pituitari |
| B | Pancreas
Pankreas | D | Adrenal
Adrenal |

TRIAL PERLIS 09

61. Diagram shows one of the human endocrine gland.
Rajah menunjukkan salah satu daripada kelenjar endokrin.



What is the function of the hormone secreted by a gland R?
Apakah fungsi hormone yang dirembeskan oleh kelenjar R?

- | | | | |
|---|--|---|---|
| A | Control metabolic rate
<i>Mengawal kadar metabolisme</i> | C | Control blood glucose level
<i>Mengawal aras glukosa dalam darah</i> |
| B | Control growth of bone
<i>Mengawal pertumbuhan tulang</i> | D | Prepare the body for action
<i>Menyediakan badan untuk bertindak</i> |

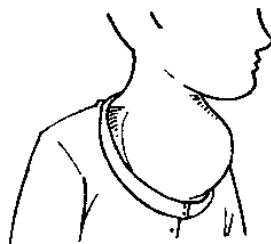
TRIAL SABAH 09

62. The glucose content in a patient's urine is more than the normal level.
Which endocrine gland is not functioning well?
*Kandungan glukosa dalam air kencing seorang pesakit melebihi aras normal.
Kelenjar endokrin yang manakah gagal berfungsi?*

- | | | | |
|---|-----------------------------|---|-------------------------------|
| A | Thyroid
<i>Tiroid</i> | C | Pituitary
<i>Pituitari</i> |
| B | Pancreas
<i>Pankreas</i> | D | Testis
<i>Testis</i> |

TRIAL SABAH 10

63. Diagram shows an effect of hormone imbalance in the human body.
Which of the following endocrine glands causes the effect?
*Rajah menunjukkan kesan ketidakseimbangan hormon ke atas badan.
Manakah yang kelenjar endokrin berikut yang menyebabkan kesan tersebut?*



- | | | | |
|---|--|---|---|
| A | Pituitary gland
<i>Kelenjar pituitari</i> | C | Adrenal glands
<i>Kelenjar adrenal</i> |
| B | Thyroid gland
<i>Kelenjar tiroid</i> | D | Pancreas
<i>Pankreas</i> |

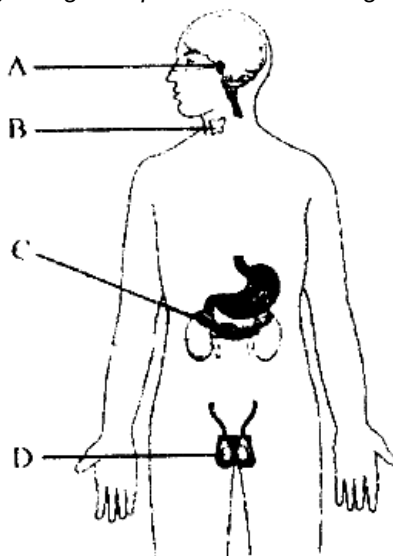
TRIAL SABAH 09

64. When Ahmad was caught cheating during the test and questioned by the Discipline Master, he started to sweat profusely.
Which gland caused this to happen?
*Apabila Ahmad ditangkap akibat meniru dan disoal-siasat oleh Guru Disiplin, dia mula berpeluh dengan banyaknya.
Manakah kelenjar yang menyebabkan keadaan itu?*

- | | | | |
|---|---|---|--|
| A | Pancreas
<i>Pankreas</i> | C | Adrenal glands
<i>Kelenjar adrenal</i> |
| B | Thyroid gland
<i>Kelenjar tiroid</i> | D | Pituitary gland
<i>Kelenjar pituitari</i> |

TRIAL KELANTAN 10

65. Diagram shows the endocrine gland in the man.
Which endocrine gland controls the growth of bone and muscles?
Rajah menunjukkan kelenjar endokrin seorang lelaki.
Kelenjar endokrin manakah yang mengawal pertumbuhan tulang dan otot?



2.7

COORDINATION BETWEEN THE NERVOUS SYSTEM AND THE ENDOCRINE SYSTEM

SPM 2007

66. Which of the following pairs of nervous coordination and hormone coordination is correctly matched?

Antara padanan koordinasi saraf dan koordinasi hormon berikut, yang manakah betul?

	Nervous Coordination <i>Koordinasi Saraf</i>	Hormone coordination <i>Koordinasi hormon</i>
A	Long term effects <i>Kesan jangka panjang</i>	Short term effects <i>Kesan jangka pendek</i>
B	Slow response <i>Gerakbalas lambat</i>	Immediate response <i>Gerakbalas serta merta</i>
C	Consist of nerves <i>Terdiri daripada saraf</i>	Consist of ductless gland <i>Terdiri kelenjar tanpa duktus</i>
D	Widespread target area <i>Kawasan sasaran terhad</i>	Limited target area <i>Kawasan sasaran luas</i>

2.8

EFFECTS OF DRUG

TRIAL PERAK 2009

67. Which is the type of hallucinogens drug?
Manakah dadah jenis halusinasi?

- | | |
|--------------------------------------|----------------------------------|
| A. Caffeine
<i>Kafein</i> | C. Morphine
<i>Morfin</i> |
| B. Barbiturates
<i>Barbiturat</i> | D. Marijuana
<i>Marijuana</i> |

TRIAL KELANTAN 10

68. Which of the following effect is caused by excessive consumption of alcohol?

Antara kesan berikut, yang manakah disebabkan oleh pengambilan alcohol berlebihan?

- | | |
|--|---|
| A Stomach ulcer
<i>Ulser perut</i> | C Blockage of coronary arteries
<i>Penyumbatan salur arteri</i> |
| B Aching bones and joints
<i>Sakit sendi dan tulang</i> | D Paralysed in certain parts of the body
<i>Lumpuh pada bahagian yang tertentu</i> |

TRIAL JOHOR 09

69. A healthy lifestyle is essential for a sound and healthy mind. Which activity fits the information?

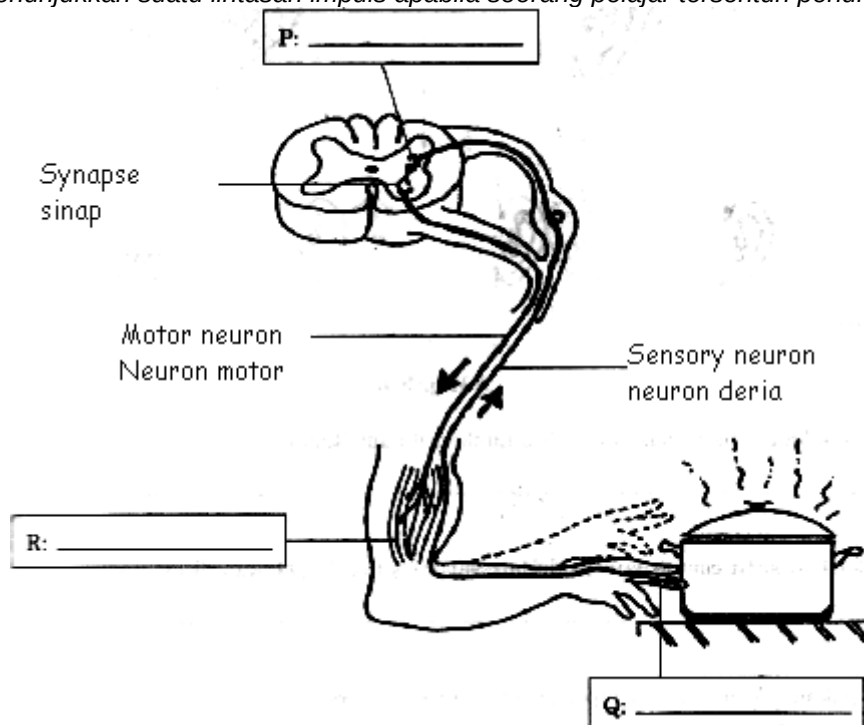
Gaya hidup yang sihat adalah asas untuk minda yang sihat dan waras. Aktiviti manakah yang sesuai dengan pernyataan di atas?

- | | |
|--|--|
| A Exercises regularly
<i>Bersenam selalu</i> | C Sleeps only three hours a day
<i>Tidur hanya tiga jam sehari</i> |
| B Works 18 hours per day
<i>Bekerja 18 jam sehari</i> | D Consumes alcohol excessively
<i>Minum alkohol yang berlebihan</i> |

PAPER 2**SPM 2003**

1. Figure shows an impulse pathway when a student accidentally touches a hot pot.

Rajah menunjukkan suatu lintasan impuls apabila seorang pelajar tersentuh periuk panas.



- (a). Name P, Q and R in the boxes provided in Figure above.
Namakan P, Q, dan R dalam kotak yang disediakan pada Rajah di atas.

[3 marks]

- (b). What happens to R when the student accidentally touches the hot pot?
Apakah yang berlaku pada bahagian R apabila pelajar ini tersentuh periuk panas?

_____ [1 mark]

- (c). (i) What type of action is involved in (b)?
Apakah jenis tindakan yang terlibat di (b)?

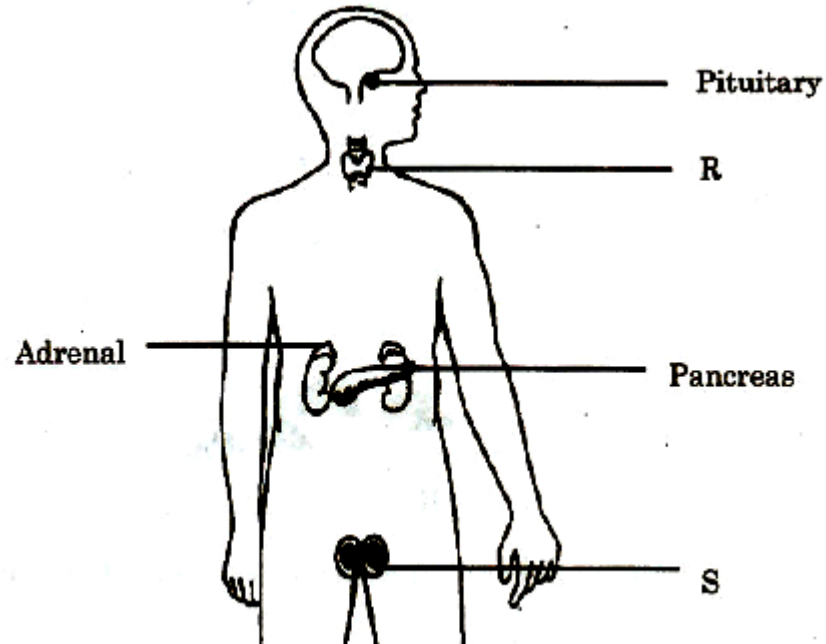
_____ [1 mark]

- (ii) Which part of the nervous system controls the action in (c)(i)?
Bahagian manakah pada sistem saraf yang mengawal tindakan di (c)(i)?

_____ [1 mark]

SPM 2005

2. Figure shows the endocrine system of a man.
Rajah menunjukkan sistem endokrin seorang lelaki.



- (a) (i) Name gland R.
Namakan kelenjar R.

_____ [1 mark]

- (ii) What will happen to the man if gland R secretes less hormone?
Apakah yang akan berlaku kepada lelaki ini jika kelenjar R merembeskan sedikit hormon?

_____ [1 mark]

- (b) (i) Name gland S.
Namakan kelenjar S.

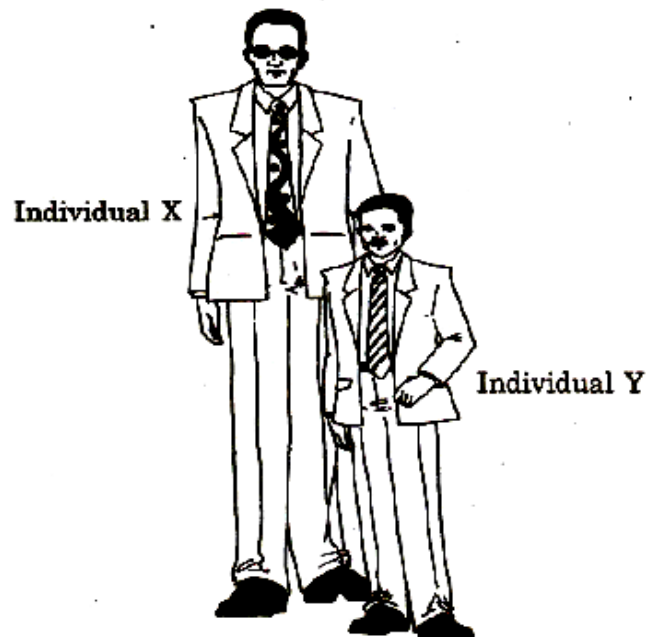
_____ [1 mark]

- (ii) State one function of the hormone secreted by gland S.
Nyatakan satu fungsi hormon yang dirembeskan oleh kelenjar S.

_____ [1 mark]

- (c). Figure shows individual X who has an abnormal height as compared to individual who is normal.

Rajah menunjukkan individu X yang mempunyai ketinggian yang luar biasa berbanding individu Y yang normal.



- (i). Based on the endocrine system, what causes the abnormal height in individual X?

Berdasarkan sistem endokrin, apakah yang menyebabkan individu X mempunyai ketinggian yang luar biasa?

_____ [1 mark]

- (ii) Name the endocrine gland involved in (c)(i).
Namakan kelenjar endokrin yang terlibat di (c)(i).

_____ [1 mark]

SPM 2006

3. Diagram shows a student kicking a ball.
Rajah menunjukkan seorang pelajar sedang menendang bola

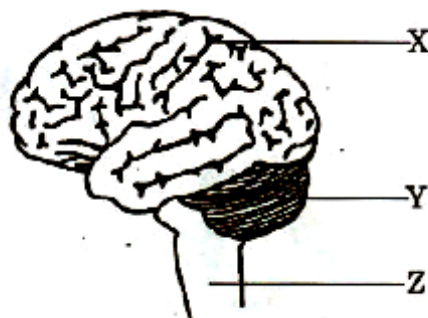


- (a) State the type of action in Diagram.
Nyatakan jenis tindakan dalam Rajah.

_____ [1 mark]

- (b) Between X, Y and Z which one controls the student's action? Circle your answer in Diagram below.

Antara X, Y dan Z yang manakah mengawal tindakan pelajar itu? Bulatkan jawapan anda dalam Rajah di bawah.

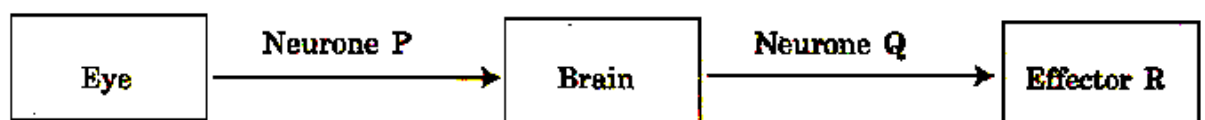


[1 mark]

- (ii) Name the part which you have circled in 3 (b) (i).
Namakan bahagian yang anda bulatkan di 3 (b)(i).

_____ [1 mark]

- (c) The impulse pathways for the student's action while kicking the ball is shown in Diagram.
Lintasan impuls bagi tindakan pelajar itu ketika menendang bola ditunjukkan dalam Rajah.



- (i) Name neurone P.
Namakan neuron P.

_____ [1 mark]

- (ii) What is effector R?
Apakah efektor R?

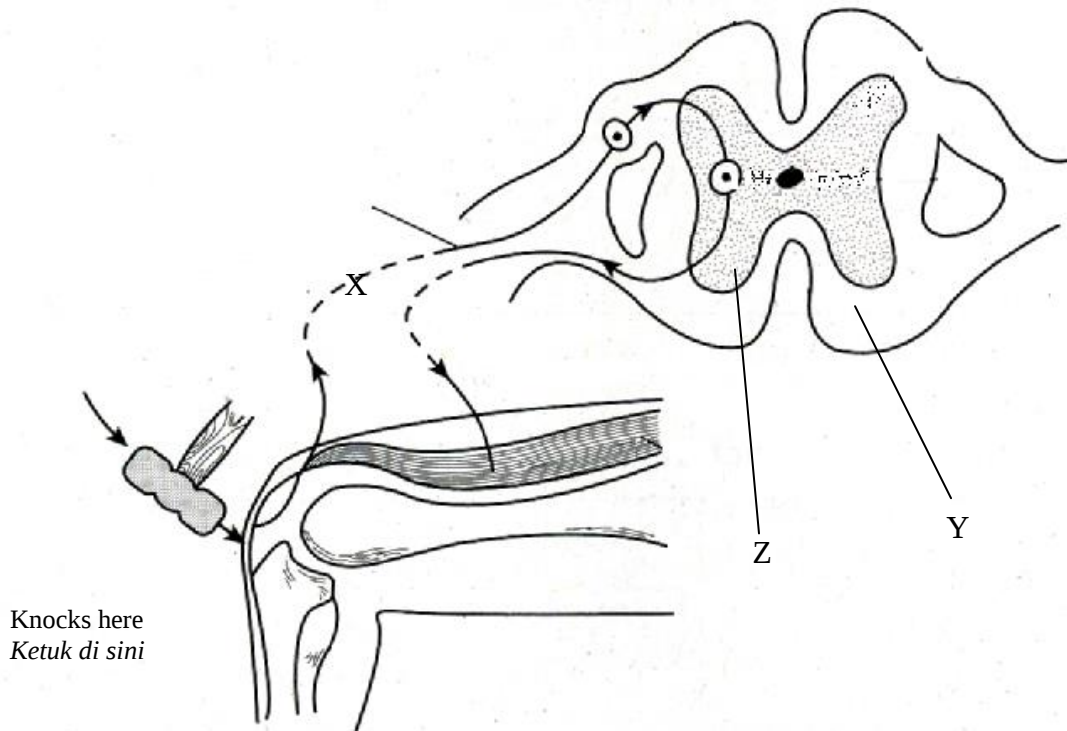
_____ [1 mark]

- (d) What will happen to the student if neurone Q is injured?
Apakah yang akan berlaku pada pelajar itu sekiranya neuron Q mengalami kecederaan?

..... [1 mark]

TRIAL JOHOR 2008

4. Diagram shows the reflex arc for an experiment of an action of the knee-jerk.
Rajah menunjukkan arka refleks untuk eksperimen sentakan lutut.



- (a) Name X, Y and Z
Namakan X, Y dan Z

X:

Y:

Z : [3 marks]

- (b) State the type of action in this reaction.
Nyatakan jenis tindakan dalam gerakbalas ini.

..... [1 mark]

- (c) State **one** importance of this action to human
*Nyatakan **satu** kepentingan tindakan ini kepada manusia.*

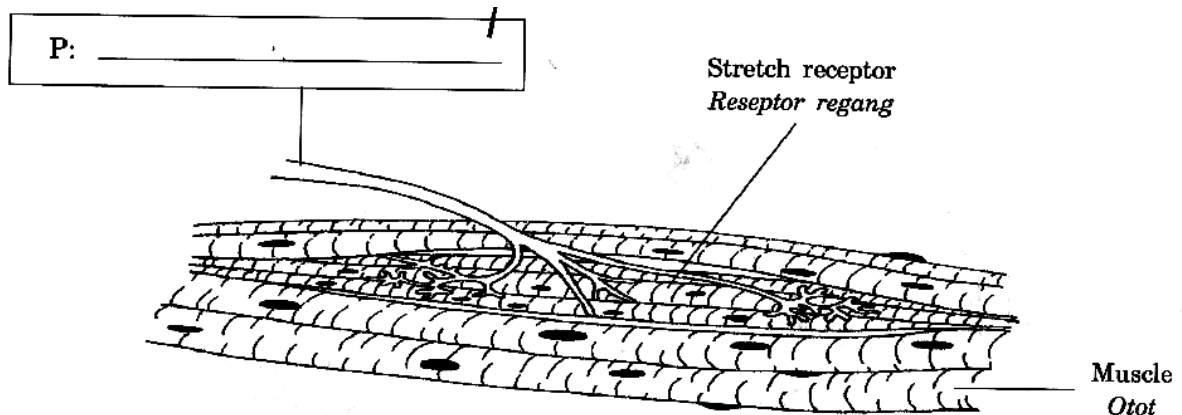
..... [1 mark]

- (d) Which part of the nerve system controls the action stated in (b)?
Bahagian sistem saraf yang manakah mengawal tindakan dalam (b) ?

..... [1 mark]

SPM 2008

5. Diagram shows a stretch receptor in human muscle.
Rajah menunjukkan reseptor regang dalam otot manusia.



- (a) Name structure P in the box provided in Diagram 5.
Namakan struktur P dalam petak yang disediakan pada Rajah 5. [1 mark]

- (b) State one part of the human body, other than at a muscle, in which a stretch receptor can be found.
Nyatakan satu bahagian pada badan manusia, selain daripada di otot, di mana reseptor regang boleh didapati.

[1 mark]

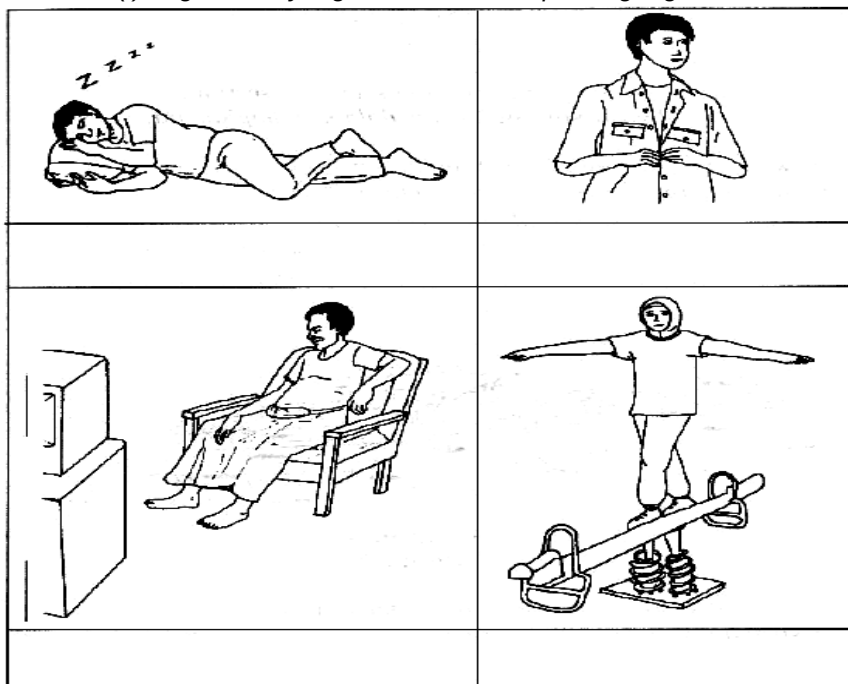
- (c) State two functions of a stretch receptor.
Nyatakan dua fungsi reseptor regang.

1. _____

2. _____

[2 marks]

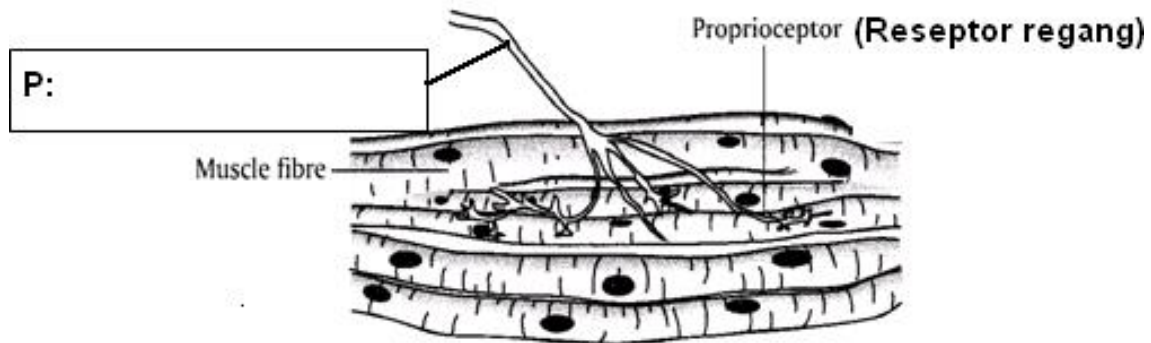
- (d) Mark (✓) the activities that involved in stretch receptor.
Tandakan (✓) bagi aktiviti yang melibatkan reseptor regang.



[2 marks]

TRIAL PAHANG 2008

6. Diagram shows a human muscle
Rajah menunjukkan otot manusia.

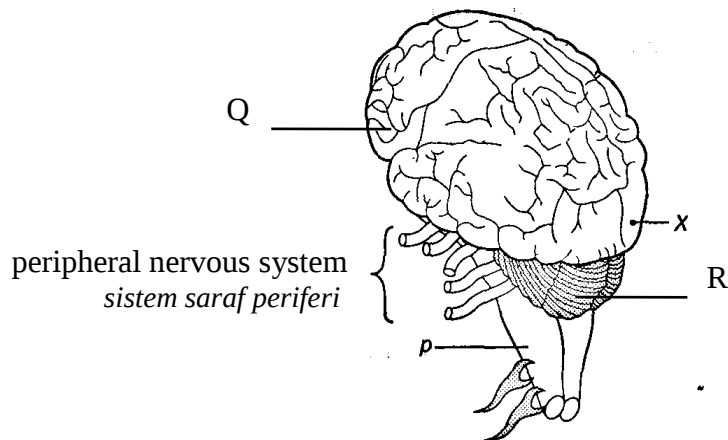


- (a) (i) Name structure P in Diagram.
Namakan struktur P dalam Rajah. [1 mark]
- (ii) State the function of structure P.
Nyatakan fungsi struktur P.
 [1 mark]
- (b) (i) Name the receptor that involves in this system.
Namakan reseptor yang terlibat dalam sistem ini. [1 mark]
- (ii) What is the function of receptor in (b) (i).
Apakah fungsi reseptor dalam (b) (i).
 [1 mark]
- (c) Give one example of daily activities that involved this system.
Berikan satu contoh aktiviti harian yang menggunakan sistem ini. [1 mark]
- (d) State the importance of this system to human.
Nyatakan satu kepentingan sistem ini kepada manusia. [1 mark]

TRIAL SABAH 2008

7. Diagram shows the structure of the human brain.

Rajah menunjukkan struktur otak manusia.



(a) Name part labelled Q and R?

Namakan bahagian yang berlabel Q dan R.

Q:

R: [2 marks]

(b) Explain why the cortex of the human brain is highly folded.

Jelaskan mengapa permukaan otak manusia berlipat-lipat.

..... [1 mark]

(c) State **one** way how the human brain can be protected from being injured.

*Nyatakan **satu** cara bagaimana otak manusia dapat dilindungi daripada kecederaan.*

..... [1 mark]

(d) State **one** activity of the human body that is controlled by structure P.

*Nyatakan **satu** aktiviti badan manusia yang dikawal oleh struktur P.*

..... [1 mark]

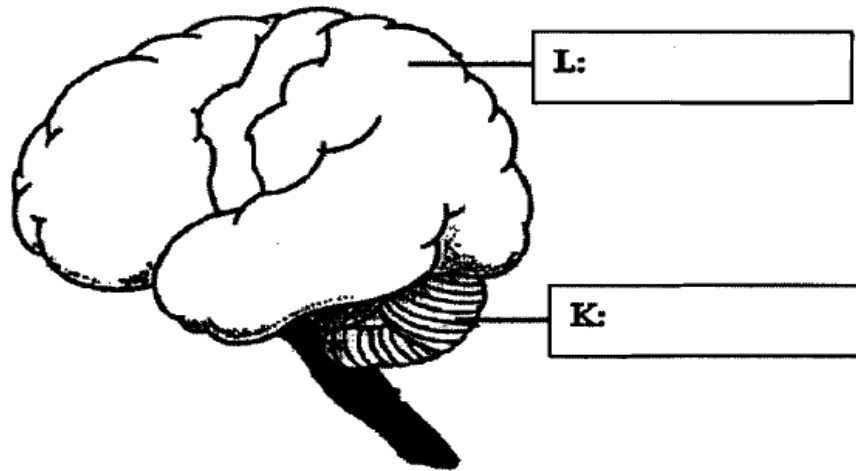
(e) What will happen to a person if the part of the brain labelled X is injured?

Apakah yang berlaku kepada seseorang sekiranya bahagian otak berlabel X mengalami kecederaan?

..... [1 mark]

TRIAL KEDAH 2009

8. Diagram shows the structure of the human brain.
Rajah menunjukkan struktur otak manusia.



- (a). On Diagram, name L and K using the following information.
Pada Rajah, namakan L dan K menggunakan maklumat di bawah.

- Medulla oblongata
Medulla oblongata
- Cerebrum
Serebrum
- Cerebellum
Serebelum

[2 marks]

- (b). State the function of K.
Nyatakan fungsi K.

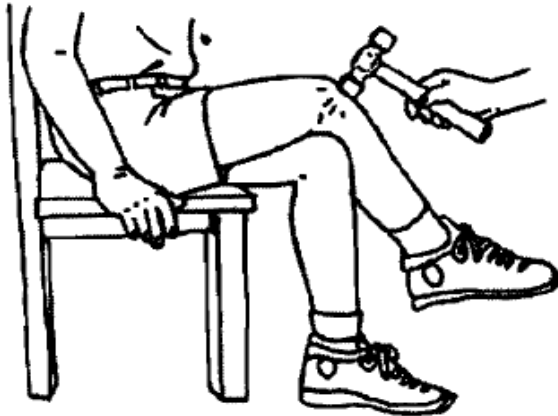
..... [1 mark]

- (c). Mark (✓) in the boxes in Table below, the activities controlled by K.
Tandakan (✓) dalam petak pada Jadual di bawah bagi aktiviti yang dikawal oleh K.

Cycling <i>Berbasikal</i>	Reading <i>Membaca</i>	Dancing <i>Menari</i>

[1 mark]

- (d). Diagram shows an action.
Rajah menunjukkan sejenis tindakan.



- (i) Name the type of action shown in the Diagram.
Namakan jenis tindakan yang ditunjukkan dalam Rajah.

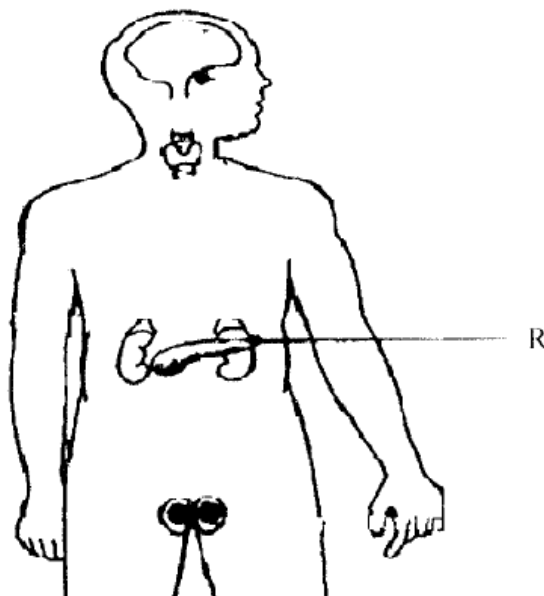
..... [1 mark]

- (ii) State one importance of the action in (d)(i).
Nyatakan satu kepentingan tindakan di (d)(i).

..... [1 mark]

TRIAL KELANTAN 2008

9. Diagram shows the endocrine system of a man.
Rajah menunjukkan system endokrin seorang lelaki.



- (a). (i) Name gland R.
Namakan kelenjar R.

..... [1 mark]

- (ii) State the hormone secreted by gland R?
Nyatakan hormone yang dirembeskan oleh kelenjar R?

..... [1 mark]

- (b). (i) On the Diagram, label the testes?
Pada Rajah, labelkan testis?

[1 mark]

- (ii) State one function of the hormone secreted by gland in b(i)
Nyatakan satu fungsi hormone yang dirembeskan oleh kelenjar di b(i).

..... [1 mark]

- (c).



- (i) Based on Diagram which gland will stimulate when you involve in the above situation?
Berdasarkan Rajah, kelenjar yang manakah akan dirangsang bila anda terlibat dalam situasi di atas?

..... [1 mark]

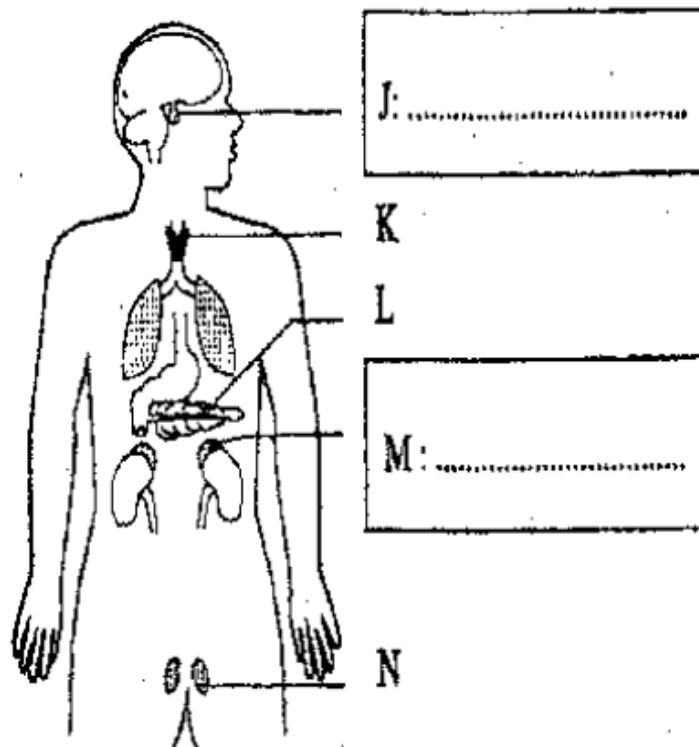
- (ii) What will happen if the gland was stimulated?
Apakah akan terjadi bila kelenjar tersebut terangsang?

..... [1 mark]

TRIAL PAHANG 2009

10. Diagram shows the position of the endocrine glands of a man.

Rajah menunjukkan kedudukan kelenjar-kelenjar endokrin seorang lelaki.

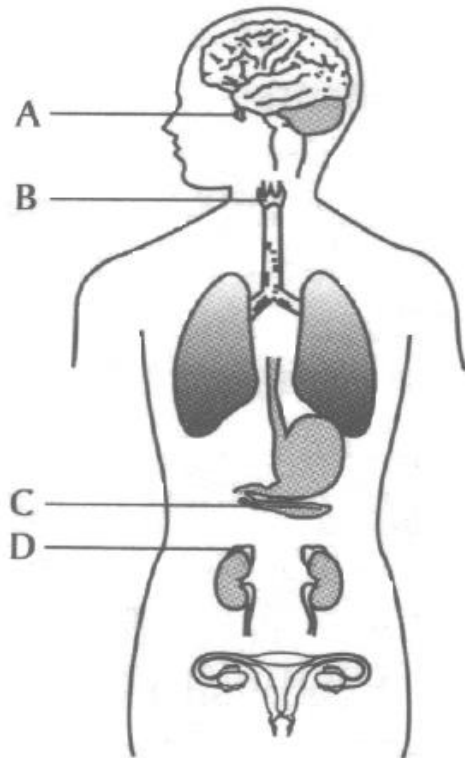


- (a). Name gland J and M in the boxes provided in Diagram.
Namakan kelenjar J dan M dalam petak yang disediakan dalam Rajah. [2 marks]
- (b). How does the hormones secreted by gland L travelled to the targeted organ?
Bagaimanakah hormon yang dirembeskan oleh kelenjar L dibawa ke organ sasaran?
 [1 mark]
- (c). State the function of hormone secreted by gland N.
Nyatakan fungsi hormon yang dirembeskan oleh kelenjar N.
 [1 mark]
- (d). What will happen to the man if gland K secretes less hormone?
Apakah yang akan berlaku pada lelaki tersebut jika kelenjar K merembeskan kurang hormon?
 [1 mark]
- (e). State one effect if gland L is removed by an operation.
Nyatakan satu kesan jika kelenjar L dikeluarkan secara pembedahan.
 [1 mark]

TRIAL SABAH 2009

11. Diagram shows the position of some endocrine glands in humans.

Gambarajah menunjukkan kedudukan kelenjar endokrin dalam badan manusia.



(a). Name the glands B and D in Diagram.

Namakan kelenjar B dan D dalam Rajah.

B :

D:

[2 marks]

(b). (i) What is the function of hormone produced by glands C?

Apakah fungsi hormon yang dihasilkan oleh kelenjar C?

..... [1 mark]

(ii) State the effect of hormone deficiency produces by gland C?

Nyatakan kesan kekurangan hormone ynag dihasilkan oleh kelenjar C?

..... [1 mark]

(c). How are hormones that produced by the glands in Diagram transported in the body?

Bagaimanakah hormon yang dihasilkan oleh kelenjar-kelenjar dalam Rajah diangkut dalam badan?

..... [1 mark]

(d). Which gland act as the main endocrine gland?

Kelenjar manakah yang bertindak sebagai kelenjar endokrin utama?

..... [1 mark]

TRIAL KELANTAN 2010

12. Diagram shows a teenager is taking a drug.

Rajah menunjukkan seorang remaja sedang mengambil sejenis dadah.



(a). What type of drugs is possibly taken by a teenager?

Apakah kemungkinan jenis dadah diambil oleh remaja ini?

..... [1 mark]

(b). Give one method of drugs intakes other than in Diagram?

Berikan satu kaedah lain pengambilan dadah selain dari yang ditunjukkan dalam Rajah.

..... [1 mark]

(c). State one effect on his health if the teenager is continuously taking drugs.

Nyatakan satu kesanke atas kesihatannya jika remaja ini berterusan mengambil dadah.

..... [1 mark]

(d). State one causes for this teenager taking drugs.

Nyatakan satu sebab mengapa remaja ini mengambil dadah.

..... [1 mark]

(e). Mark (✓) on the drugs used as depression.

Tandakan (✓) bagi dadah yang digunakan sebagai penenang.

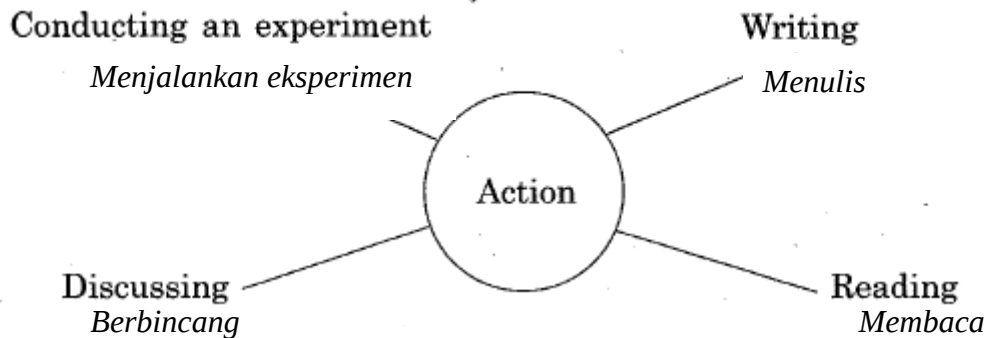
Morphine <i>Morfin</i>
Nicotine <i>Nikotina</i>
Caffeine <i>Kafeina</i>
Barbiturates <i>Barbiturat</i>

[2 marks]

SPM 2004

13. (a) State **four** differences between voluntary action and involuntary action. [4 marks]
Nyatakan empat perbezaan antara tindakan terkawal dengan tindakan luar kawal

(b) Figure shows several activities conducted by a student.
Rajah menunjukkan aktiviti yang dijalankan oleh seorang pelajar



Study the activities. Explain how you would develop a concept based on the information in Figure above.

Your explanation of the concept should include the following:

Kaji aktiviti-aktiviti itu. Terangkan bagaimana anda membina suatu konsep berdasarkan maklumat dalam Rajah di atas.

Penerangan anda tentang konsep itu hendaklah berdasarkan kepada perkara berikut:

- Identify two common characteristics
Kenal pasti dua ciri sepunya
- Develop initial concept
Membina konsep awal
- Give other examples and non-examples in relation to the concept
Memberikan contoh lain dan bukan contoh yang berkaitan dengan konsep
- Explain the actual concept
Menjelaskan konsep sebenar

[6 marks]

TRIAL JOHOR 2009

14. (a) (i) Give one example of drug and one example of alcoholic drink.

Beri satu contoh dadah dan satu contoh minuman beralkohol.

(ii) Give two similarities effects of drug abuse and excessive consumption of alcohol on health.

Beri dua persamaan kesan penyalahgunaan dadah dan penggunaan alcohol berlebihan ke atas kesihatan. [4 marks]

(b) Drug addiction among school students are increasing day by day.

As a teenager, explain how to overcome this problem.

Ketagihan dadah dikalangan pelajar seko/ah semakin bertambah dari hari ke hari. Sebagai seorang remaja, terangkan bagaimana mengatasi masalah ini.

Your answer should include the following:

Jawapan anda hendaklah mengandungi perkara berikut:

- Identify the problem
Mengenal pasti masalah
- Clarification of the problem
Penjelasan masalah
- Solving method
Kaedah penyelesaian
- Choose the best method and explain your choice
Pilih kaedah yang terbaik dan terangkan pilihan anda.

[6 marks]

CHAPTER 3: HEREDITY AND VARIATION

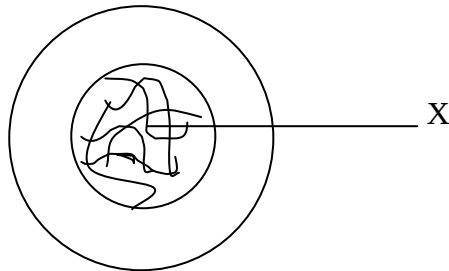
PAPER 1

3.1

CELL DIVISION

TRIAL JOHOR 08

1. Diagram shows an animal cell.
Rajah menunjukkan satu sel haiwan.



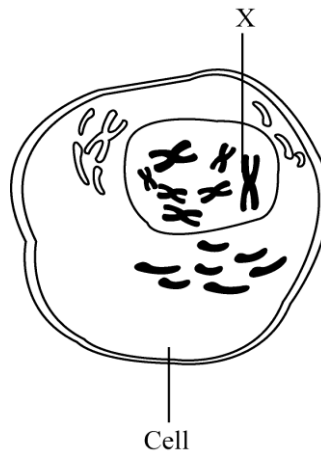
What is X?

Apakah X?

- | | | | |
|---|------------|---|-----------------|
| A | DNA | C | Nucleus |
| | <i>DNA</i> | | <i>Nukleus</i> |
| B | Gene | D | Chromosome |
| | <i>Gen</i> | | <i>Kromosom</i> |

TRIAL SABAH 08

2. Diagram shows a human cell.
Rajah menunjukkan sel manusia.



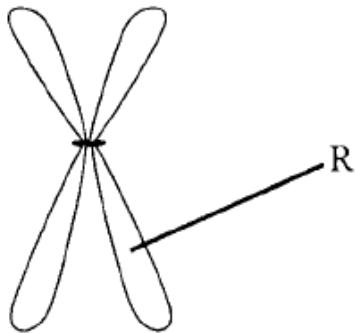
Name the cell labelled X

Namakan sel yang berlabel X

- | | | | |
|---|------------|---|-----------------|
| A | DNA | C | Nucleus |
| | <i>DNA</i> | | <i>Nukleus</i> |
| B | Gene | D | Chromosomes |
| | <i>Gen</i> | | <i>Kromosom</i> |

TRIAL KELANTAN 09

3. Diagram shows a pair of chromosome.
Rajah menunjukkan sepasang kromosom.



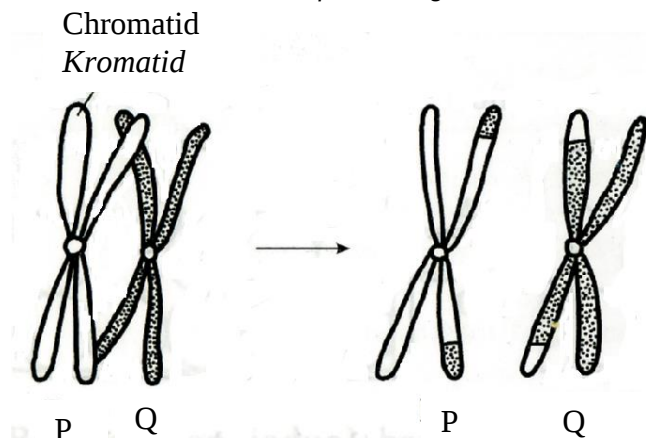
What is R?

Apakah R?

- | | |
|-------------------------|------------------------------|
| A Centriole
Sentriol | C Centromere
Sentromer |
| B Chromatid
Kromatid | D Spindle fibre
Gelendung |

TRIAL JOHOR 08

4. Diagram shows a process that occurs during cell division.
Rajah menunjukkan proses vana berlaku semasa pembahagian sel



The process refers to

Proses tersebut merujuk kepada

- | | |
|----------------------|---------------------------------|
| A mitosis
mitosis | C cross-over
pindah silang |
| B mutation
mutasi | D Fertilisation
persenyawaan |

TRIAL PAHANG 08

5. The process to produce gametes is
Proses untuk menghasilkan gamet ialah

- | | |
|----------------------|---------------------------------|
| A Mitosis
Mitosis | C Meiosis
Meiosis |
| B Mutation
Mutasi | D Fertilisation
persenyawaan |

TRIAL KEDAH 2010

6. Diagram shows a parent cell that undergoes mitosis.
Rajah menunjukkan satu sel induk mengalami mitosis.



Which of the following shows the daughter cell produced?
Antara yang berikut, yang manakah menunjukkan sel anak dihasilkan?



TERENGGANU

7. In which part of the plant does meiosis occur?
Di bahagian tumbuhan yang manakah meiosis berlaku?
- | | |
|---------------------------|-------------------------------------|
| A. Petal
<i>Ranggi</i> | C. Root tip
<i>Hujung akar</i> |
| B. Anther
<i>Anter</i> | D. Shoot tip
<i>Hujung pucuk</i> |

TERENGGANU

70. In meiosis, variation is caused by

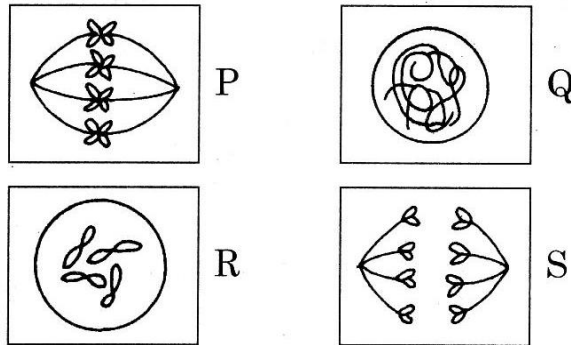
Dalam proses meiosis, variasi terhasil melalui proses

- | | |
|---------------------------------------|---|
| A. Replication
<i>Replikasi</i> | C. Crossing over
<i>Pindah silang</i> |
| B. Cytokinesis
<i>Sitokinensis</i> | D. Movement of chromatids to the poles
<i>Gerakan kromatid kekutub</i> |

TRIAL PAHANG 08

8. The diagram shows the different phases in cell division in mitosis.

Gambar rajah menunjukkan peringkat-peringkat dalam pembahagian sel secara mitosis.



Which is the correct sequence in the mitosis?

Urutan yang manakah betul dalam mitosis?

- | | |
|--------------|--------------|
| A Q, R, P, S | C R, S, Q, P |
| B P, Q, R, S | D S, P, R, Q |

TRIAL SABAH 09

9. What is the process involved in the production of new cells for growth?

Apakah proses yang terlibat dalam penghasilan sel-sel baru untuk pertumbuhan?

- | | |
|-----------------------------|--|
| A Mitosis
<i>Mitosis</i> | C Meiosis
<i>Meiosis</i> |
| B Mutation
<i>Mutasi</i> | D Fertilisation
<i>persenyawaan</i> |

TRIAL SABAH 10

10. Diagram shows a process that takes place during a cell division.

Rajah menunjukkan satu proses yang berlaku semasa pembahagian sel.



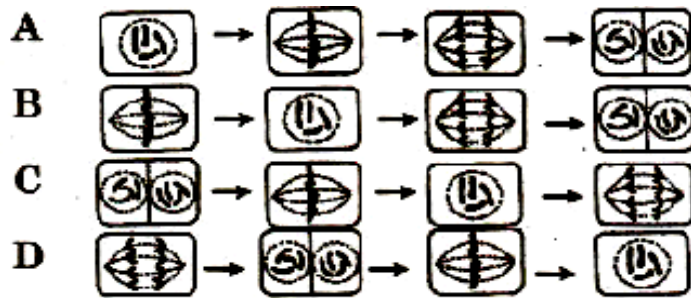
What is the process shown in Diagram?

Apakah proses yang ditunjukkan dalam Rajah?

- | | |
|-------------------------------|---|
| A Mutation
<i>Mutasi</i> | C Duplication
<i>Duplikasi</i> |
| B Variation
<i>Variasi</i> | D Crossing over
<i>Pindah silang</i> |

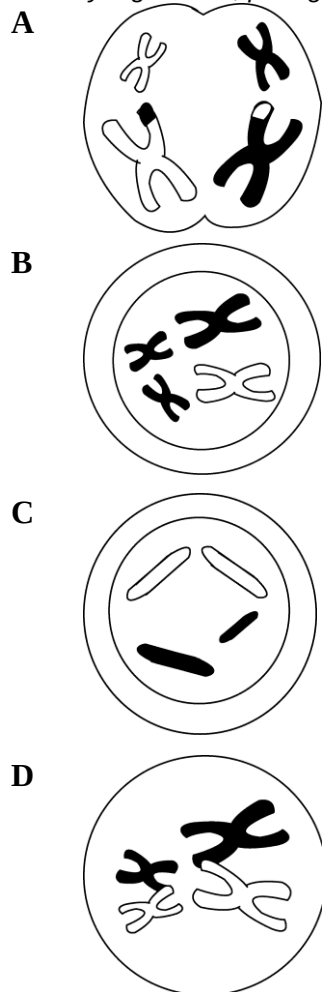
SPM 2006

11. Which of the following is the correct sequence of the mitosis stages?
 Antara yang berikut, yang manakah urutan peringkat mitosis yang betul?



TRIAL SABAH 08

12. In which of the following stages below does the crossing over occur?
 Antara yang berikut, peringkat manakah proses pindah silang berlaku?



SPM 2006

13. Which of the following statements is correct about meiosis?

Antara pernyataan berikut, yang manakah benar tentang meiosis.

- A. Involves all type of cells
Melibatkan semua jenis sel
- B. Involved in growth
Terlibat dalam pertumbuhan
- C. Halves the number of chromosome
Bilangan kromosom menjadi separuh
- D. Genetic contents of daughter cells and parents cells and parent cells are similar.
Kandungan genetic sel anak sama dengan sel induk

TRIAL TERENGGANU 10

14. Which of the following statement is correct about mitosis?

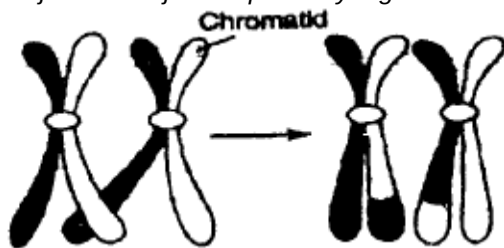
Antara pernyataan yang berikut, manakah benar mengenai mitosis?

- A. Halves the number of cromosome
Bilangan kromosom menjadi separuh
- B. The nucleus divides twice
Nukleus membahagi dua kali
- C. Each parent cell produces two daughter cells
Setiap sel induk menghasilkan dua sel anak
- D. It happens in the reproductive organ
Berlaku dalam organ pembiakan

TRIAL KELANTAN 10

15. Diagram shows a process that occurs during cell division.

Rajah menunjukkan proses yang berlaku semasa pembahagian sel.



What is the process?

Apakah proses tersebut?

- | | | | |
|---|----------------|---|----------------------|
| A | Mitosis | C | Crossing over |
| | <i>Mitosis</i> | | <i>Pindah silang</i> |
| B | Mutation | D | Fertilization |
| | <i>Mutasi</i> | | <i>Persenyawaan</i> |

3.2

INHERRITANCE**TRIAL KEDAH 2010**

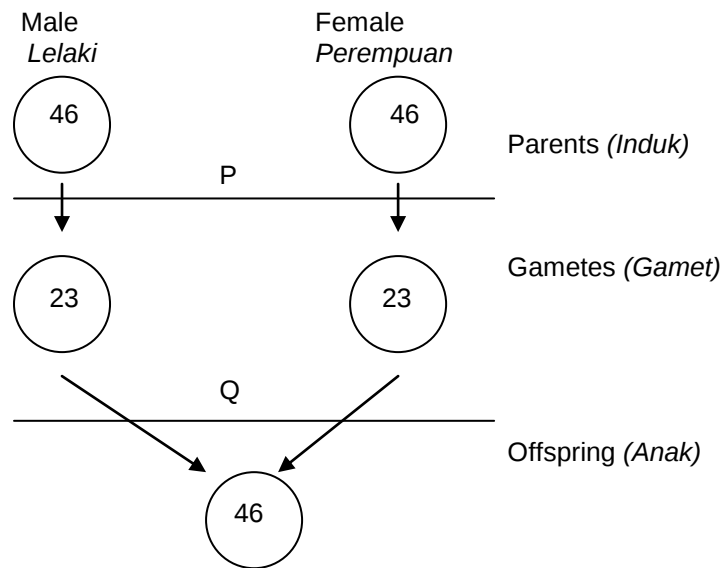
16. When a tall plant is crossed with a dwarf plant, all the first filial generation (F1) plants are tall. What are the parental genotypes?

Apabila pokok tinggi dikacukkan dengan pokok kerdil, semua anak dalam generasi pertama (F1) adalah tinggi. Apakah genotip induk?

- | | Tall plant
<i>Pokok tinggi</i> | Dwarf plant
<i>Pokok kerdil</i> |
|---|-----------------------------------|------------------------------------|
| A | TT | tt |
| B | Tt | Tt |
| C | TT | Tt |
| D | Tt | tt |

TERENGGANU

17. The diagram shows the production of offspring in human.
Rajah menunjukkan pembentukan anak pada manusia.

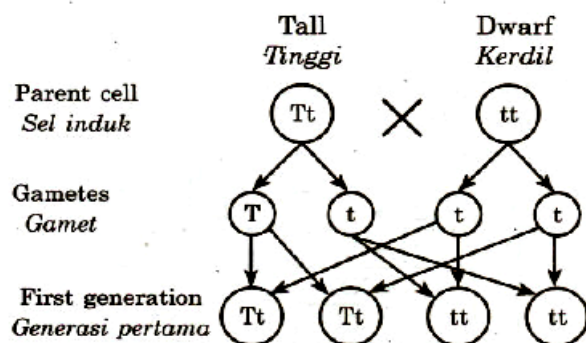


What is process P and Q?
Apakah proses P dan Q?

P	Q
A Meiosis	fertilisation
Meiosis	persenyawaan
B Mitosis	fertilisation
Mitosis	persenyawaan
C fertilization	meiosis
Persenyawaan	meiosis
D Mitosis	fertilisation
Mitosis	persenyawaan

SPM 2007

18. Diagram shows a cross breeding of two traits of garden peas.
Rajah menunjukkan kacuk silang bagi dua sifat kacang pea.



Key/Kekunci

T - Tall dominant gene
Gen dominan tinggi
t - Dwarf recessive gene
Gen resesif kerdil

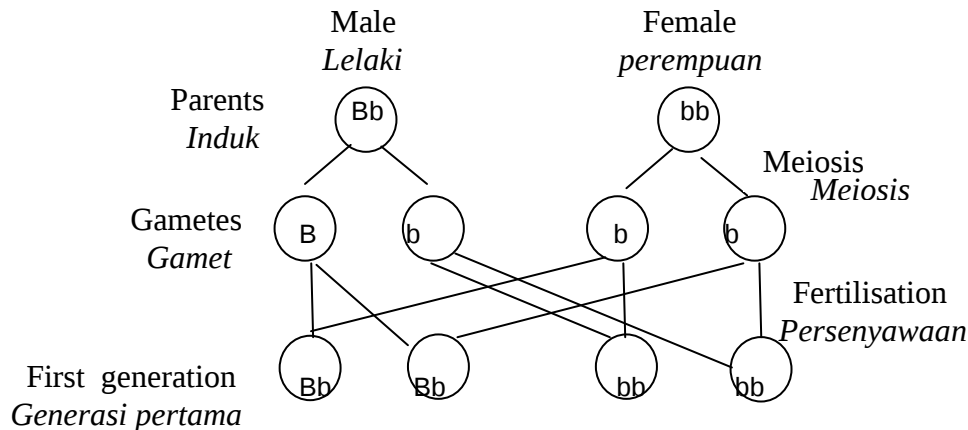
What is the ratio of the phenotype in the first generation?
Berapakah nisbah fenotip dalam generasi pertama?

	Tall <i>Tinggi</i>		Dwarf <i>Kerdil</i>
A	1	:	1
B	1	:	2
C	1	:	3
D	3	:	1

TRIAL JOHOR 08

19. Diagram shows the inheritance of eye colour when a local man with brown eyes gets married to an English woman with blue eyes.

Rajah menunjukkan perwarisan warna mata apabila seorang lelaki tempatan bermata coklat berkahwin dengan seorang wanita bermata biru berbangsa Inggeris.



Key

B - Blue recessive gene
Gen resesif biru
 b - Brown dominant gene
Gen dominan coklat

What is the probability of having a child with blue eyes?

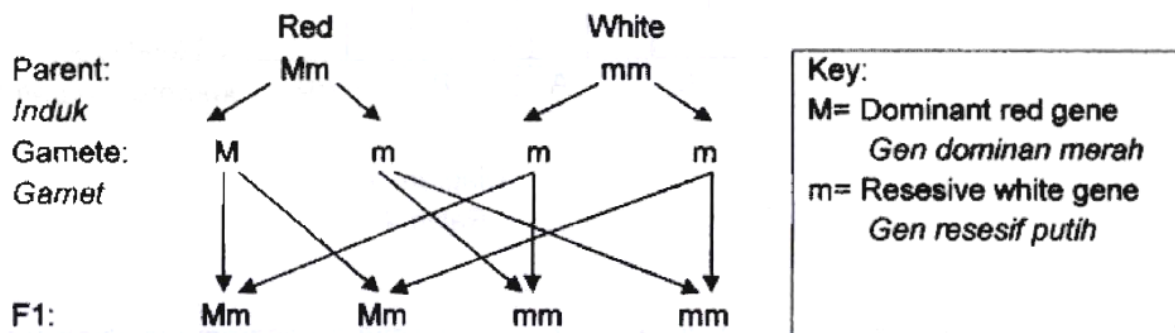
Apakah kebarangkalian untuk mendapat anak bermata biru?

- | | |
|--------|---|
| A 25 % | C 100 % |
| B 50 % | D Cannot be determined
<i>Tidak boleh ditentukan</i> |

TRIAL JOHOR 09

20. Diagram shows the cross breeding between two flowering plants.

Rajah menunjukkan kacukan silang antara dua pokok berbunga.



What is the ratio of red flower to white flower in F1?

Apakah nisbah bunga merah kepada bunga putih dalam F1?

- | | |
|-------|-------|
| A 1:1 | C 1:3 |
| B 3:1 | D 4:0 |

TRIAL KELANTAN 09

21. "A curly hair gene is overrules a staright hair gene"
 "Gen rambut kerinting mengatasi gene rambut lurus"

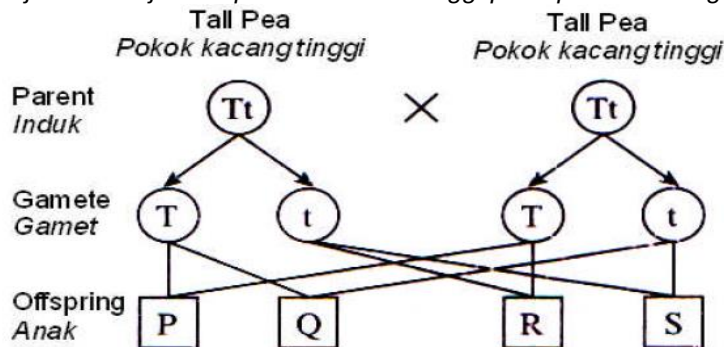
Which of the following terms is referring to the curly hair characteristic?

Istilah yang manakah merujuk kepada ciri rambut kerinting?

- | | | | |
|---|----------------------------------|---|-------------------------------|
| A | Dominant trait
Sifat dominan | C | Dominant gene
Gen dominan |
| B | Recessive trait
Sifat resesif | D | Recessive gene
Gen resesif |

TRIAL SABAH 09

22. Diagram shows the inheritance of height in pea plants.
 Rajah menunjukkan pewarisan sifat tinggi pada pokok kacang.



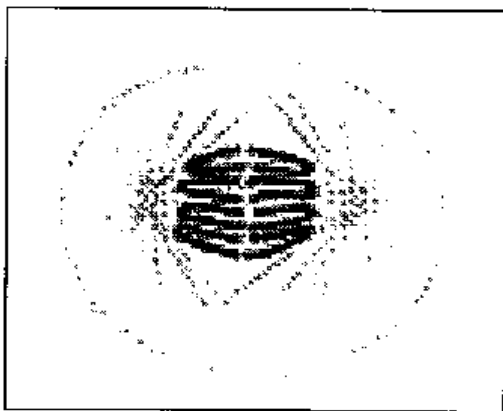
Which offspring has a correct pair of genes?

Manakah anak yang mempunyai pasangan gen yang betul?

	Offspring <i>Anak</i>	Genotype <i>Genotip</i>
A	P	Tt
B	Q	TT
C	R	TT
D	S	tt

TRIAL SELANGOR 2009

23. Diagram shows a stage in a cell division of mitosis.
 Rajah menunjukkan satu peringkat dalam pembahagian sel secara mitosis



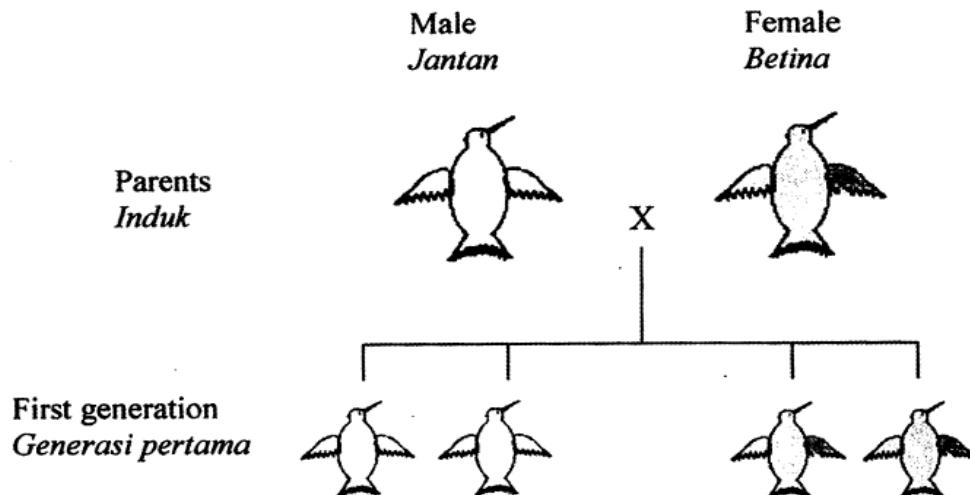
Which of the following statements is true about the stage in Diagram?

Antara pernyataan berikut, yang manakah benar tentang peringkat dalam Rajah?

- A. The chromosomes replicate.
Kromosom mengganda
- B. The chromosome line up at the cell equator.
Kromosom berbaris pada khatulistiwa sel
- C. The cytoplasm divides
Sitoplasma membahagi
- D. The chromosome are pulled up to the opposite poles of the cell
Kromosom ditarik ke kutub yang bertentangan.

TRIAL TERENGGANU 10

24. The diagram shows the first generation of cross breeding of two birds.
Rajah menunjukkan kacukan generasi pertama kacukan antara dua ekor burung.



H represents the dominant genes for black feather.
h represents the recessive genes for white feather.
H mewakili gen dominan untuk warna bulu pelepah hitam
h mewakili gen resesif untuk warna bulu pelepah putih

What are the genes for the parents?
Apakah gen bagi kedua-dua induk itu?

	Male Jantan	Female Betina
A	HH	Hh
B	HH	hh
C	Hh	hh
D	Hh	Hh

TRIAL TERENGGANU 10

25. The following information shows a cross breeding of a heterozygous trait of a tall tree.
Maklumat berikut menunjukkan kacukan pokok tinggi heterozigot.

Parent:	Tt	X	Tt
Induk:			

What is the expected ratio of the number of tall trees to the number of dwarf trees of the offspring?
Apakah jangkaan nisbah bilangan pokok tinggi kepada bilangan pokok kerdil bagi anak-anak pokok itu?

- A 1:1
- B 3:1
- C 1:3
- D 2:1

TRIAL TERENGGANU 08

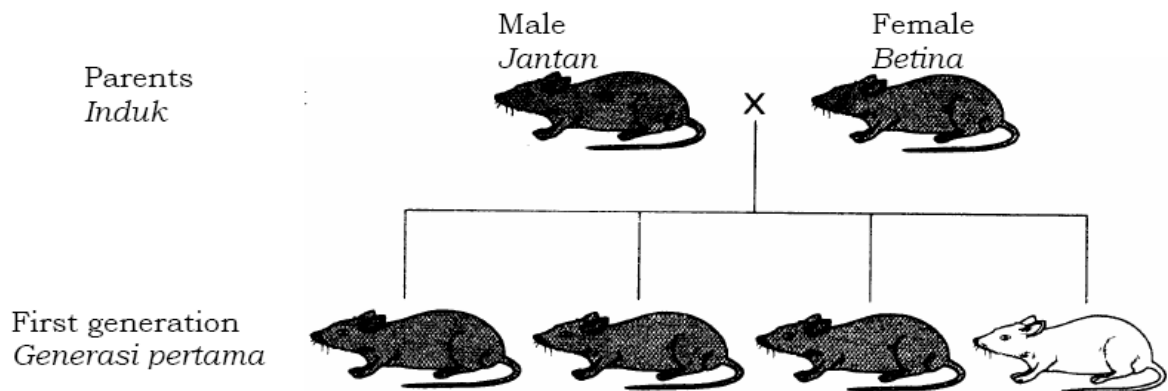
26. A man with free ear lobes genotype Ee marries a woman with the same genotype. What is the chance of percentage of their offspring to have attached ear lobes?

Seorang lelaki bercuping telinga bebas dan mempunyai gen Ee berkahwin dengan seorang perempuan yang mempunyai gen yang sama. Berapa peratuskah kemungkinan anak-anak mereka mempunyai cuping telinga melekap?

- | | |
|--------|---------|
| A 25 % | C 75% |
| B 50 % | D 100 % |

TRIAL KEDAH 09

27. Diagram shows the first generation of cross breeding between two mice. Rajah menunjukkan generasi pertama kacukan antara dua ekor tikus.



Key/Kekunci

- B - Black fur dominant gene
Gen dominan berbulu hitam
- b - White fur recessive gene
Gen resesif berbulu putih

What are the genes for the parents?
Apakah gen bagi kedua-dua induk itu?

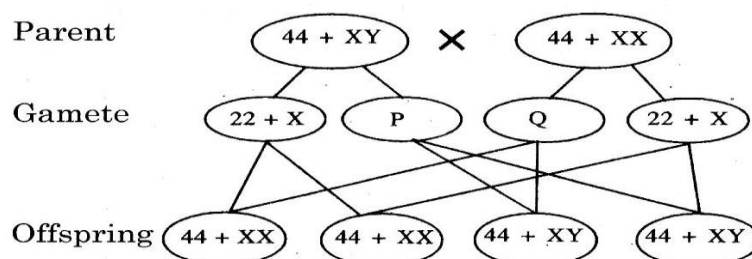
	Male <u>Jantan</u>	Female <u>Betina</u>
A	BB	bb
B	Bb	BB
C	Bb	Bb
D	BB	Bb

3.3

SEX DETERMINATION AND OCCURENCE OF TWINS

TRIAL PAHANG 08

28. The diagram shows how the sex of the offspring is determined in humans. Gambar rajah menunjukkan bagaimana seks anak ditentukan bagi manusia.

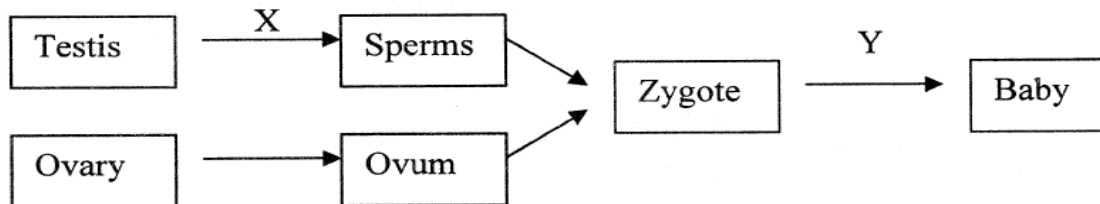


Which chromosomes are found in gametes P and Q?
Kromosom yang manakah terdapat dalam gamet P dan Q?

	<u>P</u>	<u>Q</u>
A	22 + X	22 + Y
B	22 + Y	22 + X
C	44 + X	44 + Y
D	44 + Y	44 + X

TRIAL TERENGGANU 08

29. Diagram shows the reproductive process in humans.
Rajah menunjukkan proses pembiakan manusia.

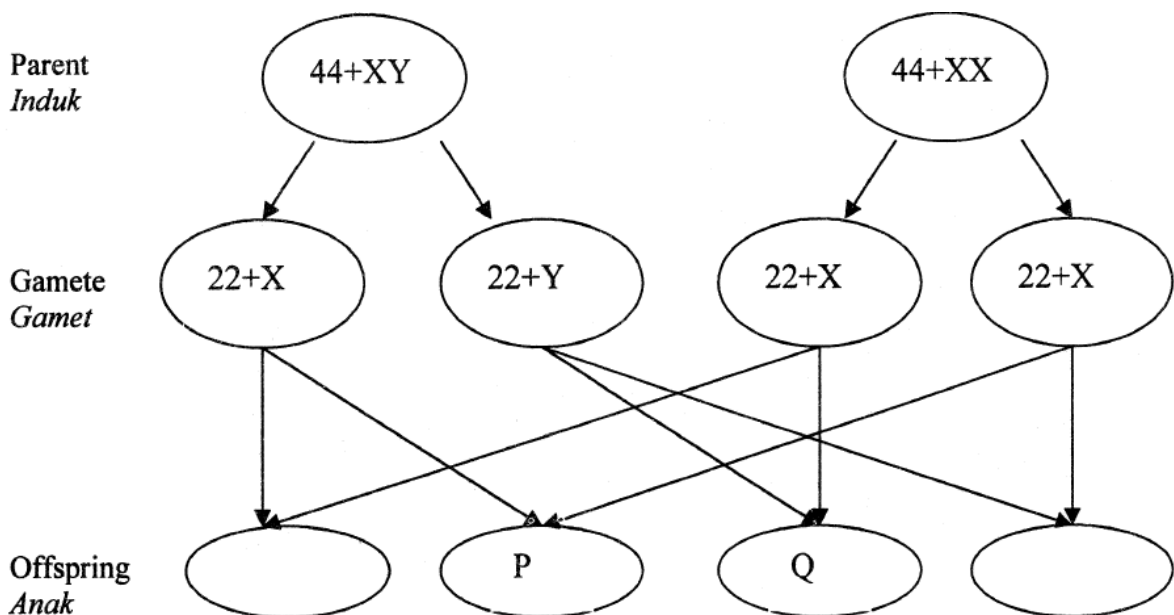


What are process X and Y?
Apakah proses X dan Y?

	Process X <i>Proses X</i>	Process Y <i>Proses Y</i>
A	Mitosis	Mitosis
B	Mitosis	Meiosis
C	Meiosis	Mitosis
D	Meiosis	Meiosis

TRIAL TERENGGANU 08

30. Diagram shows the sex determination in human.
Rajah menunjukkan penentuan seks bagi manusia.



What are the phenotypes of P and Q?
Apakah fenotip bagi P dan Q?

	P	Q
A	Female <i>Perempuan</i>	Female <i>Perempuan</i>
B	Female <i>Perempuan</i>	Male <i>Lelaki</i>
C	Male <i>Lelaki</i>	Female <i>Perempuan</i>
D	Male <i>Lelaki</i>	Male <i>Lelaki</i>

TRIAL JOHOR 09

31. What is the chromosome found in a human ovum?
Apakah kromosom yang terdapat dalam ovum?

A	44 + X	C	44 + Y
B	22 + X	D	22 + Y

TRIAL KEDAH 09

32. State the chromosome in a baby girl?
Nyatakan kromosom yang terdapat dalam bayi perempuan?

A	22 + X	C	44 + XY
B	22 + Y	D	44 + XX

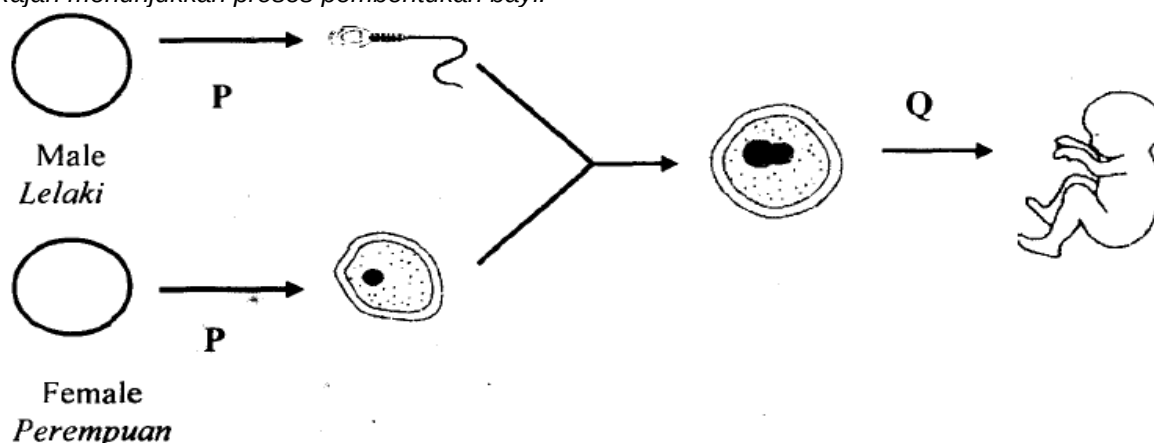
TRIAL KEDAH 09

33. Which is the correct characteristics of non identical twins?
Ciri yang manakah betul tentang kembar tak seiras?

A	Different sex <i>Jantina berbeza</i>	C	Same appearance <i>Wajah yang sama</i>
B	Same genetic traits <i>Sifat genetik yang sama</i>	D	Share one placenta <i>Berkongsi satu plasenta</i>

TRIAL PERLIS 09

34. Diagram shows the formation process of baby.
Rajah menunjukkan proses pembentukan bayi.



What type of process occur at P and Q?
Apakah jenis proses yang berlaku di P dan Q?

	P	Q
A	Meiosis <i>Meiosis</i>	Mitosis <i>Mitosis</i>
B	Mitosis <i>Mitosis</i>	Meiosis <i>Meiosis</i>
C	Mitosis <i>Mitosis</i>	Fertilisation <i>Persenyawaan</i>
D	Meiosis <i>Meiosis</i>	Fertilisation <i>Persenyawaan</i>

TRIAL SABAH 09

35. Which comparison of identical and non identical twins is true?

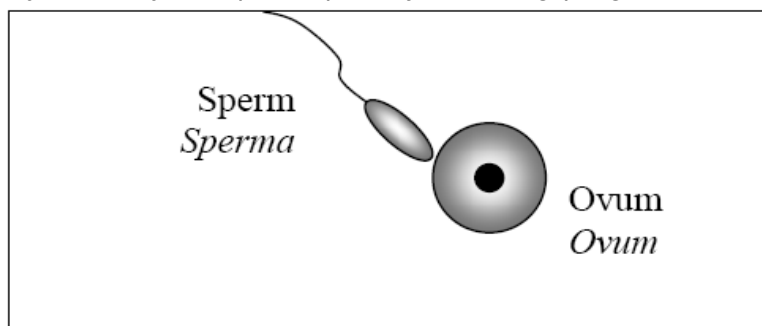
Manakah perbandingan yang betul bagi kembar seiras dan kembar tak seiras?

	Identical twins <i>Kembar seiras</i>	Non-identical twins <i>Kembar tak seiras</i>
A	Involve two sperms and two ova <i>Melibat dua sperma dan dua ovum</i>	Involve one sperm and one ovum <i>Melibatkan satu sperma dan satu ovum</i>
B	Sharing the same placenta <i>Berkongsi plasenta</i>	Have their own placenta <i>Mempunyai plasenta tersendiri</i>
C	Same or different sex <i>Jantina sama atau berbeza</i>	Same sex <i>Jantina sama</i>
D	Different genetic traits <i>Sifat genetik berbeza</i>	Same genetic traits <i>Sifat genetik sama</i>

TRIAL PAHANG 2009

36. Diagram shows a fertilization process which produces a female baby.

Rajah menunjukkan proses persenyawaan bagi penghasilan anak perempuan.



What the chromosome content in sperm and ovum.

Apakah kandungan kromosom dalam sperma dan ovum.

	Sperm	Ovum
A	44 + XX	44 + XY
B	44 + X	44 + X
C	22 + Y	22 + X
D	22 + X	22 + X

TRIAL PAHANG 2009

37. Identical twins are formed when

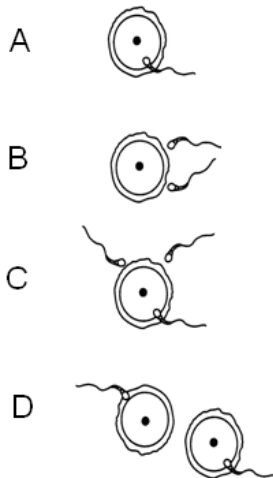
Kembar seiras terbentuk apabila

- A. Two ova are fertilised by two different sperms
Dua ovum disenyawakan oleh dua sperma yang berlainan
- B. A fertilised ovum is separated into two parts
Ovum yang telah disenyawakan membahagi kepada dua bahagian
- C. Two ova are fertilised by one sperm
Dua ovum disenyawakan oleh satu sperma
- D. An ovum is fertilised by two sperms
Satu ovum disenyawakan oleh dua sperma

TRIAL SABAH 10

38. Which of the following will result the formation of identical twins?

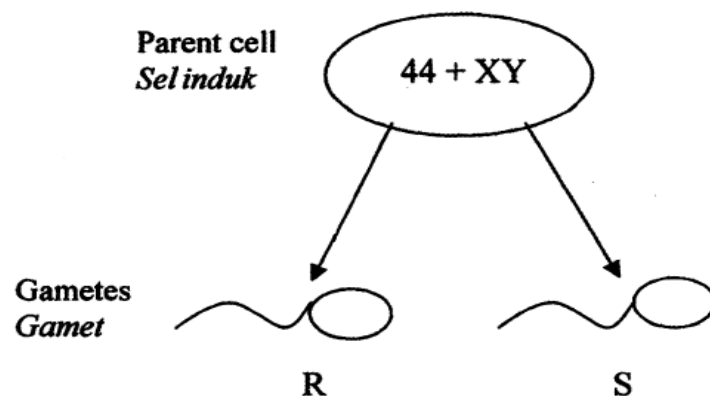
Manakah antara berikut akan menghasilkan pembentukan kembar seiras?



TRIAL TERENGGANU 10

39. The diagram shows a type of cell division.

Rajah menunjukkan sejenis pembahagian sel



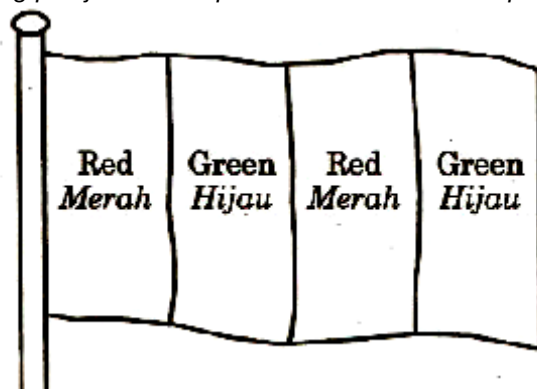
What is the chromosome content in R and S?

Apakah kandungan kromosom dalam R dan S?

	R	S
A	22 + X	22 + X
B	22 + X	22 + Y
C	44 + XX	44 + XX
D	44 + XX	44 + XY

SPM 2007

40. A student cannot differentiate the colours of flag.
Seorang pelajar tidak dapat membezakan warna pada bendera itu.



What is the student suffering from?
Apakah yang dihadapi oleh pelajar itu?

- | | |
|--|--|
| <p>A. Albinism
<i>Albinisme</i></p> <p>B. Thalassemia
<i>Talasemia</i></p> | <p>C. Colour blindness
<i>Buta warna</i></p> <p>D. Down's Syndrome
<i>Sindrom Down</i></p> |
|--|--|

TRIAL SABAH 08

41. What causes Down's Syndrome ?
Apakah yang menyebabkan Sindrom Down?
- A. The presence of three chromosome no.5
Kehadiran tiga kromosom pada no.5
- B. The presence of three chromosome no.9
Kehadiran tiga kromosom pada no. 9
- C. The presence of three chromosome no.21
Kehadiran tiga kromosom pada no.21
- D. The presence of three chromosome no.23
Kehadiran tiga kromosom pada no.23

TRIAL TERENGGANU 08

42. Which of the following is the chromosome mutation?
Manakah antara berikut merupakan mutasi kromosom?
- | | |
|--|---|
| <p>A Haemophilia
<i>Hemofilia</i></p> <p>B Down's syndrome
<i>Sindrom down</i></p> | <p>C Albinism
<i>Albino</i></p> <p>D Colour blindness
<i>Buta warna</i></p> |
|--|---|

TRIAL KELANTAN 09

43. Which of the following is the correct match between genetic diseases and its characteristic?
Padanan yang manakah betul tentang penyakit genetik dan ciri-cirinya?

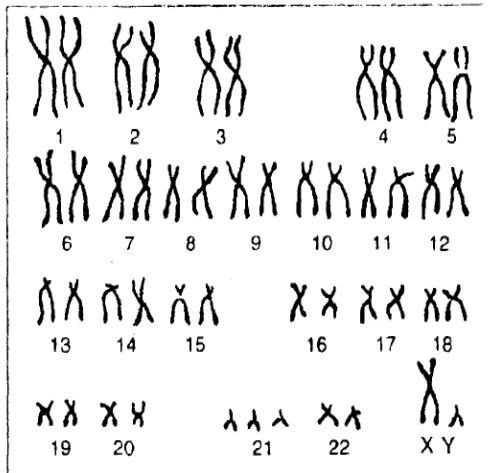
	Genetic disease <i>Penyakit genetik</i>	Characteristic <i>Ciri-cirinya</i>
A	Hemophilia <i>Hemofilia</i>	Blood take a long time to clot <i>Darah lambat membeku</i>
B	Colour blindness <i>Buta warna</i>	No colour in their skin, hair or eyes <i>Kehilangan warna pada kulit, rambut dan mata</i>
C	Thalassaemia <i>Thalasemia</i>	Cannot differentiate between red and green colour <i>Tidak dapat membezakan warna merah dan hijau</i>
D	Albinism <i>Albinisme</i>	Red blood cell disorder resulting anaemia <i>Kecacatan sel darah merah menyebabkan anemia.</i>

TRIAL KEDAH 2010

44. Spontaneous change to the structure of chromosome in an organism is known as *Perubahan spontan terhadap struktur kromosom dalam sesuatu organisma dikenali sebagai*
- | | |
|--------------------------------|--|
| A. Variation
<i>Variasi</i> | C. Cross over
<i>Pindah silang</i> |
| B. Mutation
<i>Mutasi</i> | D. Cross breeding
<i>Kacuk silang</i> |

TRIAL PERLIS 09

45. Diagram shows the chromosome in the body cells of a child.
Rajah menunjukkan kromosom di dalam sel badan kanak-kanak.

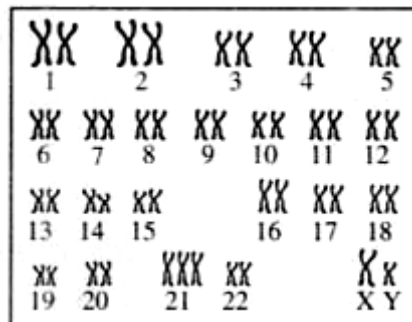


Name the genetic disease of the child.
Namakan penyakit genetik kanak-kanak itu.

- | | |
|---|---|
| A. Albinism
<i>Albinisme</i> | C. Turner's syndrome
<i>Sindrom Turner</i> |
| B. Down's syndrome
<i>Sindrom Down</i> | D. Klinefelter's syndrome
<i>Sindrom Klinefelter</i> |

TRIAL SABAH 10

46. Diagram shows the set of chromosomes in a cell of a person who suffers from a condition resulting from a genetic abnormality.
Rajah menunjukkan set kromosom di dalam sel seorang yang mengalami suatu keadaan disebabkan suatu kecacatan genetik.



What is the disorder and which pair of chromosomes is abnormal?
Apakah kecacatan tersebut dan pasangan kromosom manakah yang tidak normal?

	Disease <i>Penyakit</i>	Pair of chromosome <i>Pasangan kromosom</i>
A	Down's syndrome <i>Sindrom Down</i>	21
B	Turner's syndrome <i>Sindrom Turner</i>	21
C	Klinefelter's syndrome <i>Sindrom Klinefelter</i>	23
D	Down's syndrome <i>Sindrom Down</i>	22

TRIAL TERENGGANU 10

47. The following information shows the characteristic of a man suffering from a disease by mutation.
Maklumat berikut menunjukkan ciri yang terdapat pada seorang lelaki yang menghidap penyakit disebabkan oleh mutasi.

- Has three sex chromosome, XXY
Mempunyai tiga kromosom seks, XXY
- Has a small testes
Mempunyai testis yang kecil
- Sterile
Mandul

What is the disease?

Apakah penyakit itu?

- | | |
|---|---|
| A Albinism
<i>Albinisme</i> | C Haemophilia
<i>Hemofilia</i> |
| B Down's syndrome
<i>Sindrom Down</i> | D Klinefelter's syndrome
<i>Sindrom Klinefelter</i> |

TRIAL KELANTAN 10

48. The information shows the characteristics of a genetic disorder.
Maklumat menunjukkan ciri-ciri sejenis kecacatan genetik.

- A type of gene mutation.
Sejenis mutasi gen.
- Has light colour skin
Mempunyai warna kulit yang cerah
- Interference on the melanin production
Gangguan pada pengeluaran melanin

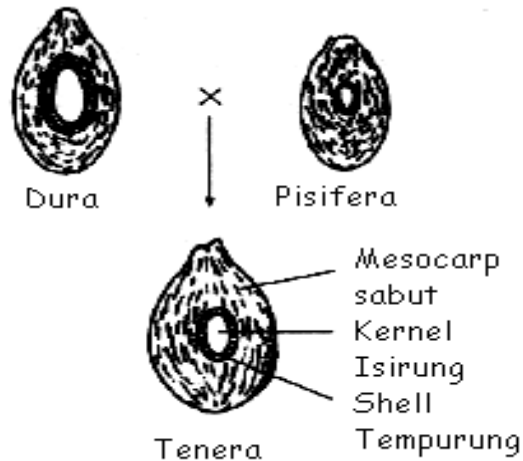
What is genetic disorder?

Apakah kecacatan genetik itu?

- | | |
|---|--|
| A Albinism
<i>Albino</i> | C Haemophilia
<i>Hemofilia</i> |
| B Down's syndrome
<i>Sindrom Down</i> | D Colour blindness
<i>Buta warna</i> |

SPM 2003

- 49.** The figure shows the cross-breeding oil palm.
Rajah menunjukkan kacukan baka kelapa sawit.

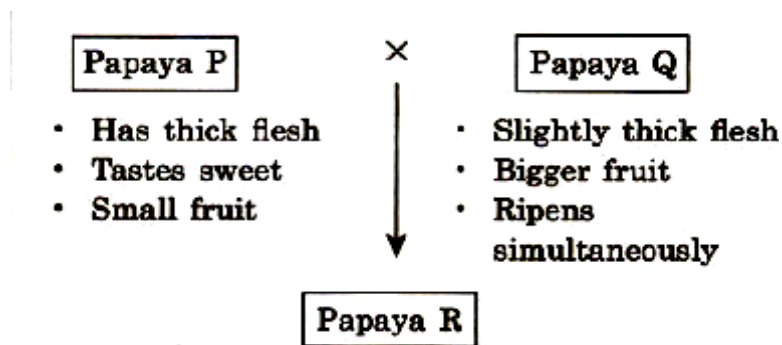


Which of the following characteristics are chosen in the cross-breeding above?
Apakah ciri yang dipilih dalam pembiakbakaan di atas

- I Thick mesocarp
Sabut yang tebal
II Thick shell
Tempurung yang tebal
III Large fruit
Buah yang besar
- A. I and II only
B. I and III only
C. II and III only
D. I, II and III

SPM 2004

- 50.** The figure shows the breeding of two different types of papaya.
Rajah menunjukkan pembiakbakaan dua jenis betik yang berbeza.



The breeding of these papayas is to produce
Tujuan pembiakbakaan betik di atas adalah untuk mendapatkan

- A. Plenty of papaya R
Buah betik R yang banyak
- B. Sweeter papaya R
Buah betik R yang lebih manis
- C. A papaya R tree that bears fruit earlier
Pokok betik R yang cepat berbuah
- D. A papaya R tree that is resistant to disease.
Pokok betik R yang tahan terhadap penyakit

SPM 2004

51. Ali and Ahmad are identical twins. Ali is brought up in Malaysia. Ahmad is brought up in England by his foster parents. They may be different in

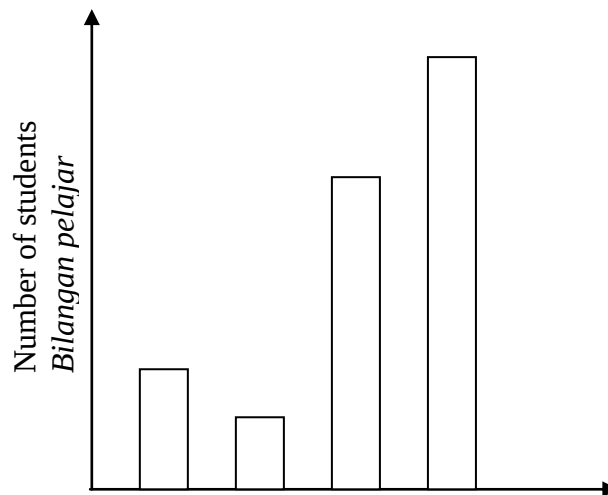
Ali dan Ahmad adalah kembar seiras. Ali dibesarkan di Malaysia. Ahmad dibesarkan oleh keluarga angkatnya di England. Mereka mungkin berbeza dari segi

- | | |
|---|--|
| A. Weight
<i>berat badan</i> | C. type of earlobe
<i>lekapan cuping telinga</i> |
| B. Blood group
<i>kumpulan darah</i> | D. the ability to roll the tongue
<i>kebolehan menggulung lidah</i> |

TRIAL JOHOR 08

52. Which of the following characteristics in human shows the variation as shown in the bar chart.

Antara sifat manusia yang berikut, yang manakah menunjukkan jenis variasi seperti yang ditunjukkan dalam carta bar.



- | | |
|---|--|
| A. Body mass
<i>Jisim badan</i> | C. Length of the sole
<i>Panjang tapak kaki</i> |
| B. Body height
<i>Ketinggian badan</i> | D. Types of blood group
<i>Jenis kumpulan darah</i> |

TRIAL PAHANG 08

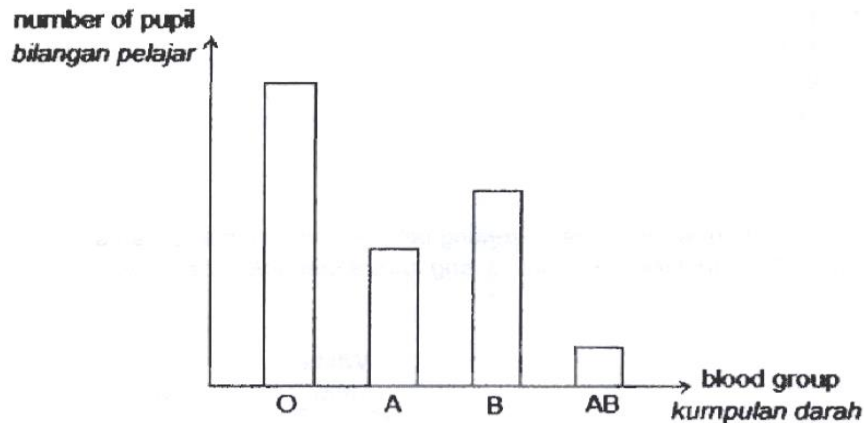
53. Which of the following is an example of a discontinuous variation?

Antara berikut yang manakah contoh variasi tak selanjar?

- | | |
|--------------------------------------|---|
| A. Height
<i>Ketinggian badan</i> | C. Body weight
<i>Berat badan</i> |
| B. Skin colour
<i>Warna kulit</i> | D. Blood group
<i>Kumpulan darah</i> |

TRIAL JOHOR 09

54. Diagram shows a type of variation among students of 4 Bestari.
Rajah menunjukkan sejenis variasi dalam kalangan pelajar 4 Bestari.



Which trait shows a similar type of variation as blood group?
Sifat manakah yang menunjukkan variasi yang sama seperti kumpulan darah?

- | | | | |
|---|-------------|---|---------|
| A | Height | C | Weight |
| | Ketinggian | | Berat |
| B | Skin colour | D | Gender |
| | Warna kulit | | Jantina |

TRIAL KELANTAN 09

55. A teacher measures the height of 50 students in a class and divides them into 5 groups based on their height. Which of the following is the best table to show the result?
Seorang guru mengukur ketinggian 50 orang pelajar Tingkatan 5 dan menempatkan mereka kepada 5 kumpulan mengikut ketinggian. Jadual yang manakah paling baik menunjukkan keputusannya?

A

Group Kumpulan	Height(cm) Ketinggian(cm)	Number of students Bilangan pelajar
1	141 – 145	16
2	146 – 150	11
3	151 – 155	10
4	156 – 160	8
5	161 – 165	5

B

Group Kumpulan	Height(cm) Ketinggian(cm)	Number of students Bilangan pelajar
1	141 – 145	15
2	146 – 150	9
3	151 – 155	6
4	156 – 160	8
5	161 – 165	12

C

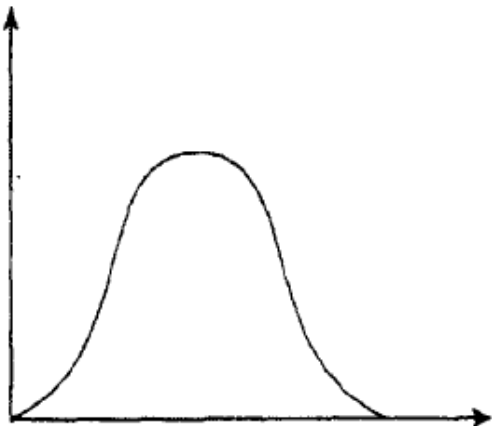
Group <i>Kumpulan</i>	Height(cm) <i>Ketinggian(cm)</i>	Number of students <i>Bilangan pelajar</i>
1	141 – 145	6
2	146 – 150	8
3	151 – 155	10
4	156 – 160	12
5	161 – 165	14

D

Group <i>Kumpulan</i>	Height(cm) <i>Ketinggian(cm)</i>	Number of students <i>Bilangan pelajar</i>
1	141 – 145	5
2	146 – 150	10
3	151 – 155	16
4	156 – 160	12
5	161 – 165	7

TRIAL PERLIS 09

56. The graph shows variation in a population.
Graf menunjukkan variasi dalam populasi.



Which human trait shows this type of variation?

Trait manusia yang manakah menunjukkan jenis variasi ini?

- | | |
|---------------------------------------|--|
| A Intelligence
<i>Kecerdasan</i> | C Blood group
<i>Kumpulan darah</i> |
| B Type of hair
<i>Jenis rambut</i> | D Type of ear lobe
<i>Jenis cuping telinga.</i> |

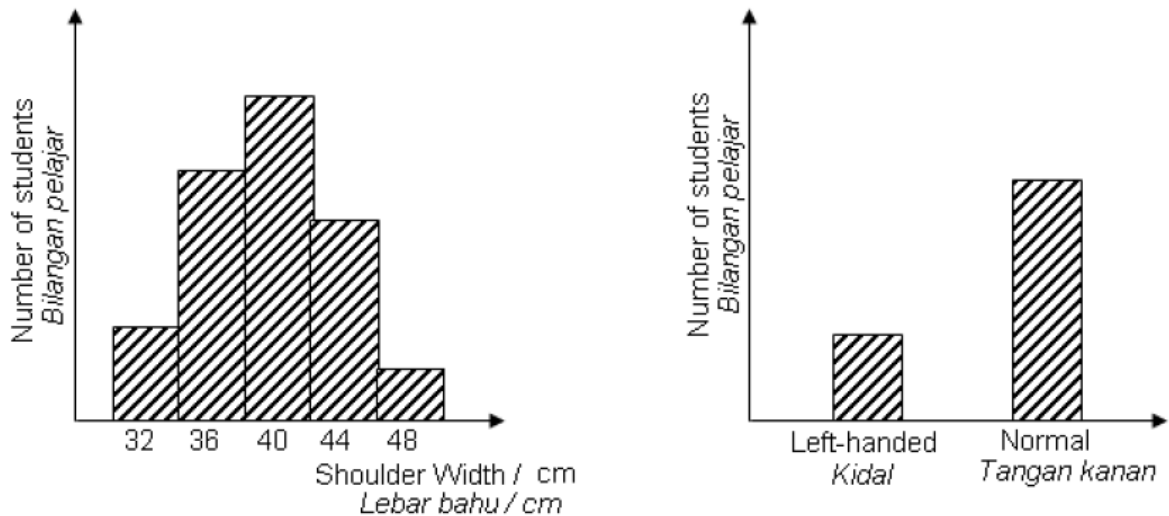
TERENGGANU

57. Which of the following characteristics is determined only by gene?
Antara berikut yang manakah sifat-sifat yang ditentukan hanya oleh gen?

- | | |
|---|--------------------------------------|
| A. Height
<i>Ketinggian</i> | C. Skin colour
<i>Warna kulit</i> |
| B. Blood group
<i>Kumpulan darah</i> | D. Body weight
<i>Berat badan</i> |

TRIAL SABAH 09

58. Diagram shows graphs of variation among the students in a class.
Rajah menunjukkan graf variasi di kalangan pelajar di dalam satu kelas.



Which of the following is correct?
Manakah antara berikut adalah benar?

	Shoulder width <i>Lebar bahu</i>	Left-handed / Normal <i>Kidal / Tangan kanan</i>
A	Continuous variation <i>Variasi selanjar</i>	Discontinuous variation <i>Variasi tak selanjar</i>
B	Continuous variation <i>Variasi selanjar</i>	Continuous variation <i>Variasi selanjar</i>
C	Discontinuous variation <i>Variasi tak selanjar</i>	Continuous variation <i>Variasi selanjar</i>
D	Discontinuous variation <i>Variasi tak selanjar</i>	Discontinuous variation <i>Variasi tak selanjar</i>

TRIAL SABAH 10

59. What is variation?
Apakah variasi?

- A The differences in characteristics between different species.
Perbezaan sifat di antara spesis berbeza.
- B The changes in characteristics of an organism with time.
Perubahan sifat dalam organisma terhadap masa.
- C Different effects of an environmental factor on an organism.
Kesan factor persekitaran berbeza ke atas suatu organism.
- D The differences in characteristics among individuals of the same species.
Perbezaan sifat di antara individu dari spesis yang sama.

TRIAL KELANTAN 09

60. Which of the following is a continuous variation?

Antara yang berikut, yang manakah merupakan variasi selanjar?

- | | | | |
|---|---------------------------------|---|--|
| A | Weight
<i>Berat badan</i> | C | Blood group
<i>Kumpulan darah</i> |
| B | Left handedness
<i>Kidal</i> | D | Type of ear lobe
<i>Jenis lekapan cuping telinga.</i> |

PAPER 2**SECTION A****TRIAL JOHOR 2008**

1. Table shows the height of students in Form 5 Pertanian.

Jadual menunjukkan ketinggian pelajar Tingkatan 5 Pertanian.

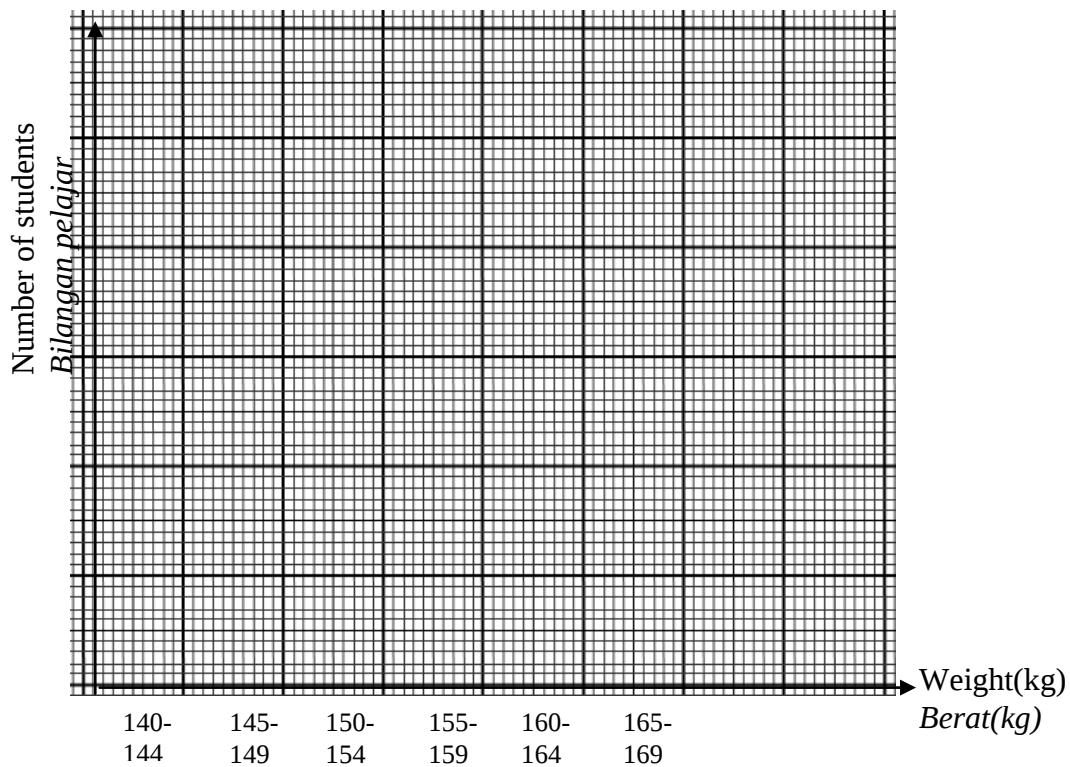
140	155	151	154	141	159
169	150	145	152	154	152
145	156	143	159	150	149
160	150	151	147	157	158
161	161	167	152	153	148

- a.) Complete the table below.
Lengkapkan jadual di bawah.

Weight (kg) <i>Berat(kg)</i>	140-144	145-149	150-154	155-159	160-164	165-169
Number of students <i>Bilangan pelajar</i>						

[2 marks]

- b.) Draw a histogram based on Table in (a).
Lukiskan histogram berdasarkan Jadual di (a).



[2 marks]

- c.) State the type of variation as shown in (b).
Nyatakan jenis variasi yang ditunjukkan di (b)

..... [1 mark]

TRIAL PAHANG 2009

2. A group students had collected several leaves from a tree. Data obtained is shown in Table.
Sekumpulan pelajar telah mengumpul sejumlah daun daripada sepokon pokok.
Data yang diperoleh ditunjukkan dalam Jadual di bawah.

6	12	13	21	11	15	8	19
20	21	7	12	14	13	11	15
7	18	14	17	16	12	24	21
4	23	5	10	20	14	22	7

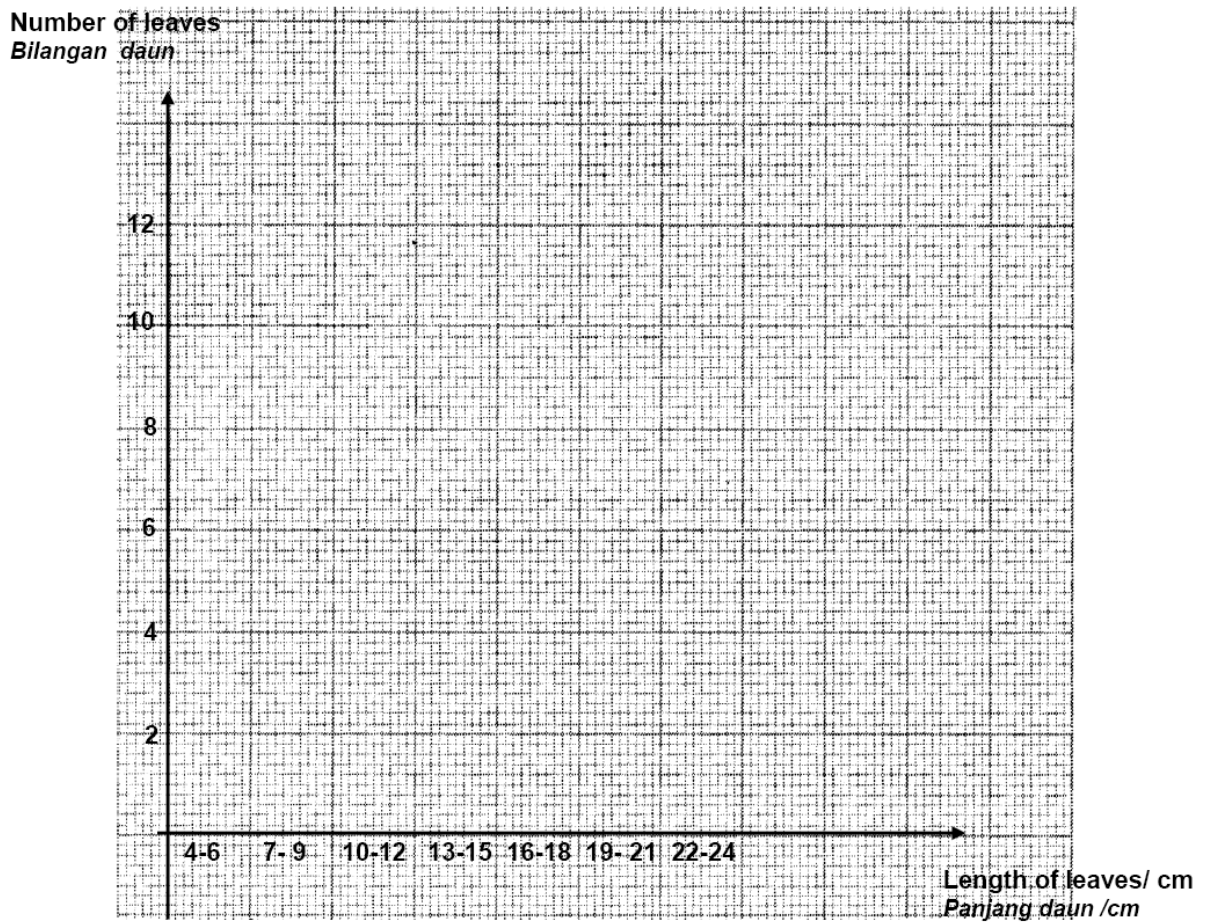
- (a). Using the data above, complete Table below.
Gunakan data di atas untuk melengkapi Jadual di bawah.

Length of leaves(cm) Panjang daun (cm)	4-6	7-9	10-12	13-15	16-18	19-21	22-24
Bilangan daun Number of leaves							

[2 marks]

- (b). Based on the information in Table, draw a bar chart to show the number of leaves against length of leaves.

Berdasarkan maklumat dalam Jadual, lukiskan carta palang yang menunjukkan bilangan daun melawan panjang daun.



[2 marks]

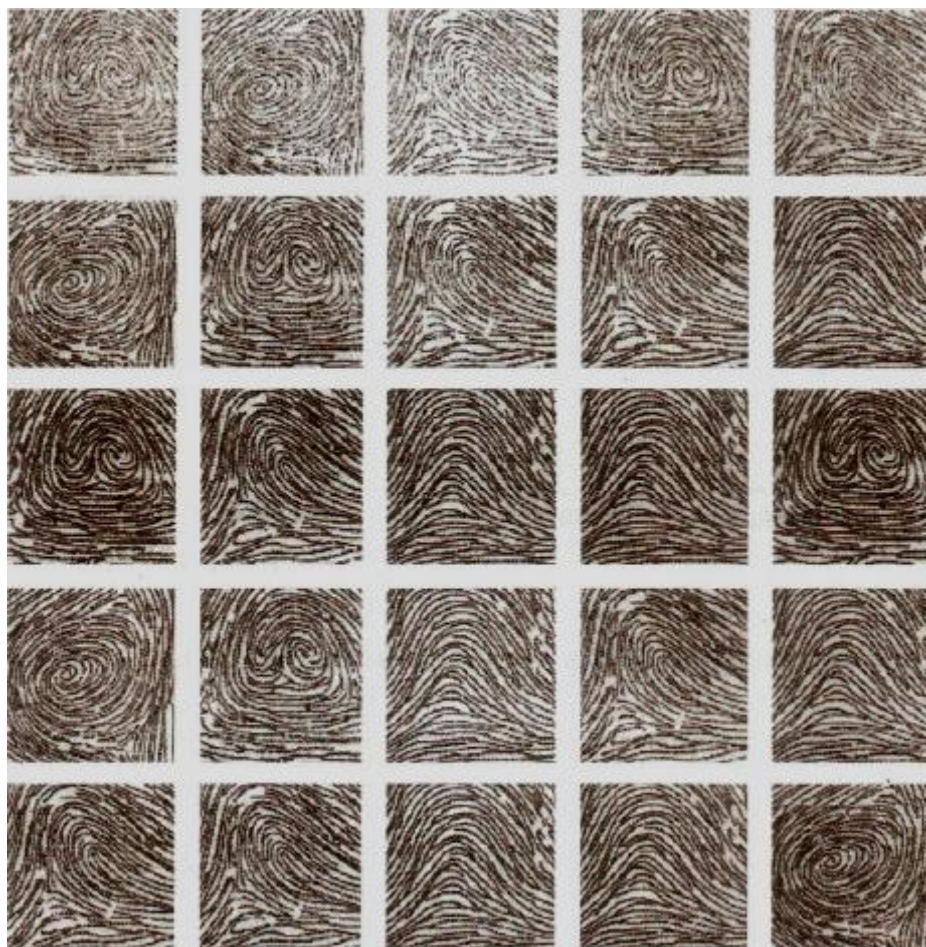
- (c). Based on the bar chart in (b) state the type of variation.

Berdasarkan carta palang di (b) nyatakan jenis variasi.

..... [1 mark]

SPM 2005

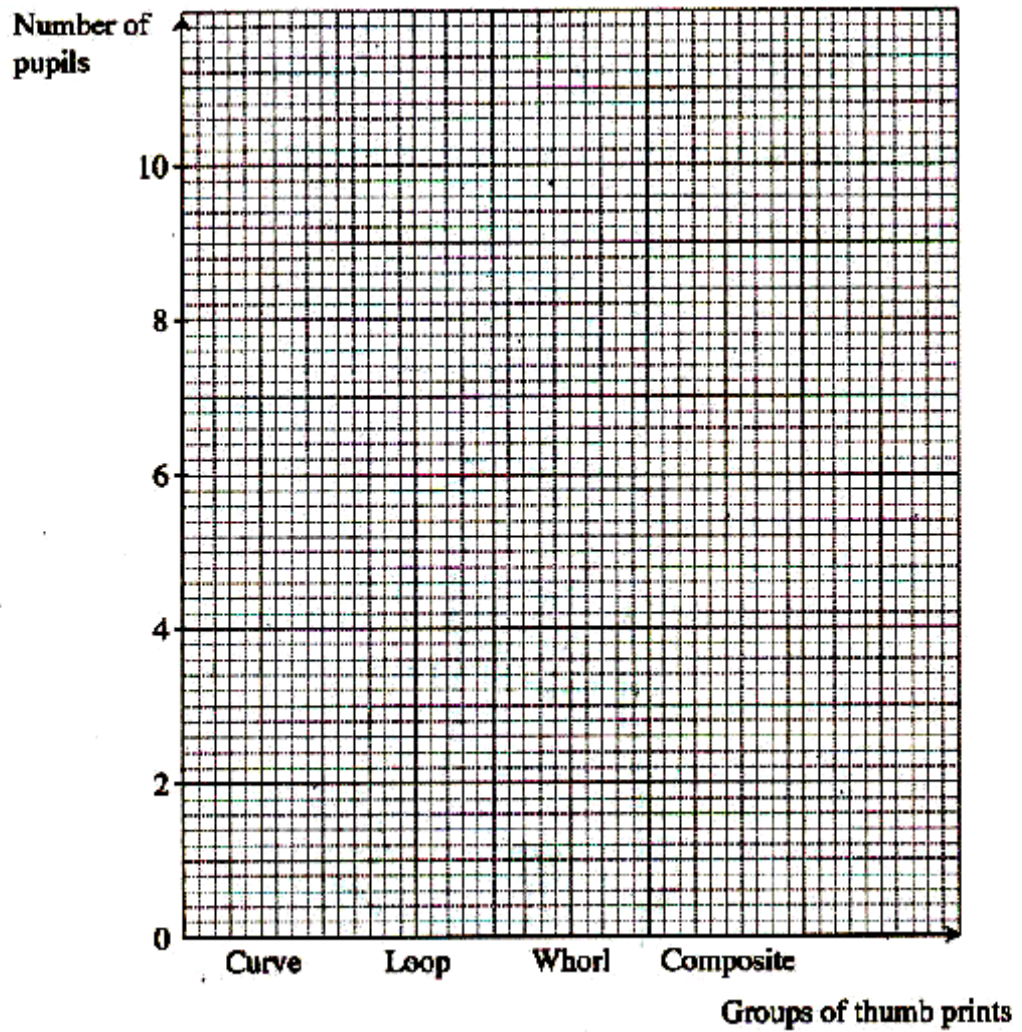
3. The Form 4 Mawar carried out an experiment to study the variation of thumb prints. These are four groups of thumb prints; curve, loop, whorl and composite. Figure shows the thumb print of 25 pupils from the class.



- (a) Based on Figure, determine the number of pupils in each group. Complete the Table.
Berdasarkan Rajah, tentukan bilangan pelajar dalam setiap kumpulan. Lengkapkan Jadual.

	Curve	Loop	Whorl	Composite
Groups of thumb print				
Number of pupils				

- (b) Based on the results in Table, draw a bar chart to show the number of pupils against the groups of thumb prints.
Berdasarkan keputusan dalam Jadual, lukiskan carta bar untuk menunjukkan bilangan pelajar melawan kumpulan cap jari

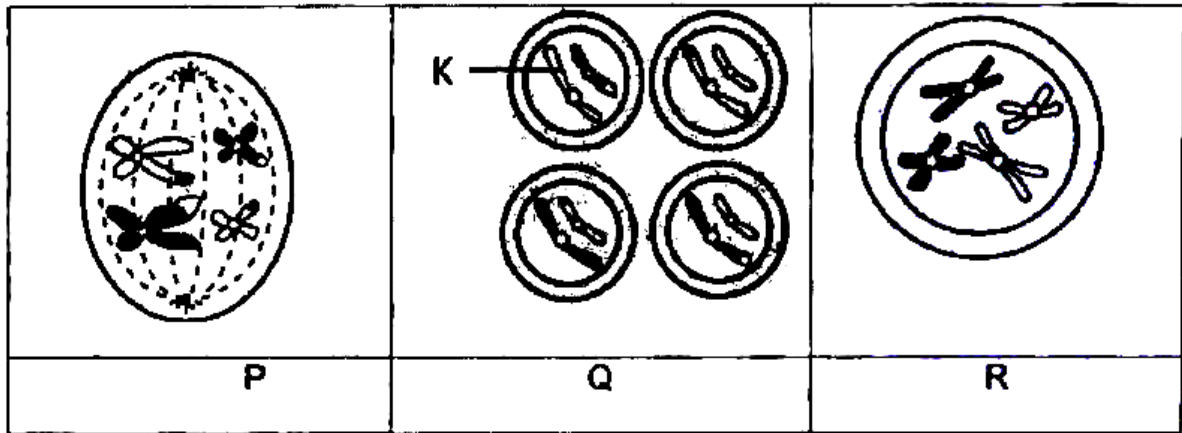


- (c) Write a conclusion on the type of variation based on the bar chart in (b).
Tuliskan kesimpulan jenis variasi berdasarkan carta bar di (b)
-

SECTION B

TRIAL JOHOR 2009

4. Diagram shows part of the stages of cell undergoing process of meiosis.
Rajah menunjukkan sebahagian peringkat meiosis dalam satu sel.



- (a). Name the structure labelled K.
Namakan struktur berlabel K.

..... [1 mark]

- (b). Write the correct sequence of the process.
Tuliskan turutan yang betul bagi proses ini.

..... [1 mark]

- (c). (i) Name the cell in human that produced after meiosis.
Namakan sel dalam badan manusia hasil proses meiosis.

..... [1 mark]

- (ii) State the number of chromosome in (c)(i).
Nyatakan bilangan kromosom di (c)(i).

..... [1 mark]

- (d). State one importance of meiosis.
Nyatakan satu kepentingan meiosis.

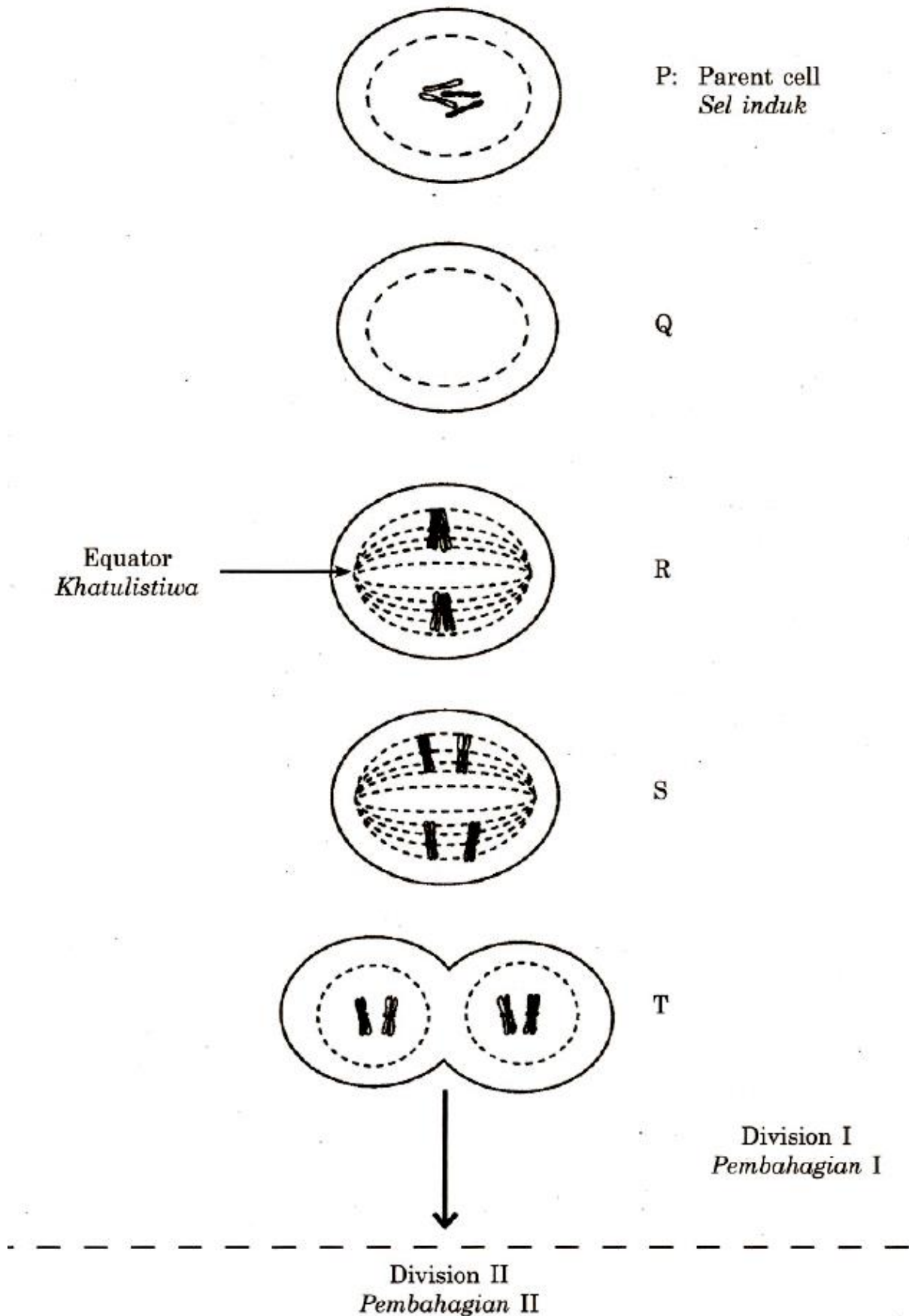
..... [1 mark]

- (e). Name one disease due to extra number of chromosome in human being.
Namakan satu penyakit yang disebabkan oleh berlebihan kromosom dalam badan manusia.

..... [1 mark]

SPM 2007

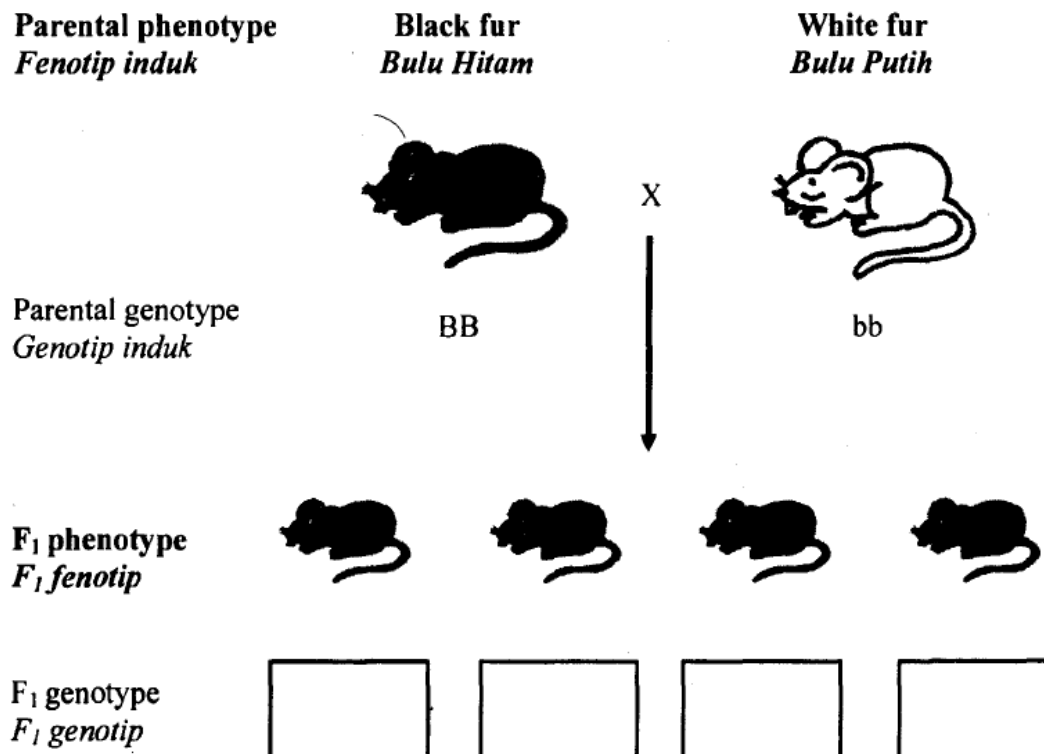
5. Diagram shows a process of cell division. Chromosomes at the stage Q are not shown.
Rajah menunjukkan proses pembahagian sel. Kromosom pada peringkat Q tidak ditunjukkan.



- (a) (i) Name the type of process shown in Diagram.
Namakan jenis proses yang ditunjukkan dalam Rajah.
-
- (ii) State the important of the process in 2(a)(i)
Nyatakan kepentingan proses dalam 2(a)(i)
-
- (b) (i) During stage R, the chromosome line up on the equator. What happens to the chromosome during the stage?
Dalam peringkat R, kromosom berbaris di atas satah. Apakah yang berlaku kepada kromosom semasa peringkat ini?
-
- (ii) What is the effects of the process in 2 (b)(i) on the offspring?
Apakah kesan proses dalam 2(b)(i) ke atas sel anak?
-
- (c) In Diagram, draw the chromosomes at stage Q.
Dalam Rajah, lukiskan kromosom pada peringkat Q
-
- (d) How many daughter cells are produced at the end of Division II in Diagram?
Berapakah sel anak yang terhasil pada akhir Pembahagian II dalam Rajah?
-

TRIAL PERLIS 2009

6. Diagram shows a black fur mouse cross breed with a white fur mouse. All the first generation mouse have black fur.
Rajah menunjukkan kacukan tikus berbulu hitam dengan tikus berbulu putih. Semua tikus generasi pertama berbulu hitam.



- (a). (i) What is dominant trait in this cross?
Apakah trait dominant dalam kacukan ini?

..... [1 mark]

- (ii) How to determine the dominant trait?
Bagaimanakah menentukan trait dominan?

..... [1 mark]

- (b). Write down the genotype of first generation (F_1) in the boxes provided in the Diagram.
Tuliskan genotip generasi yang pertama (F_1) dalam kotak yang disediakan dalam Rajah.
[1 mark]

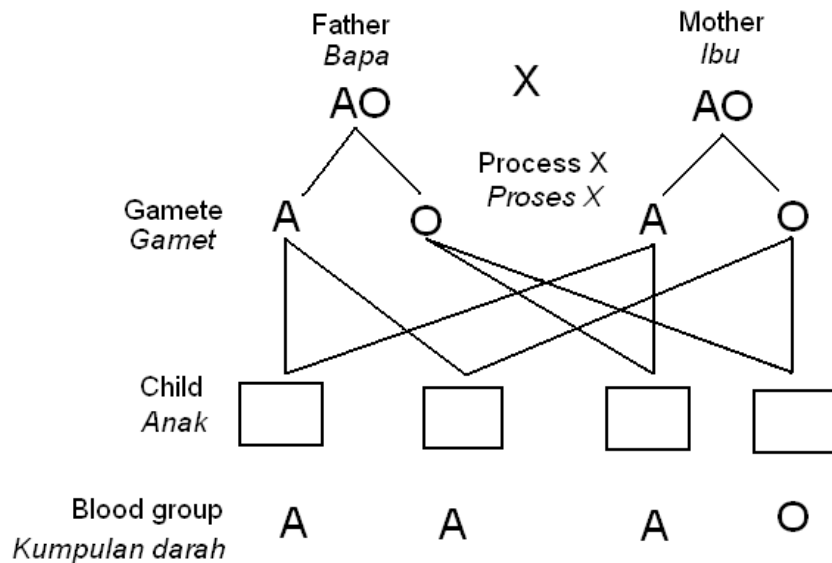
- (c). The first generation is crossed breed with each other. Draw a schematic diagram to show this cross breeding.
Generasi pertama dikacuk sesama sendiri. Lukiskan rajah skema yang menunjukkan kacukan ini.
[2 marks]

- (d). State the probability of getting a mouse with black fur in the second generation.
Nyatakan kebarangkalian mendapat tikus berbulu hitam di dalam generasi yang kedua.

..... [1 mark]

TRIAL SABAH 2010

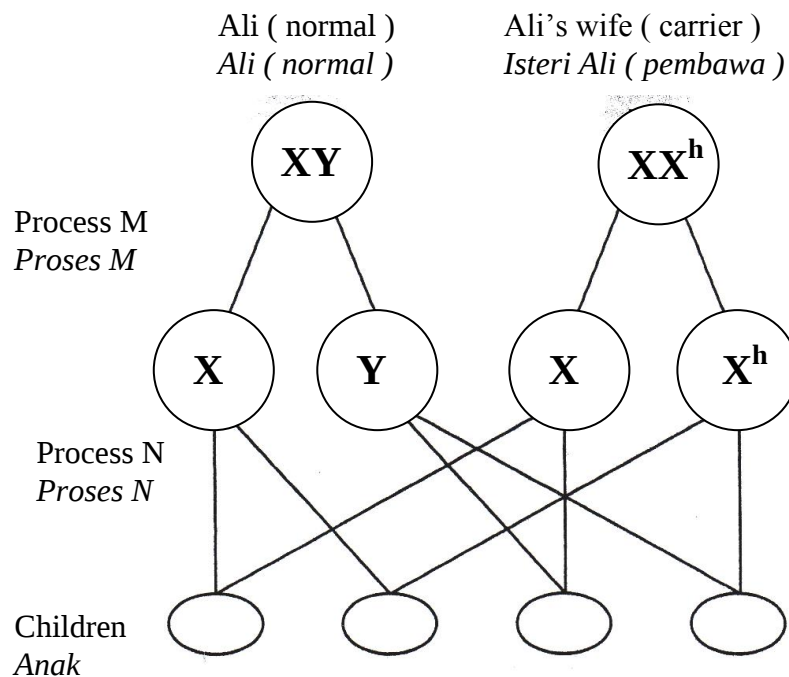
7. Diagram shows schematic diagram on inheritance of blood group.
Rajah menunjukkan rajah skema pewarisan bagi kumpulan darah.



- (a) Complete Diagram by writing down the pairs of genes in the boxes provided.
Lengkapkan Rajah dengan menulis pasangan gen dalam ruang yang disediakan [2 marks]
- (b) Based on Diagram, which type of blood group is recessive?
Berdasarkan Rajah, darah jenis manakah adalah resesif?
- _____ [1 mark]
- (c) State process X.
Nyatakan proses X.
- _____ [1 mark]
- (d) What is the ratio of A blood group to O blood group?
Apakah nisbah kumpulan darah A kepada kumpulan darah O ?
- _____ [1 mark]
- (e) What factor determined the blood group?
Apakah faktor yang menentukan kumpulan darah?
- _____ [1 mark]

TRIAL JOHOR 2008

8. Ali, who is normal, married a haemophilia carrier. Their trait inheritance is shown in Diagram.
Ali adalah normal, berkahwin dengan pembawa hemofilia. Sifat warisan mereka seperti digambarkan dalam Rajah.



- (b) Complete the genetic diagram in Diagram to show how their traits are inherited.
Lengkapkan gambarajah genetik dalam Rajah untuk menunjukkan bagaimana sifat mereka diwarisi [2 marks]
- (c) Name process M and process N.
Namakan proses M dan proses N.

Process M :

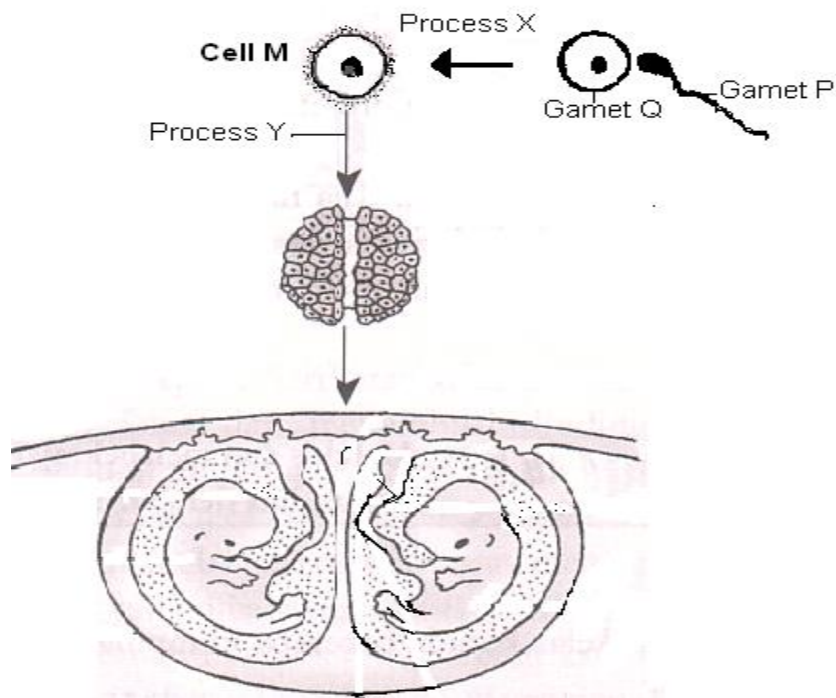
Process N: [2 marks]

- (d) Write down the genotype of the boy who will suffer from haemophilia.
Tuliskan genotip anak lelaki yang akan mengidap hemofilia. [1 mark]
- (e) Write down the genotype of the girl who will be carrier of haemophilia.
Tuliskan genotip anak perempuan yang akan menjadi pembawa hemofilia.

..... [1 mark]

TRIAL PAHANG 2008

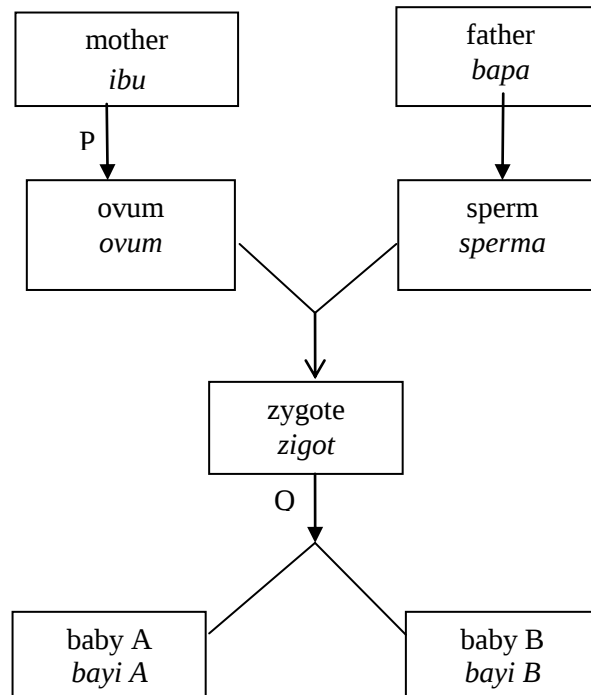
9. Diagram shows the formation of twins.
Rajah menunjukkan pembentukan kembar.



- (a) Name the gametes P and Q.
Namakan gamet P dan Q.
- P:.....
- Q:..... [2 marks]
- (b) What are processes X and Y?
Apakah proses X dan Y?
- Process X :.....
- Process Y:..... [2 marks]
- (c) M is single cell formed after the fusion of gamete P and gamete Q. What is M?
M ialah sel tunggal yang terbentuk selepas percantuman gamet P dan gamet Q.
Apakah M?
- [1 mark]
- (d) State the type of twins formed.
Nyatakan jenis kembar yang terbentuk.
- [1 mark]

TRIAL SABAH 2008

10. Diagram shows stages of a cell division process in human being during the formation of babies.
Rajah di atas menunjukkan peringkat pembahagian sel yang berlaku dalam manusia semasa pembentukan bayi.

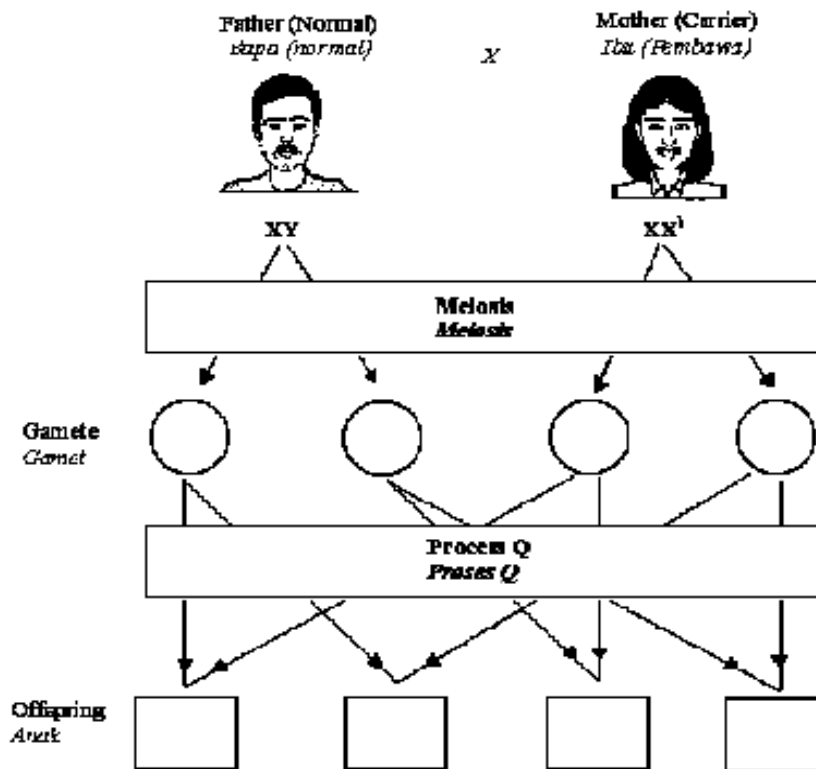


- (a) Name process P and Q.
Namakan proses P dan Q.
- P:
- Q: [2 marks]
- (b) State the organ of the mother where process P occurs.
Nyatakan organ pada ibu di mana proses P berlaku.
- [1 mark]
- (c) State the type of twins in Diagram.
Nyatakan jenis kembar dalam Rajah.
- [1 mark]
- (d) Give **one** similarity in baby A and B.
*Beri **satu** persamaan pada bayi A dan B.*
- [1 mark]
- (e) If baby A is a male, state the sex chromosome in his father's sperm.
Jika jantina bayi A adalah lelaki, nyatakan kromosom seks yang dibawa oleh sperma bapa.
-[1 mark]

TRIAL SABAH 2009

11. Diagram shows the inheritance of colour blindness in human.

Rajah menunjukkan pewarisan sifat buta warna dalam manusia.



Key
Keterangan

X^b - Recessive gene of colour-blindness
Gen resesif untuk buta warna

(a). Complete the above Diagram.

Lengkapkan Rajah 5.

[2 marks]

(b). What is the probability of having:

Apakah kemungkinan untuk mendapat:

(i). Colour blind son

Anak lelaki buta warna : [1 mark]

(ii). Normal daughter but carrier

Anak perempuan normal tetapi pembawa : [1 mark]

(c). Colour blindness known as a sex linked heredity diseases. State the reason.

Buta warna dikenali sebagai penyakit baka terangkai seks. Nyatakan sebabnya.

..... [1 mark]

(d). Name one other example of sex linked heredity diseases.

Namakan satu contoh lain penyakit baka terangkai seks.

..... [1 mark]

(e) Draw a schematic diagram to show the inheritance of colour blindness when colour blinded man married with normal woman.

Lukiskan rajah skema yang menunjukkan pewarisan buta warna apabila lelaki buta warna berkahwin dengan perempuan normal.

SECTION C

TRIAL KELANTAN 2008

12. (a) Genetic research is useful in various fields.

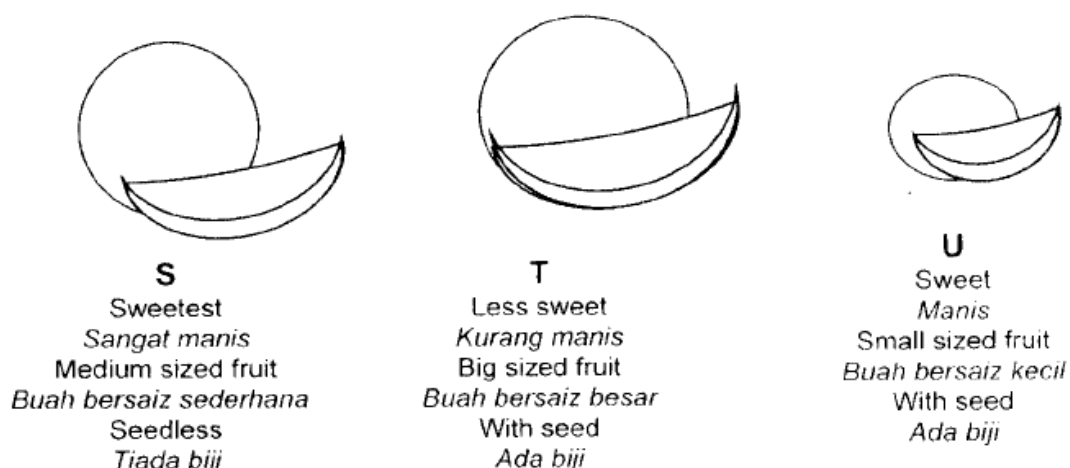
List two the contributions of genetic research in various field and give one example for each them.

Penyelidikan genetik adalah berguna dalarn pelbagai bidang.

Senaraikan dua sumbangan penyelidikan genetik dalarn pelbagai bidang tersebut dan berikan satu contoh bagi setiap satunya [4 marks]

(b) Diagram shows three species of watermelon. You are a farmer who is seeking a new variety of fruit.

Rajah menunjukkan tiga spesies buah tembikai. Anda seorang petani yang sedang mencari spesies buah yang baru.



Study the information in Diagram. Explain how you get a new variety of fruit. Your answer must include the following:

Kaji maklumat dalam Rajah. Terangkan bagaimana anda boleh mendapatkan spesies buah yang baru. Jawapan anda hendaklah mengandungi perkara-perkara berikut:

- Name this type of breeding
Namakan jenis kacukan

[1 mark]
- State the purpose of breeding
Nyatakan tujuan kacukan

[1 mark]
- Choose two suitable watermelons for crossing
Pilih dua buah tembikai yang sesuai dikacukkan

[1 mark]
- The reason for your choice
Alasan bagi pilihan anda

[1 mark]
- Explanation on the advantage of the hybrid produced
Penerangan tentang kebaikan hibrid yang terhasil.

[2 marks]

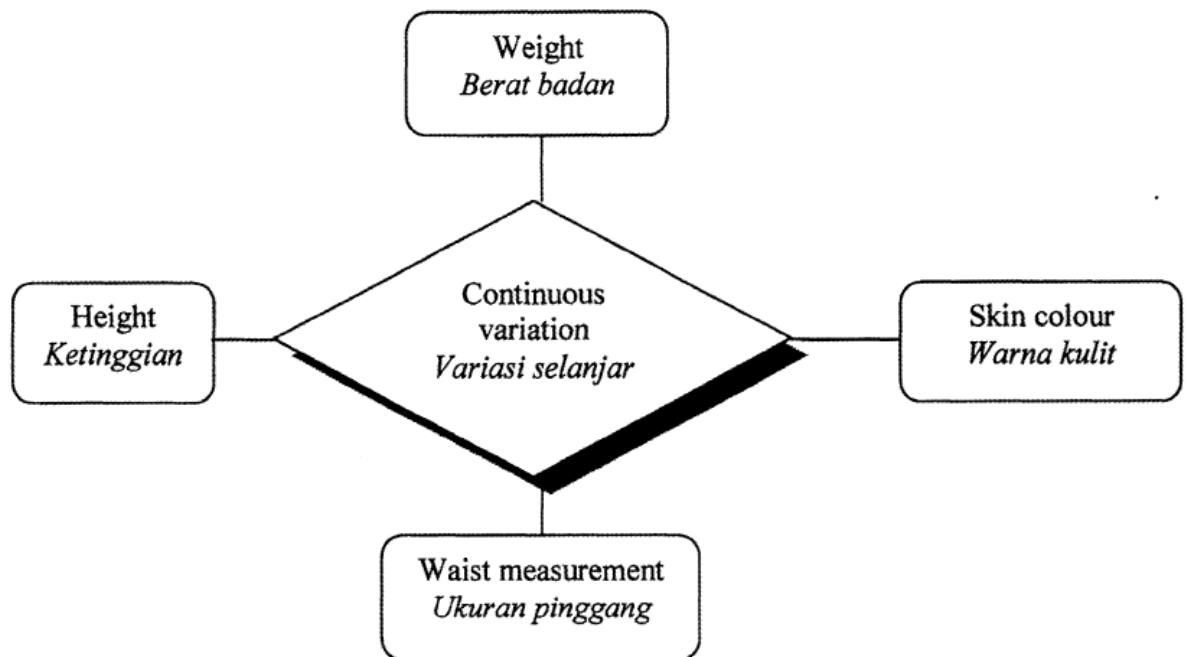
TRIAL TERENGGANU 2010

13. (a) State two differences between continuous and discontinuous variation.
Nyatakan dua perbezaa antara variasi selanjat dan variasi tak selanjat.

Give two importance of variation.
Nyatakan dua kepentingan variasi.

[4 marks]

- (b) Diagram shows four characteristics in a human.
Rajah menunjukkan empat sifat yang terdapat pada setiap manusia.



Based on the above information, construct the concept of continuous variation.
Berdasarkan maklumat di atas, binakan konsep variasi selanjat.

Your answer should based on the following aspects:
Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- Identify two common characteristic
Kenalpasti dua ciri sepunya [2 marks]
- Give one another example of continuous variation.
Berikan satu contoh lain variasi selanjat [1 mark]
- Give two non example of continuous variation.
Berikan dua bukan contoh variasi selanjat. [2 marks]
- Relate the common characteristics to construct the concept of continuous variation.
Hubungkaitkan ciri sepunya untuk membina konsep variasi selanjat [1 mark]

CHAPTER 4: MATTER AND SUBSTANCE

PAPER 1

4.1

CHANGES IN MATTER

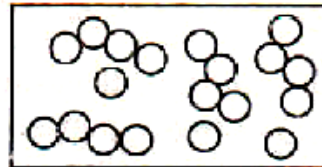
TRIAL PAHANG 2007

1. Which of the following A, B, C or D represents liquid particles?
 Antara A, B, C atau D yang manakah mewakili zarah cecair?

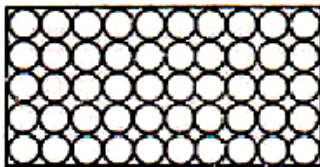
A



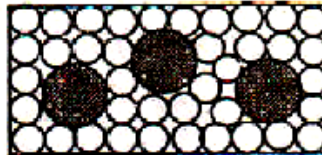
B



C

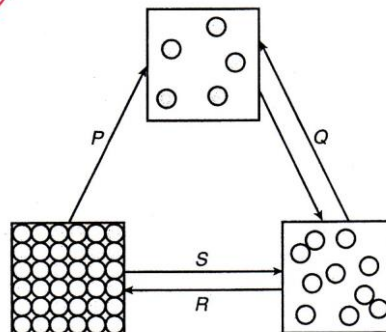


D



TRIAL JOHOR 2008

2. Diagram shows the three states of matter.
 Rajah menunjukkan tiga keadaan jirim.



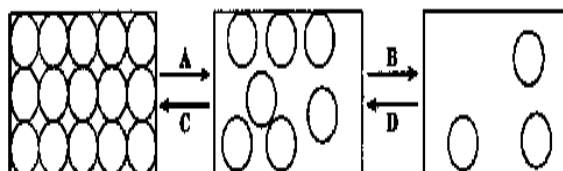
The process of sublimation is represent by
 Proses pemejalwapan diwakili oleh

A P
 B Q

C R
 D S

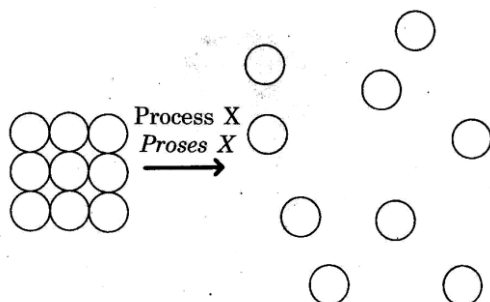
SPM 2003

3. Which process represents condensation?
 Proses manakah mewakili kondensasi?



TRIAL PAHANG 2008

4. Diagram shows the arrangement of particles which undergo process X.
Rajah menunjukkan susunan zarah yang melalui proses X.

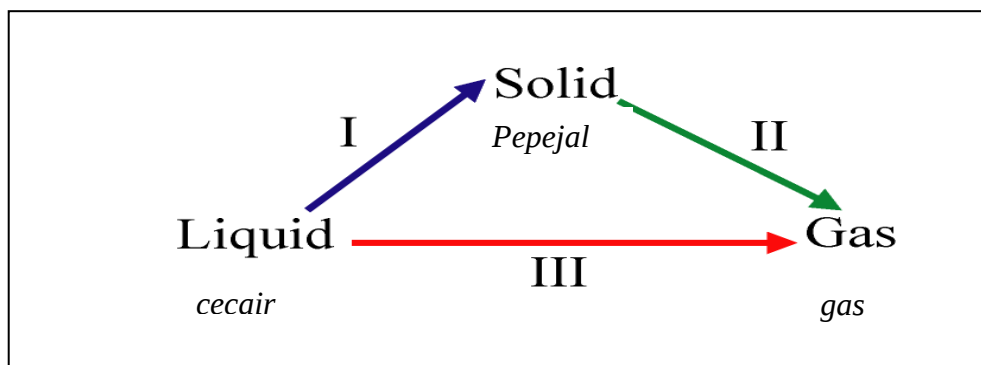


What is process X?
Apakah proses X?

- | | |
|--------------------------------------|-------------------------------------|
| A Boiling
<i>Pendidihan</i> | C Melting
<i>Peleburan</i> |
| B Sublimation
<i>Pemejalwapan</i> | D Condensation
<i>Kondensasi</i> |

TRIAL SABAH 2008

5. Diagram shows the changes in the state of matter.
Rajah menunjukkan perubahan keadaan jirim.

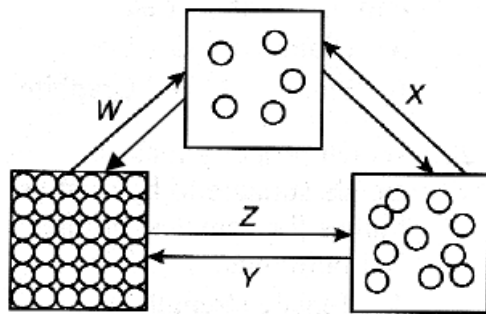


Name the process I, II and III.
Namakan proses I, II dan III.

	I	II	III
A	Melting <i>Peleburan</i>	Sublimation <i>Pemejalwapan</i>	Boiling <i>Pendidihan</i>
B	Freezing <i>Pembekuan</i>	Evaporation <i>Penyerapan</i>	Condensation <i>Kondensasi</i>
C	Melting <i>Peleburan</i>	Sublimation <i>Pemejalwapan</i>	Condensation <i>Kondensasi</i>
D	Freezing <i>Pembekuan</i>	Sublimation <i>Pemejalwapan</i>	Boiling <i>Pendidihan</i>

TRIAL KEDAH 2009

6. Diagram shows three states of matter.
Rajah menunjukkan tiga keadaan jirim.



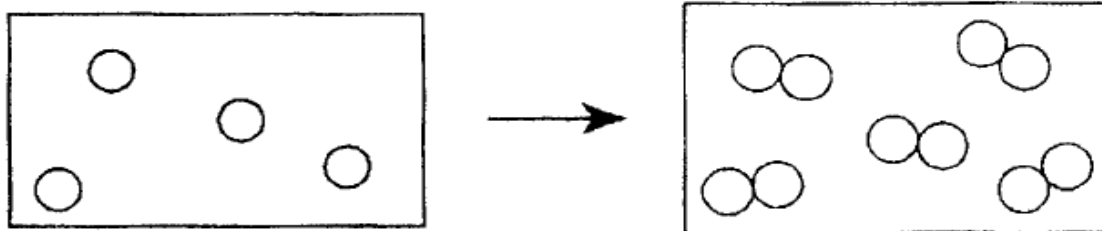
Sublimation is represented by
Pemejalwapan diwakili oleh

A W
B X

C Y
D Z

TRIAL KELANTAN 2009

7. Diagram shows the change states of matter.
Rajah menunjukkan perubahan keadaan jirim

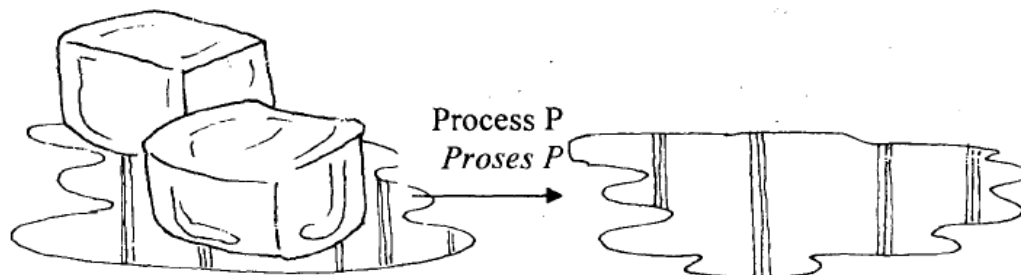


Which of the following explain the particle at the end of the process?
Manakah antara berikut menerangkan keadaan zarah di akhir proses tersebut?

- A. Particles move slower
Zarah bergerak perlahan
B. Particles have a bigger size
Zarah mempunyai saiz yang besar
C. Particles have a weaker force
Zarah mempunyai daya tarikan yang lemah
D. Particles contain a higher energy content
Zarah mempunyai kandungan tenaga yang tinggi

TRIAL PERLIS 2009

8. Diagram shows the change of physical state of water.
Rajah menunjukkan perubahan keadaan fizikal air.



Name process P?

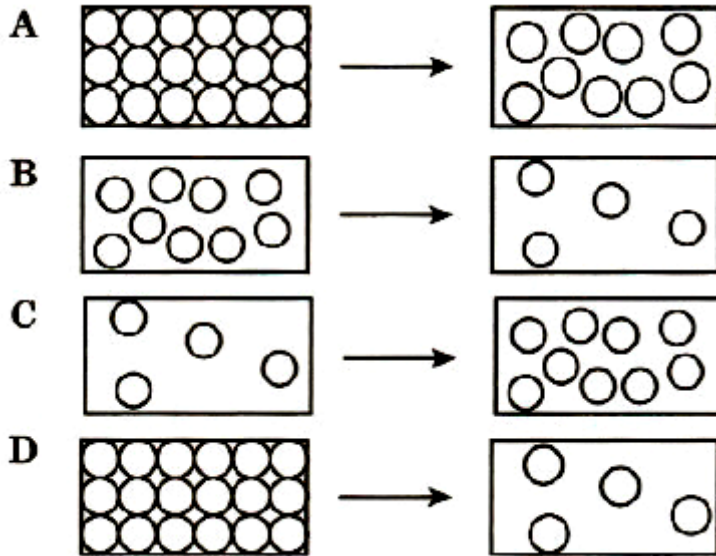
Namakan proses P?

- A Boiling
Pendidihan
B Freezing
Pembekuan

- C Melting
Peleburan
D Evaporation
Penyejatan

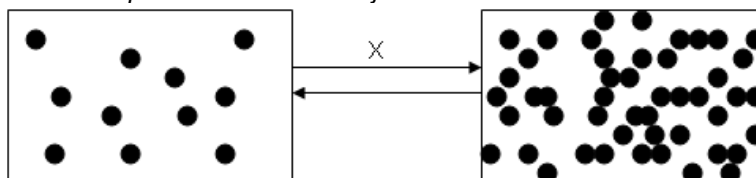
SPM 2004

9. Which of the following A, B, C or D represents the process of sublimation?
Antara A, B, C dan D yang manakah mewakili proses pemeljawapan?



TRIAL SABAH 2010

10. Diagram shows a change in the states of matter.
Rajah menunjukkan suatu perubahan keadaan jirim



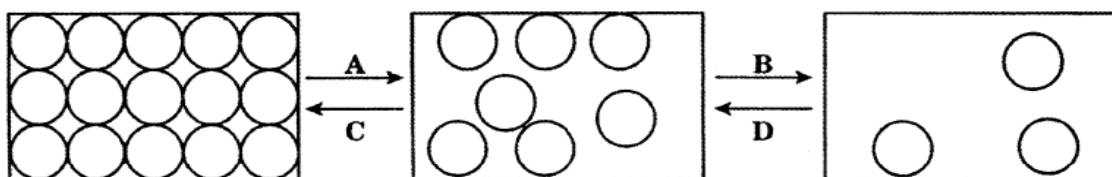
What is process X?
Apakah proses X?

- A Boiling
Pendidihan
B Freezing
Pembekuan

- C Sublimation
Pemejalwapan
D Condensation
Kondensasi

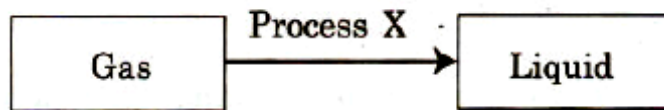
TRIAL TERENGGANU 2010

11. Which of the following A, B, C or D represents boiling process?
Antara A, B, C dan D yang manakah mewakili proses pendidihan?



SPM 2006

12. Diagram shows a change in the state of matter.
Rajah menunjukkan perubahan keadaan jirim.

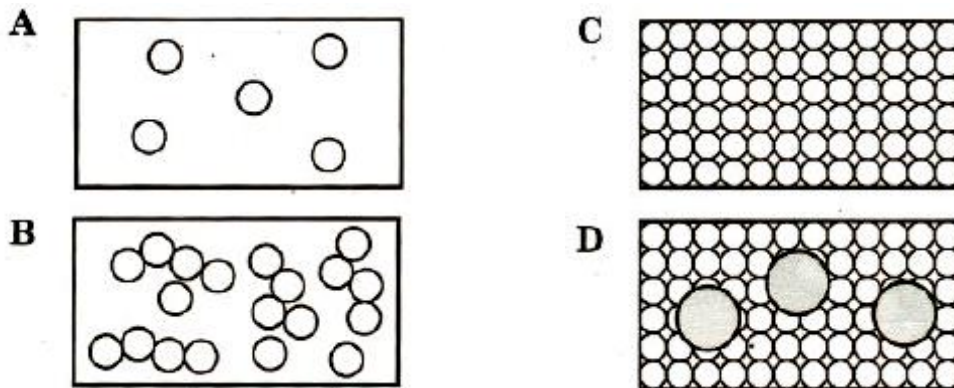


What is process X?
Apakah proses X?

- | | |
|--------------------------|--------------------------------|
| A. Melting
Peleburan | C. Condensation
Kondensasi |
| B. Boiling
Pendidihan | D. Sublimation
Pemeljawapan |

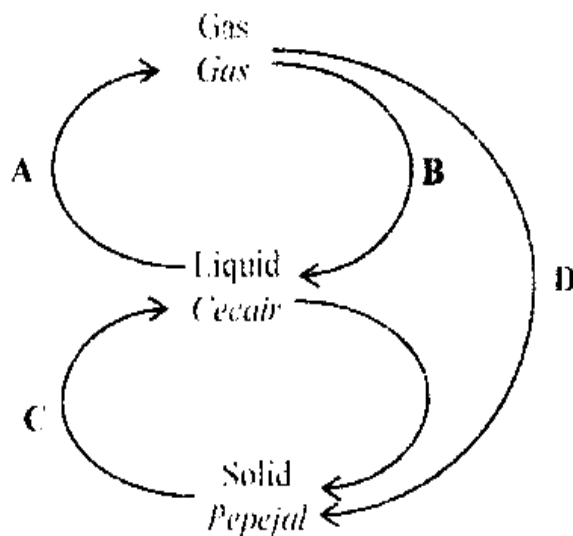
SPM 2005

13. Which of the following A, B, C or D represents gas particles?
Antara A, B, C dan D manakah mewakili zarah gas?



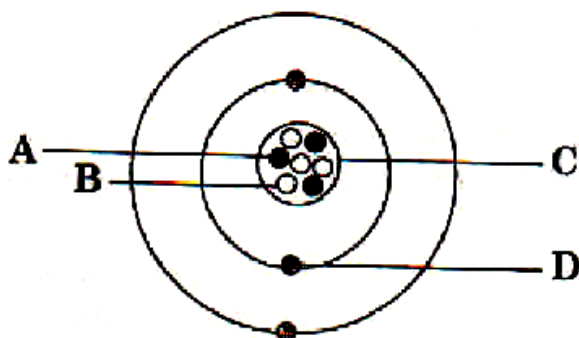
TRIAL KELANTAN 2010

14. Diagram shows the changes state of matter.
Which of the following A, B, C or D represents the process of condensation?
Rajah menunjukkan perubahan keadaan jirim.
Antara proses A, B, C dan D yang manakah kondensasi?

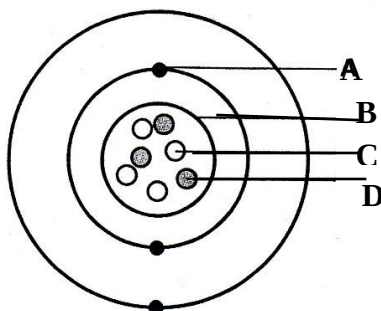


TRIAL PAHANG 2007

15. The diagram shows the structure of an atom. Which of the following A, B, C or D is an electron?
Rajah menunjukkan struktur satu atom. Antara A, B, C atau D yang manakah elektron?

**TRIAL JOHOR 2008**

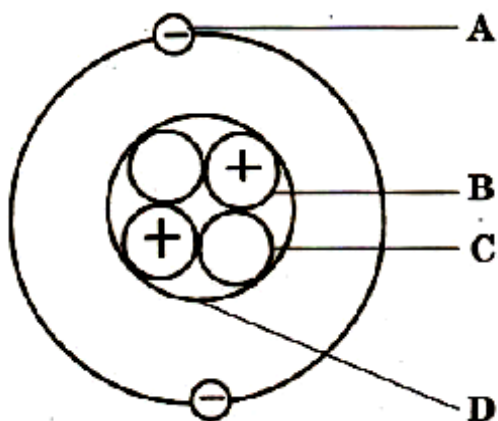
16. Diagram shows the structure of an atom.
Rajah menunjukkan struktur atom.



Which of the labelled parts A, B, C or D is a neutron?
Bahagian berlabel A, B, C atau D yang manakah neutron?

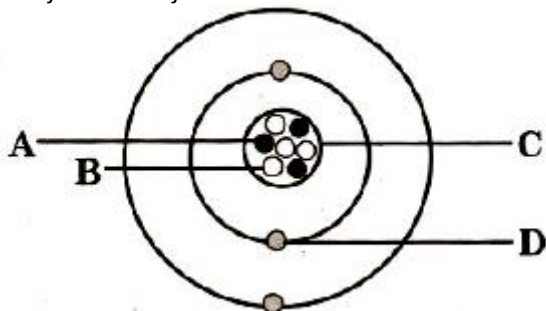
SPM 2006

17. Diagram shows the structure of an atom. Which of the following A, B, C or D represents a proton?
Rajah menunjukkan struktur atom. Antara A, B, C dan D yang manakah mewakili proton?



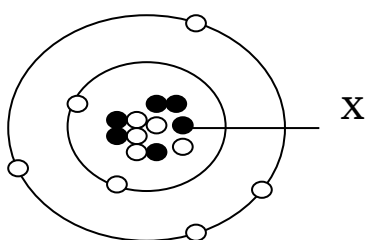
SPM 2005

18. The diagram shows the structure of an atom. Which of the following A, B, C or D is a proton?
Rajah menunjukkan struktur atom. Manakah antara berikut A, B, C dan D adalah proton?



TRIAL SABAH 2008

19. Diagram shows a model of an atom.
Rajah menunjukkan model suatu atom



What is X?

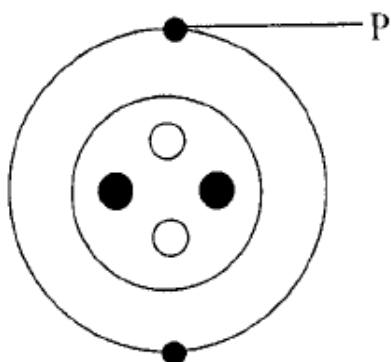
Apakah X?

- A Electron
Electron
 B Proton
Proton

- C Neutron
Neutron
 D Nucleon
Nucleon

TRIAL KELANTAN 2009

20. Diagram shows the particles in an atom.
Rajah menunjukkan zarah-zarah dalam satu atom.



What are particles P?

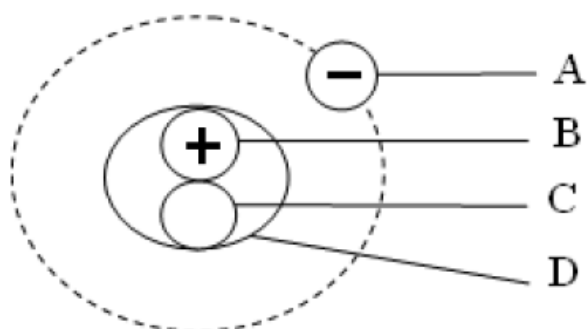
Apakah zarah P?

- A Electron
Electron
 B Proton
Proton

- C Neutron
Neutron
 D Nucleus
Nukleus

TRIAL SABAH 2009

21. Diagram shows the structure of an atom. Which of the following represents a neutron?
Rajah menunjukkan struktur atom. Manakah antara berikut mewakili neutron?

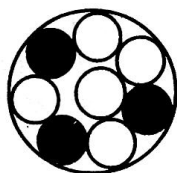


4.3

PROTON NUMBER, NUCLEON NUMBER IN ATOM

TRIAL PAHANG 2008

22. Diagram shows the nucleus of an atom.
Rajah menunjukkan nucleus bagi satu atom.



Key / Kekunci:



Proton



Neutron

How many electrons are in this atom?

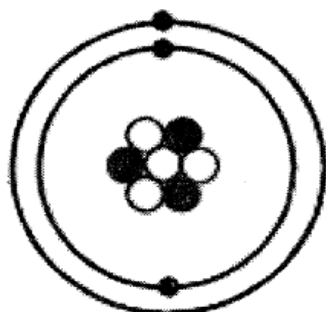
Berapakah bilangan elektron dalam atom ini?

- A 1
B 3

- C 4
D 7

TRIAL TERENGGANU 2008

23. Diagram shows the structure of atom X?
Rajah menunjukkan struktur atom X?



Keys



Electron (*Elektron*)



Proton (*Proton*)



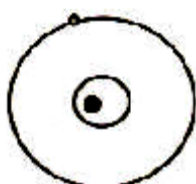
Neutron (*Neutron*)

What are the proton number, the nucleon number and the number of electron?
Apakah nombor proton, nombor nukleon dan bilangan elektron?

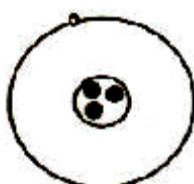
	Proton number <i>Nombor proton</i>	Nucleon number <i>Nombor nukleon</i>	Number of electron <i>Bilangan elektron</i>
A	3	3	4
B	3	4	3
C	4	10	3
D	3	7	3

SPM 2004

24. The figure shows the structures of atoms P and Q.
Rajah menunjukkan struktur atom P dan Q.



P



Q

Keys

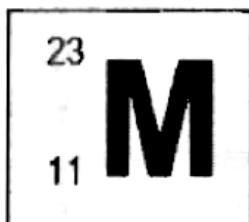
- Electron
- Proton
- Neutron

What is the similarity between atoms P and Q?
Apakah persamaan antara atom P dan Q?

- A. The number of neutrons
Bilangan neutron
- B. The nucleon number
Nombor nukleon
- C. The proton number
Nombor proton
- D. The subatomic particles
Zarah sub atom

TRIAL JOHOR 2009

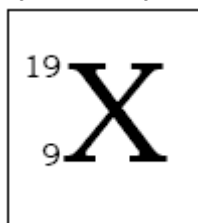
25. M is one of the elements in the Periodic Table. What is the number of protons and neutrons in element M?
M adalah satu unsur dalam Jadual Berkala. Apakah bilangan proton dan neutron dalam unsur M?



	Proton	Neutron
A	11	12
B	12	11
C	11	23
D	12	23

TRIAL KEDAH 2009

26. Diagram shows the symbol of an element
Rajah menunjukkan symbol bagi suatu unsur.



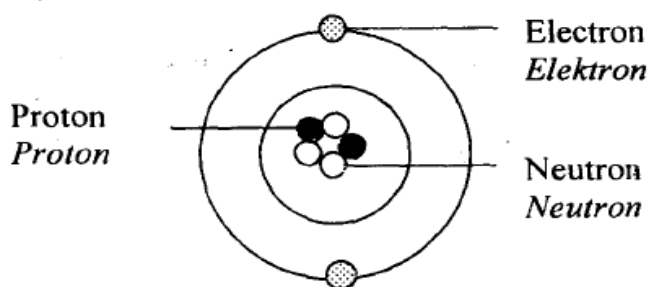
Which is correct about subatom X?

Manakah yang betul tentang subatom X?

	Proton <i>Proton</i>	Neutron <i>Neutron</i>	Electron <i>Elektron</i>
A	9	9	9
B	19	10	9
C	9	10	9
D	19	9	10

TRIAL PERLIS 2009

27. Diagram shows the structure of an atom.
Rajah menunjukkan struktur atom.



The nucleon number of this atom is

Nombor nukleon atom ini ialah

- | | | | |
|---|---|---|---|
| A | 2 | C | 5 |
| B | 3 | D | 7 |

TRIAL SABAH 2010

28. Table shows particles X and Y and their number of protons and neutrons.
Jadual menunjukkan zarah X dan Y dengan bilangan proton dan neutronnya

Particle <i>Zarah</i>	Number of protons <i>Bilangan proton</i>	Number of neutrons <i>Bilangan neutron</i>
X	7	7
Y	7	8

Which of the following statement is **true**?

Antara pernyataan yang berikut, yang manakah **benar**?

- A The nucleon number is the number of nucleus in a particle
Nombor nukleon adalah bilangan nukleus dalam suatu zarah
- B The number of electrons of X and Y are different
Nombor elektron X dan Y adalah berbeza
- C The nucleon number of X and Y are the same.
Nombor nukleon X dan Y adalah sama
- D X and Y are a pair of isotopes
X dan Y adalah sepasang isotop

TRIAL TERENGGANU 2010

29. The table show the relationship between the number of subatomic particles and nucleon number of four elements.

Jadual menunjukkan hubungan antara bilangan zarah subatom dan nombor nucleon bagi empat unsur.

Elements <i>Unsur</i>	Number of protons <i>Bilangan proton</i>	Number of neutrons <i>Bilangan neutron</i>	Number of electrons <i>Bilangan elektron</i>	Nucleon number <i>Nombor nukleon</i>
P	6	6	6	12
Q	6	8	6	14
R	7	7	7	14
S	8	8	8	16

Which of the pairs is isotope?

Antara pasangan berikut yang manakah merupakan isotop?

- A P and Q
B Q and R
C R and S
D Q and S

SPM 2003

30. Based on the table, which elements is isotope?

Berdasarkan jadual berikut, manakah unsur-unsur yang merupakan isotop?

Element <i>Unsur</i>	Nucleon number <i>Nombor nukleon</i>	Number of protons <i>Nombor Proton</i>	Number of neutron <i>Nombor neutron</i>
E	12	6	6
G	13	6	7
J	14	7	7
L	16	8	8

- A. E and G
B. G and J
C. J and L
D. E and L

4.4**THE PERIODIC TABLE****SPM 2003**

31. Based on the periodic table, which element represents a metal?

Berdasarkan jadual berkala berikut, yang manakah mewakili unsur logam ?

Group Kumpulan																	
I	II													III	IV	V	VII
	A													B	C	D	VIII

TRIAL PAHANG 2007

32. The diagram shows an incomplete Periodic Table.

Rajah menunjukkan Jadual Berkala yang tidak lengkap.

What type of element is in the shaded area?
 Apakah jenis unsur dalam kawasan berlorek?

- | | | | |
|---|----------------------|---|-----------------------------|
| A | Metal
Logam | C | Non metal
Bukan logam |
| B | Inert gas
Gas adi | D | Semi metal
Separuh logam |

TRIAL PAHANG 2008

33. Diagram shows an incomplete periodic table.
 Rajah menunjukkan jadual berkala yang tidak lengkap.

← Group →																	
I											VIII						
	II											III	IV	V	VI	VII	
	X																

Element X is a
 Unsur X ialah

- | | | | |
|---|--------------------------------|---|---------------------------------------|
| A | Metal
Logam | C | Non metal
Bukan logam |
| B | Semiconductor
Semikonduktor | D | transition element
unsur peralihan |

TRIAL SABAH 2008

34. Diagram shows an incomplete Periodic Table.
 Rajah menunjukkan Jadual Berkala yang tidak lengkap.

I																				VIII					
	II												III	IV	V	VI	VII								
													Q												

Which of the following represents Q?
 Antara berikut, yang manakah mewakili Q?

- | | | | |
|---|-----------------------------|---|--------------------------|
| A | Metal
Logam | C | Non metal
Bukan logam |
| B | Semi metal
Separuh logam | D | Gas
Gas |

TRIAL TERENGGANU 2008

35. Diagram shows an incomplete Periodic Table.
Rajah menunjukkan Jadual Berkala yang tidak lengkap.

PERIODS ↑ ↓	GROUPS																	
	1	2															18	
1																		
2																		
3			3	4	5	6	7	8	9	10	11	12						
4																	X	

What is X?

Apakah X?

- | | | | |
|---|------------------------|---|---------------------------------------|
| A | Metal
Logam | C | Non metal
Bukan logam |
| B | Noble gas
Gas nadir | D | Transition element
Unsur peralihan |

TRIAL KEDAH 2009

36. Which of the following element is a noble gas?
Unsur yang manakah merupakan gas nadir?

- | | | | |
|---|----------|---|----------|
| A | Helium | C | Oxygen |
| B | Nitrogen | D | Hydrogen |

TRIAL PERLIS 2009

37. Diagram shows an incomplete Periodic Table
Rajah menunjukkan Jadual Berkala yang tidak lengkap.

I																										VIII				
		II												III	IV	V	VI	VII												
														Q				R												
		P																												

What are special names for P, Q, and R?

Apakah nama khas unsur P, Q and R?

	P	Q	R
A	Halogen Halogen	Alkali earth metal Logam alkali bumi	Transition metal Logam peralihan
B	Alkali earth metal Logam alkali bumi	Transition metal Logam peralihan	Halogen Halogen
C	Alkali earth metal Logam alkali bumi	Halogen Halogen	Transition metal Logam peralihan
D	Transition metal Logam peralihan	Halogen Halogen	Alkali earth metal Logam alkali bumi

TRIAL SABAH 2009

38. Based on the Periodic Table, which element represents an inert gas?
 Berdasarkan Jadual Berkala, unsur yang manakah mewakili gas nadir?

Group Kumpulan																	
I	II											III	IV	V	VI	VII	VIII
	A												B		C		D

TRIAL TERENGGANU 2010

39. The diagram shows an incomplete Periodic Table
 Rajah menunjukkan Jadual Berkala yang tidak lengkap.

		GROUPS KUMPULAN																		
PERIODS KALA		I	II											III	IV	V	VI	VII	VIII	
	1																			
	2																			
	3																			
	4	X																		

What is X?

Apakah X?

- A Metal
 Logam
 B Noble gas
 Gas nadir

- C Non metal
 Bukan logam
 D Transition element
 Unsur peralihan

TRIAL KELANTAN 2010

40. Diagram shows incomplete Periodic Table.
 Which element A, B, C or D is a semi metallic element?
 Rajah menunjukkan jadual Berkala yang tidak lengkap.
 Antara unsur A, B, C dan D yang manakah separa logam?

I	II											III	IV	V	VI	VII	VIII
A																	
																	B
				C								D					

TRIAL SABAH 2008

41. Table shows some physical properties of elements X, Y and Z.

Jadual menunjukkan sebahagian sifat bagi unsur X, Y dan Z.

Element Unsur	Melting Point Takat lebur (°C)	Electrical Conductivity in <i>Mengkonduksikan elektrik dalam</i>	
		Solid state <i>Keadaan pepejal</i>	Molten state <i>Keadaan cecair</i>
X	115	Poor <i>Lemah</i>	Poor <i>Lemah</i>
Y	800	Poor <i>Lemah</i>	Good <i>Baik</i>
Z	2100	Good <i>Baik</i>	Good <i>Baik</i>

What are elements X, Y and Z?

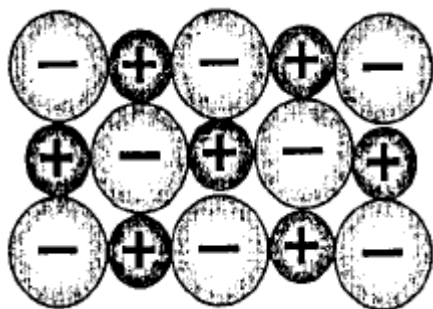
Apakah unsur X, Y and Z?

	X	Y	Z
A.	Molecule <i>Molekul</i>	Atom <i>Atom</i>	Ion <i>Ion</i>
B.	Molecule <i>Molekul</i>	Ion <i>Ion</i>	Atom <i>Atom</i>
C.	Atom <i>Atom</i>	Molecule <i>Molekul</i>	Ion <i>Ion</i>
D.	Ion <i>Ion</i>	Atom <i>Atom</i>	Molecule <i>Molekul</i>

TRIAL KELANTAN 2009

42. Diagram shows the arrangement of particles in a substance.

Rajah menunjukkan susunan zarah dalam suatu bahan.



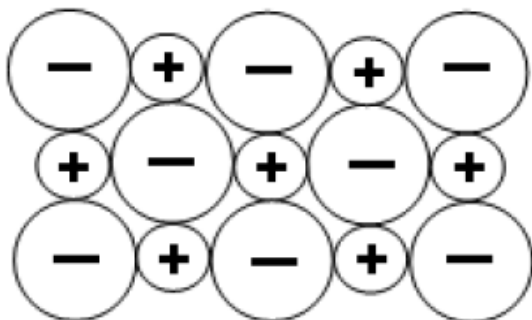
Which of the following is correct?

Manakah antara berikut yang betul?

- A. This substance conduct electricity
Bahan ini mengalirkan arus elektrik
- B. The substance has low boiling point
Bahan ini mempunyai takat didih yang rendah
- C. The substance act as electrolyte in electrolysis
Bahan tersebut merupakan elektrolit dalam elektrolisis
- D. The particles shown represents the structure of metal
Zarah yang dirunjukkan mewakili susunan logam.

TRIAL SABAH 2009

43. Diagram shows the arrangement of ions in an ionic compound.
Rajah menunjukkan susunan ion bagi sebatian ionik.



Which substance is represented by the particles shown in the Diagram?
Manakah bahan yang diwakili oleh partikel seperti Rajah?

- | | |
|-----------------------------|---|
| A Zinc
<i>Zink</i> | C Sulphur
<i>Sulfur</i> |
| B Mercury
<i>Merkuri</i> | D Sodium chloride
<i>Natrium klorida</i> |

TRIAL KELANTAN 2010

44. Which of the following is classified as molecular compounds?
Antara berikut yang manakah dikelaskan sebagai molekul sebatian?

- | | |
|----------|-----------|
| A Helium | C Sodium |
| B Oxygen | D Ammonia |

4.6

PROPERTIES OF METALS AND NON METALS**TRIAL JOHOR 2009**

45. How atoms are arranged in a metal?
Bagaimanakah susunan atom-atom dalam logam?

- The atoms move randomly
Atom bergerak secara rawak
- The atoms are not neatly arranged
Atom-atom tidak tersusun dengan sekata
- There are spaces between the atoms
Terdapat ruang antara atom
- The atoms can slide over one another easily
Atom-atom boleh menggelongsor di atas satu sama lain.

SPM 2004

46. Which of the following elements are non metal?
Antara unsur berikut manakah bukan logam?

- | | |
|--|---|
| A. Iron, sulphur, chlorine
<i>Ferum, sulphur, klorin</i> | C. Carbon, iron, chlorine
<i>Karbon, ferum, klorin</i> |
| B. Carbon, sulphur, chlorine
<i>Karbon, sulphur, klorin</i> | D. Iron, copper, lead
<i>Ferum, kuprum, plumbum</i> |

TRIAL KEDAH 2009

47. The following information shows the physical properties of substance X.
Maklumat berikut menunjukkan sifat-sifat fizikal bagi bahan X?

- High melting point
Takat lebur tinggi
- High boiling point
Takat didih tinggi
- Conduct electricity in molten state only
Mengkonduksikan elektrik dalam keadaan leburan sahaja

Substance X is

Bahan X ialah

- | | | | |
|---|-------------------------|---|---|
| A | Water
<i>Air</i> | C | Carbon dioxide
<i>Karbon dioksida</i> |
| B | Copper
<i>Kuprum</i> | D | Copper (II) sulphate
<i>Kuprum (II) sulfat</i> |

TRIAL PERLIS 2009

48. The following information shows the characteristics of substance R.
Maklumat berikut menunjukkan ciri-ciri suatu bahan R.

- Has a low melting point
Mempunyai takat lebur yang rendah
- Does not conduct heat and electricity.
Tidak boleh mengalirkan arus elektrik

What is substance R?

Apakah bahan R?

- | | | | |
|---|-------------------------|---|--------------------------|
| A | Silver
<i>Perak</i> | C | Carbon
<i>Karbon</i> |
| B | Bronze
<i>Gangsa</i> | D | Sulphur
<i>Sulfur</i> |

TRIAL SABAH 2010

49. Substance X conducts electricity in the solid and molten states. Substance Y does not conduct electricity in the solid and molten states.

Which of the following are X and Y likely to be?

Sebatian X mengkonduksikan elektrik dalam keadaan pepejal dan leburan. Sebatian Y tidak mengkonduksikan elektrik dalam keadaan pepejal dan leburan.

Manakah antara berikut adalah X dan Y yang mungkin?

	X	Y
A	Lead bromide <i>Plumbum bromida</i>	Naphthalene <i>Naftalena</i>
B	Naphthalene <i>Naftalena</i>	Lead bromide <i>Plumbum bromida</i>
C	Copper <i>Kuprum</i>	Sulphur <i>Sulfur</i>
D	Sulphur <i>sulfur</i>	Copper <i>kuprum</i>

SPM 2003

54. The freezing point of distilled water is

Takat beku air suling ialah

- A. -4°C C. 3°C
B. 0°C D. 100°C

TRIAL PAHANG 2007

55. Pure water can be produced from polluted water by

Air tulen boleh dihasilkan daripada air yang tercemar dengan cara

- | | |
|------------------------------------|--|
| A Evaporation
<i>Penyejatan</i> | C Distillation
<i>Penyulingan</i> |
| B Boiling
<i>Pendidihan</i> | D Crystallization
<i>Penghabluran</i> |

TRIAL SABAH 2008

56. Liquid M has boiling points of 78°C and liquid N has boiling of 100°C . How to obtain liquid M from the mixture of two liquids?

Cecair M mempunyai takat didih 78°C dan takat didih cecair N 100°C . Bagaimanakah cara untuk mendapatkan cecair M daripada campuran kedua-dua cecair tersebut?

- | | |
|--|--------------------------------------|
| A Filtration
<i>Penurasan</i> | C Distillation
<i>Penyulingan</i> |
| B Crystallization
<i>Penghabluran</i> | D Evaporation
<i>Penyejatan</i> |

TRIAL KELANTAN 2009

57. Which method is used to produce salt from a salt solution?

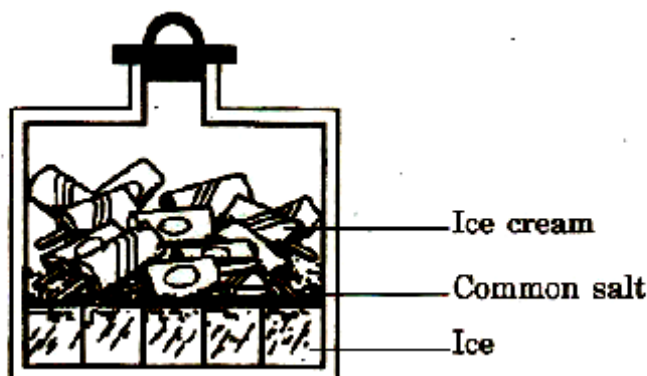
Kaedah yang manakah digunakan untuk menghasilkan garam daripada larutan garam?

- | | |
|--|--|
| A Condensation
<i>Kondensasi</i> | C Distillation
<i>Penyulingan</i> |
| B Crystallization
<i>Penghabluran</i> | D Fractional distillation
<i>Penyulingan berperingkat</i> |

SPM 2006

58. Diagram shows a container used by a seller to keep ice creams.

Rajah menunjukkan bekas yang digunakan oleh penjual untuk menyimpan aiskrim?



What is the reason for putting common salt on top of the ice?
Apakah tujuan meletakkan garam biasa ke atas ais tersebut?

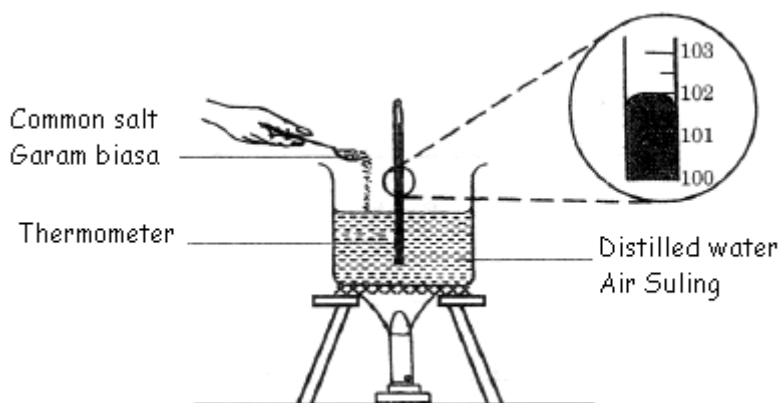
- A. To improve the taste of the ice cream
Untuk menyedapkan lagi rasa aiskrim
- B. To increase the melting point of the ice cream
Untuk meningkatkan takat lebur aiskrim
- C. To slow down the freezing of the ice cream
Untuk memperlhankan pembekuan ais krim
- D. To prevent the ice cream from melting quickly.
Untuk mengelakkan ais krim daripada cepat cair

PAPER 2

SECTION A

SPM 2003

1. Figure shows an experiment to study the effect of impurities on the boiling point of distilled water
Rajah menunjukkan eksperimen untuk mengkaji kesan bendasing ke atas takat didih air suling.



The results of the experiment are recorded in Table.
Keputusan yang diperoleh dicatatkan dalam Jadual..

Substances <i>Bahan</i>	Boiling point $^{\circ}\text{C}$ <i>Takat didih</i>
Distilled water <i>Air suling</i>	100
Distilled water + common salt <i>Air suling + garam biasa</i>	

- (a) Based on the above experiment, complete Table.
Berdasarkan eksperimen di atas, lengkapkan Jadual. [1 mark]

- (b) Write down **one** inference based on the results of this experiment
*Tuliskan **satu** inferens berdasarkan keputusan eksperimen itu.*

.....[1 mark]

- (c) State the variables in this experiment
Nyatakan pemboleh ubah dalam eksperimen itu.

- (i) Manipulated variable
Pemboleh ubah dimanipulasikan:.....

(ii) Responding variable

Pemboleh ubah bergerak balas:.....[2 mark]

(d) What is the operational definition of distilled water?

Apakah definisi secara operasi bagi air suling'?

.....[1 mark]

TRIAL SABAH 2008

2. An experiment is carried out to determine the boiling point of a liquid. The temperature of the liquid is recorded every two minutes until it boils. Table shows the result of the experiment.

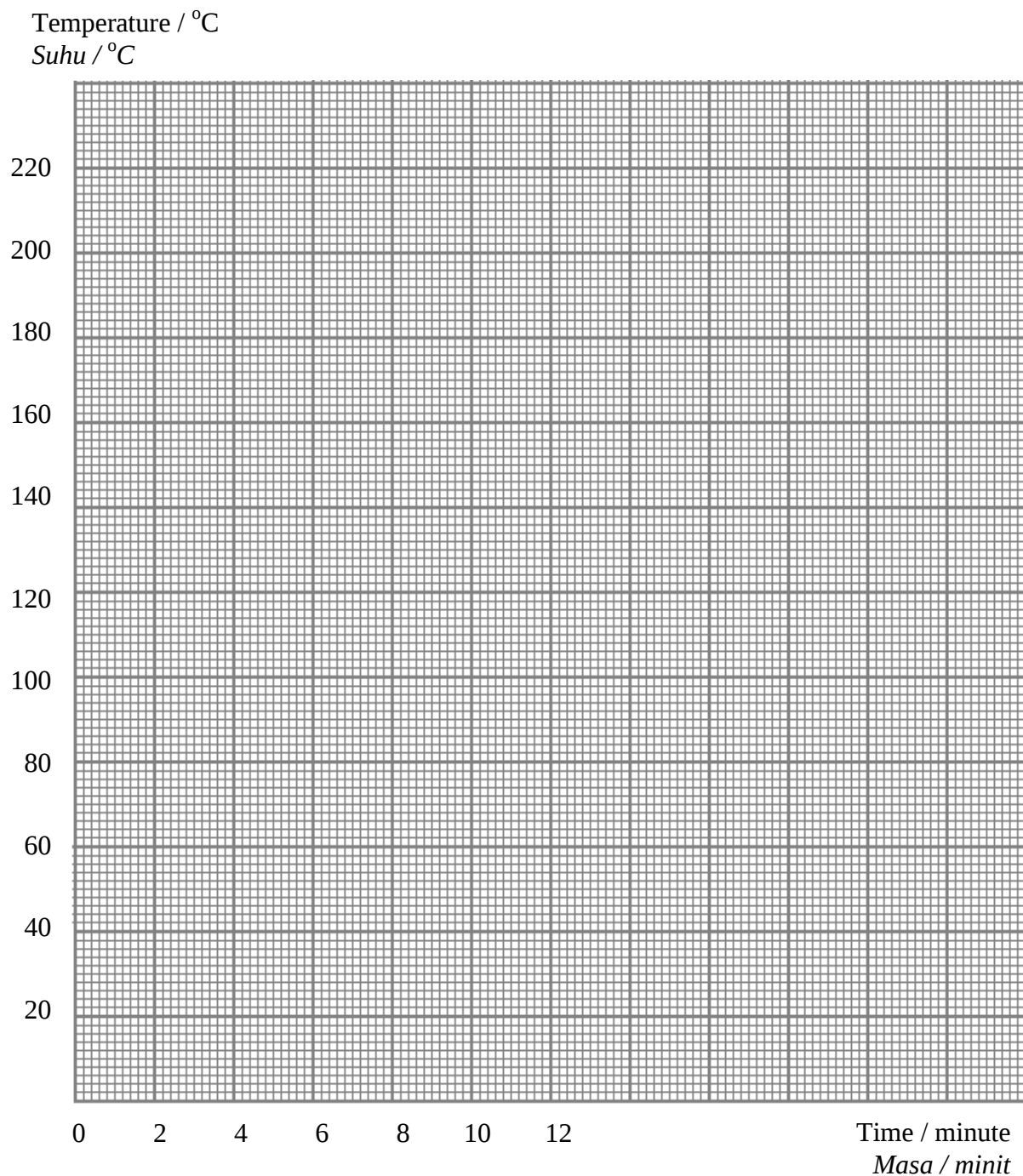
Satu eksperimen dijalankan untuk menentukan takat didih suatu cecair. Suhu cecair itu direkodkan setiap dua minit sehingga mendidih. Jadual 1 menunjukkan keputusan eksperimen.

Time/minute <i>Masa/minit</i>	0	2	4	6	8	10	12
Temperature/°C <i>Suhu/°C</i>	0	20	40	60	80	100	100

(a) Based on Table 1, draw a graph of temperature against time.

Berdasarkan Jadual 1, lukiskan graf suhu melawan masa.

[2 marks]



- (b) Based on the graph in 1 (a), state the relationship between the temperature of the liquid and time in the first 10 minutes.
Berdasarkan graf di 1(a), nyatakan hubungan antara suhu cecair itu dengan masa dalam 10 minit pertama

..... [1 mark]

- (c) Determine the boiling point of the liquid from the graph.
Tentukan takat didih cecair tersebut daripada graf.

..... [1 mark]

- (d) Predict the boiling point of the solution if common salt powder is added.
Ramalkan takat didih larutan itu jika serbuk garam biasa ditambah.

.....[1 mark]

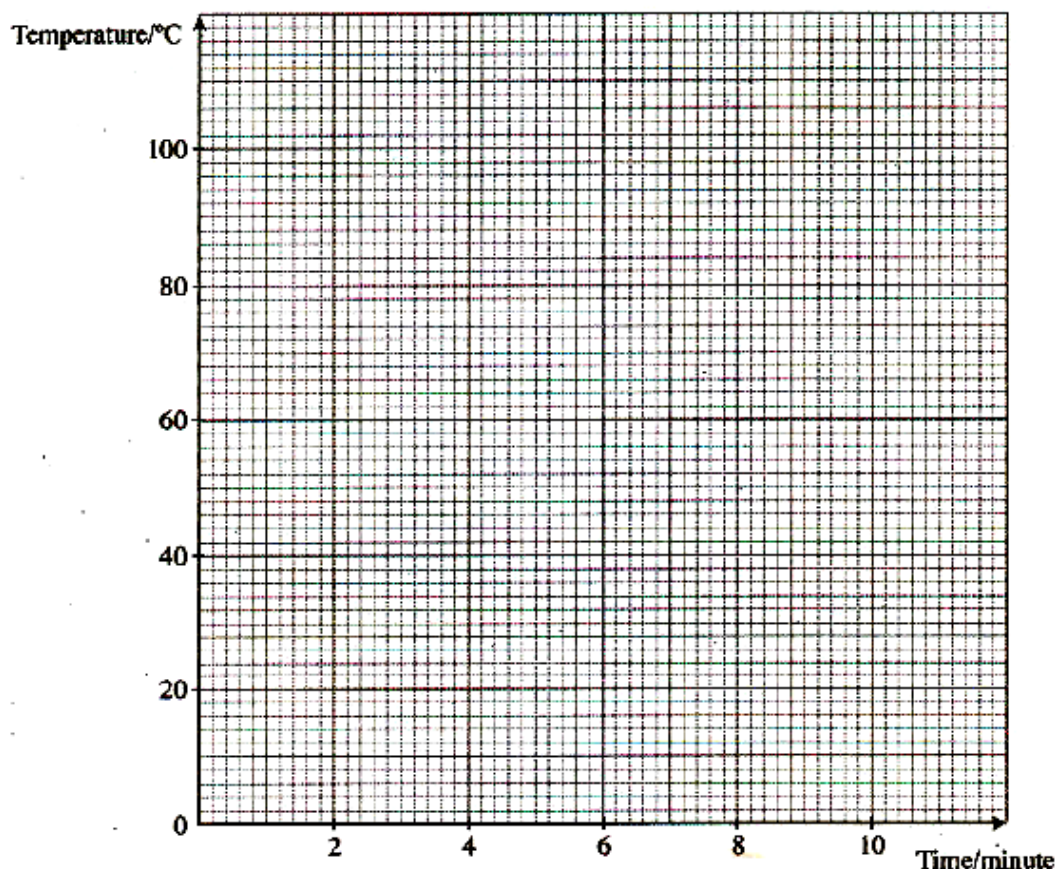
SPM 2005

3. A pupil has conducted a laboratory experiment to determine the boiling point of solution. The temperature of the solution is recorded every 2 minutes until it boils. Table shows the result of the experiment.

Seorang pelajar telah menjalankan satu eksperimen untuk menentukan takat didih larutan. Suhu larutan direkodkan setiap 2 minit sehingga mendidih. Jadual menunjukkan keputusan eksperimen.

Time / minute <i>Masa/minit</i>	0	2	4	6	8	10
Temperature/ $^{\circ}\text{C}$ <i>Suhu / $^{\circ}\text{C}$</i>	28	48	68	88	102	102

- (a) Based on Table above, draw a graph of temperature against time.
Berdasarkan Jadual di atas, lukiskan graf suhu melawan masa.



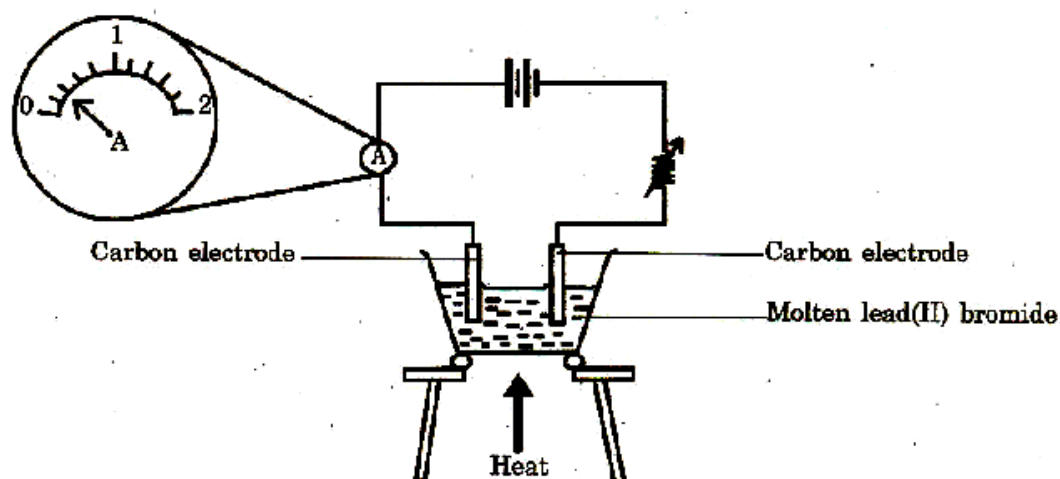
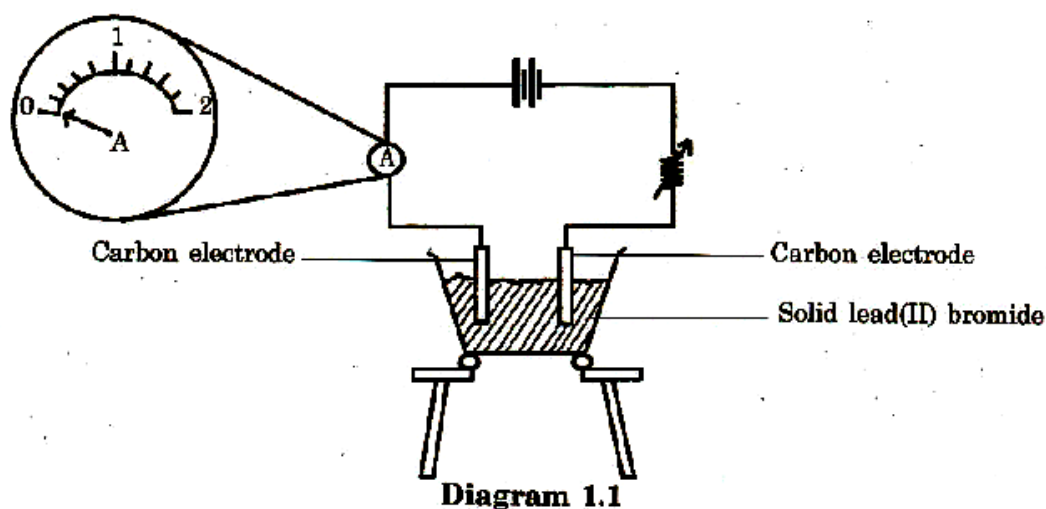
- (b) What is the relationship between the temperature of the solution and time in the first 6 minutes?
Apakah hubungan antara suhu larutan dan masa dalam 6 minit pertama?

- (c) Based on the graph in (a), determine the boiling point of the solution. Mark the boiling point of the solution on the graph.
Berdasarkan graf di (a), tentukan takat didih larutan. Tandakan takat didih larutan pada graf.

SPM 2006

4. Diagram 1.1 and Diagram 1.2 show an experiment to study the electrical conductivity of lead (II) bromide.

Rajah 1.1 dan Rajah 1.2 menunjukkan satu eksperimen untuk mengkaji kekonduksiaan elektrik bagi plumbum(II) bromida.



- (a) (i) Based on Diagram 1.2, what is your observation on the needle of the ammeter?

Berdasarkan Rajah 1.2, apakah pemerhatian anda keatas jarum ammeter?

- (ii) What is the reading of the ammeter in Diagram 1.2?

Apakah bacaan ammeter dalam Rajah 1.2?

A

- (b) State the variable in this experiment

Nyatakan pembolehubah bagi eksperimen ini.

- (i) Manipulated variable

Pembolehubah manipulasi

- (ii) Responding variable

Pembolehubah bergerakbalas

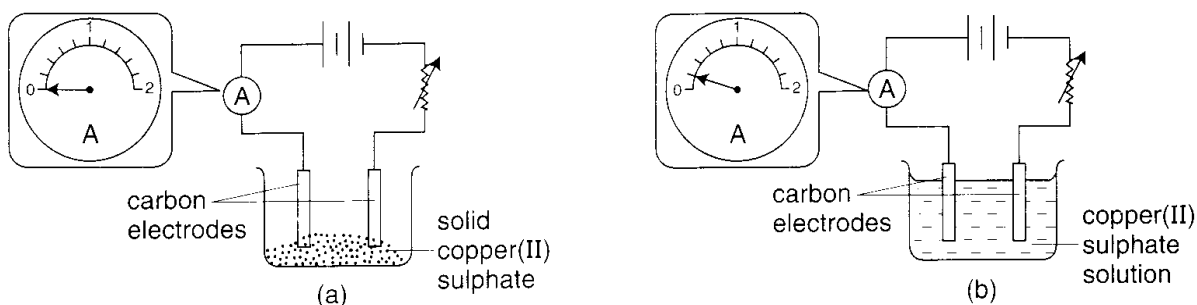
- (c) State one inference for this experiment.
Nyatakan inferens bagi eksperimen ini.

- (d) Lead (II) bromide is an ionic compound. State the operational definition for an ionic compound.
Plumbum (II) bromida ialah sebatian ionik. Nyatakan definisi secara operasi bagi sebatian ionik.

TRIAL SABAH 2008

5. Diagram (a) and (b) show an experiment carried out to study the electrical conductivity of copper (II) sulphate solution.

Rajah(a) dan (b) menunjukkan eksperimen yang dijalankan untuk mengkaji kekonduksian elektrik bagi kuprum (II) sulfat.



- (a) What is the reading of the ammeter in Diagram (b)?
Apakah bacaan ammeter dalam Rajah (b)?

Ammeter in Diagram (a): 0 A

Ammeter dalam Rajah (a): _____

Ammeter in Diagram (b): _____ A

Ammeter dalam Rajah (b): _____

[1 mark]

- (b) State the manipulated variable in this experiment.
Nyatakan pembolehubah dimanipulasikan dalam eksperimen ini.

..... [1 mark]

- (c) Tick (✓) the substance which can be used to replace copper (II) sulphate and give the same observation as in Diagram.

Tandakan (✓) bagi bahan yang boleh digunakan untuk menggantikan kuprum (II) sulphate dan menghasilkan pemerhatian yang sama seperti dalam Rajah..

Naphtalene Naftalena	Sodium chloride Natrium klorida	Glucose Glukosa	Potassium iodide Kalium iodida

[1 mark]

- (d) State **one** inference for this experiment.
Nyatakan **satu** inferens bagi eksperimen ini.

..... [1 mark]

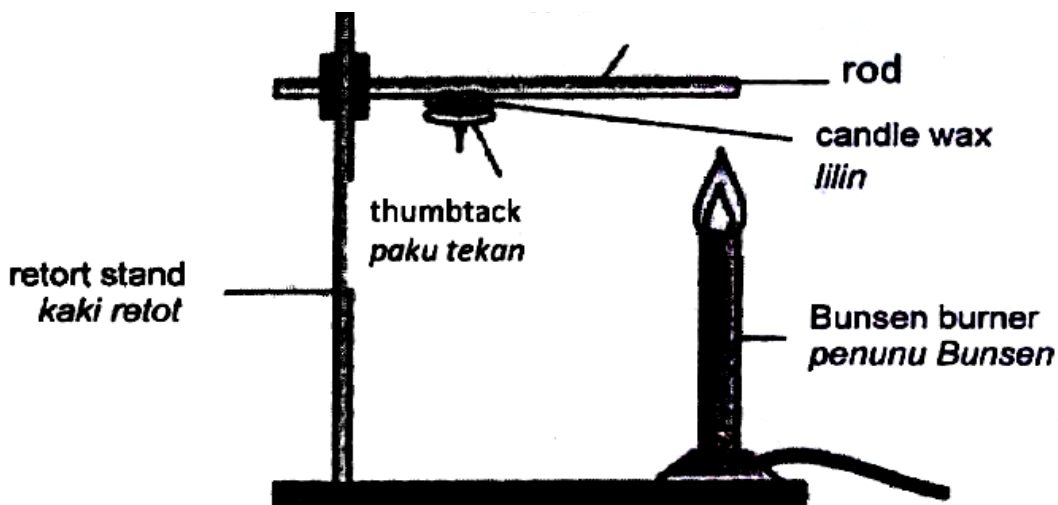
- (e) Copper (II) sulphate is an ionic compound. State the operational definition of an ionic compound.
Kuprum (II) sulfat ialah sebatian ion. Nyatakan definisi secara operasi bagi sebatian ion.

.....[1 mark]

TRIAL JOHOR 2009

6. Diagram shows an experiment to study the heat conductivity of two rod made of different substances. The distance of the thumbtack from Bunsen burner is 15 cm. The time taken to the thumbtack drop is recorded. The result of the experiment is shown in Table below.

Rajah menunjukkan eksperimen untuk mengkaji kekonduksiaan haba bagi dua bahan rod yang berbeza. Jarak paku tekan daripada penunu Bunsen adalah 15 cm. Masa yang diambil untuk paku tekan jatuh dicatat. Keputusan eksperimen ditunjukkan dalam Jadual dibawah.



Subatance <i>Bahan</i>	Time taken for the thumbtack to drop/ s <i>Masa diambil untuk paku tekan jatuh/ s</i>
Iron rod <i>Rod besi</i>	20
Glass rod <i>Rod kaca</i>	75

- (a). Based on Table above, which rod substance will drop the thumbtack faster?
Berdasarkan Jadual di atas, bahan rod manakah akan lebih cepat menjatuhkan paku tekan?

..... [1 mark]

- (b). State the variable in this experiment.
Nyatakan pembolehubah dalam eksperimen ini.

(i). Constant variable
Pembolehubah dimalarkan: [1 mark]

(ii). Responding variable
Pembolehubah bergerakbalas: [1 mark]

- (c). State one hypothesis for this experiment
Nyatakan satu hipotesis bagi eksperimen ini.

..... [1 mark]

- (d). State operational definition for heat conductivity.
Nyatakan definisi secara operasi bagi kekonduksian haba

..... [1 mark]

TRIAL KEDAH 2009

7. Diagram shows an experiment to study the electrical conductivity of substance.
Rajah menunjukkan satu eksperimen untuk mengkaji kekonduksian elektrik bahan.

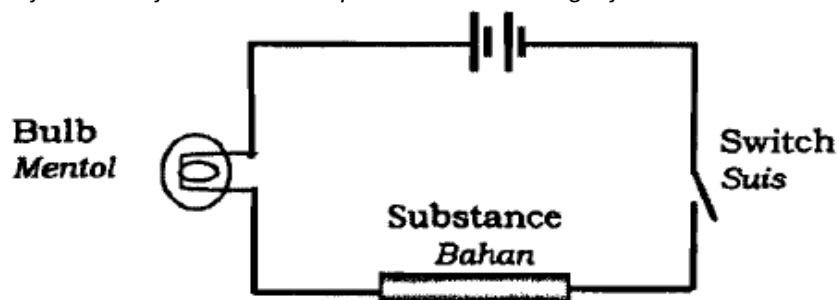


Table below shows the result of this experiment
Jadual di bawah menunjukkan keputusan eksperimen ini.

Substance <i>Bahan</i>	Condition of bulb <i>Keadaan mentol</i>
Iron rod <i>Rod besi</i>	Light up <i>Menyala</i>
Sulphur rod <i>Rod sulfur</i>	Does not light up <i>Tidak menyala</i>

- (a). State the hypothesis of this experiment
Nyatakan hipotesis bagi eksperimen ini

..... [1 mark]

- (b). State the variable in this experiment.
Nyatakan pembolehubah dalam eksperimen ini

- (i). Manipulated variable

Pembolehubah manipulasi : [1 mark]

- (ii). Responding variable

Pembolehubah bergerakbalas : [1 mark]

- (c). Iron rod is a metal. Based on this experiment, state the operational definition for metal.
Rod besi ialah logam. Berdasarkan eksperimen ini, nyatakan definisi secara operasi bagi logam.

..... [1 mark]

- (d). Tick (✓) in the boxes in Table below the substances which can be used to replace iron rod in this experiment.

Tandakan (✓) dalam petak pada Jadual di bawah bahan-bahan yang boleh digunakan bagi menggantikan rod besi dalam eksperimen ini.

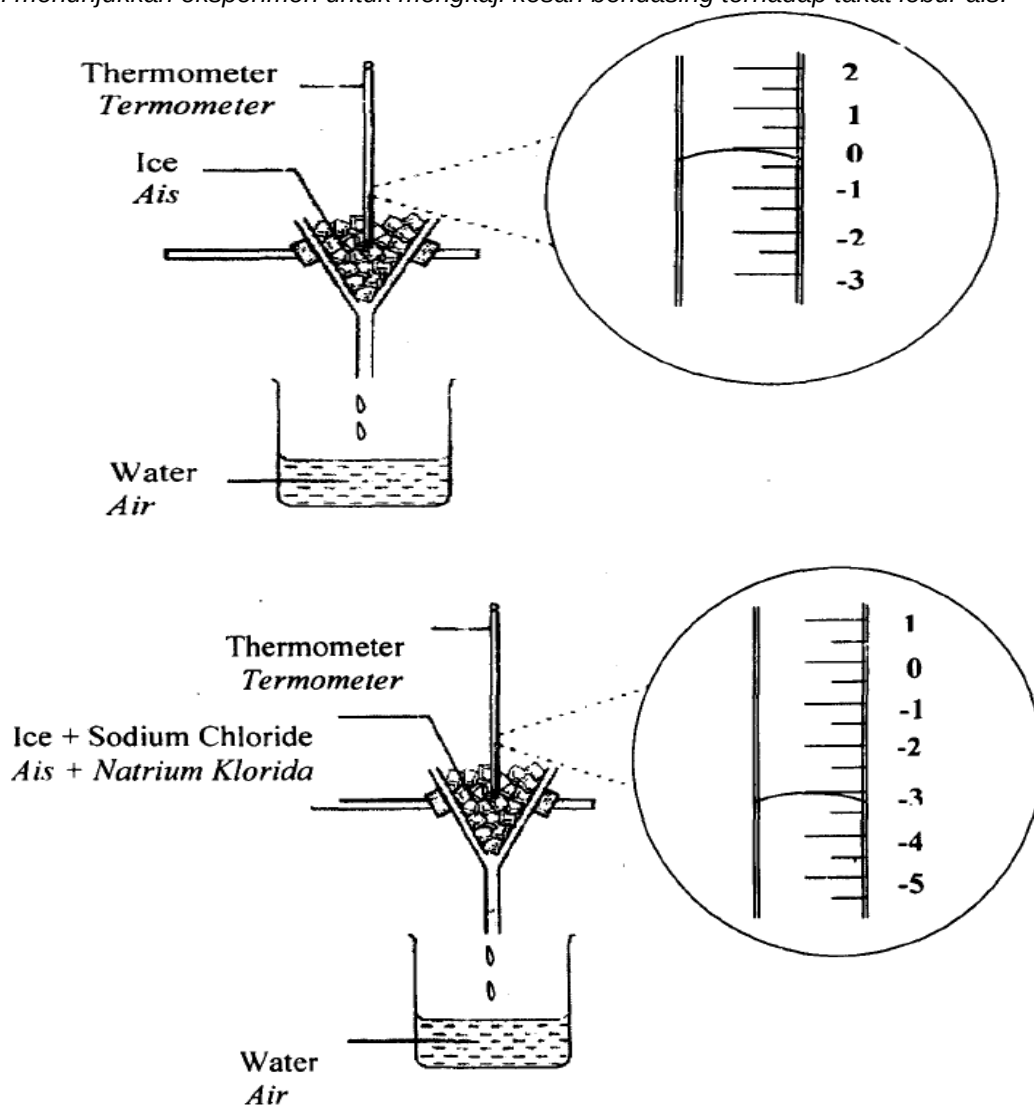
Copper rod <i>Rod kuprum</i>	
Plastic rod <i>Rod plastik</i>	
Lead rod <i>Rod plumbum</i>	
Glass rod <i>Rod gelas</i>	

[1 mark]

TRIAL PERLIS 2009

8. Diagram shows an experiment to study the effect of impurities on melting point of ice.

Rajah menunjukkan eksperimen untuk mengkaji kesan bendasing terhadap takat lebur ais.



The results of the experiment are recorded in Table below.
Keputusan eksperimen direkodkan di dalam Jadual di bawah.

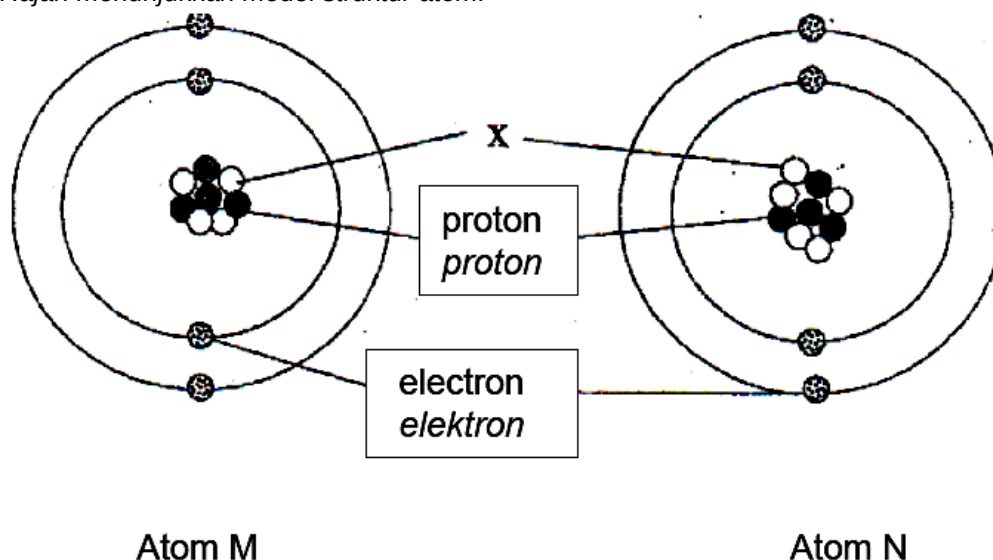
Substances <i>Bahan</i>	Melting point / °C <i>Takat lebur / °C</i>
Ice <i>Ais</i>	0
Ice + Sodium Chloride <i>Ais + Natrium Klorida</i>	

- (a). Based on the above experiment, complete Table.
Berdasarkan eksperimen di atas, lengkapkan Jadual [1 mark]
- (b). State one inference for this experiment.
Nyatakan satu inferens bagi tindakbalas ini.
..... [1 mark]
- (c). State the variable in this experiment.
Nyatakan pembolehubah dalam eksperimen ini
- (i). Manipulated variable
Pembolehubah manipulasi : [1 mark]
- (ii). Responding variable
Pembolehubah bergerakbalas : [1 mark]
- (d). State one application of this principle in everyday life.
Nyatakan satu kegunaan prinsip ini dalam kehidupan harian.
..... [1 mark]

SECTION B

TRIAL PAHANG 2009

9. Diagram shows a model of atomic structure.
Rajah menunjukkan model struktur atom.



- (a). Name particle X.
Namakan zarah X.

..... [1 mark]

- (b). Based on Diagram, state the proton number and nucleon number bagi atom M.
Berdasarkan Rajah, nyatakan nombor proton dan nombor nukleon bago atom M.

Proton number

Nombor proton : [1 mark]

Nucleon number

Nombor nukleon : [1 mark]

Atom Atom	Proton Number Nombor proton	Nucleon Number Nombor Nukleon	Number of proton Bilangan proton
P	6	12	6
Q	6	14	6
R	7	14	7
S	8	16	8

- (c). (i) Based on Table above, which pairs are isotopes?
Berdasarkan Jadual di atas, pasangan manakah merupakan isotop?

..... [1 mark]

- (ii) Give a reason for your answer in (c)(i)
Berikan satu sebab untuk jawapan anda dalam (c)(i)

..... [1 mark]

- (d). How many neutrons are there in atom Q.
Berapakah bilangan atom neutron dalam atom Q.

..... [1 mark]

TRIAL TERENGGANU 2010

10. Diagram shows an incomplete Periodic Table.
Rajah menunjukkan lakaran Jadual Berkala yang tidak lengkap.

		GROUP KUMPULAN																		
PERIOD KALA		I												III	IV	V	VI	VII	VIII	
			II												R			S		
1																				
2																				
3		P																		T
4											Q							U		
5																				

- (a). How are the elements in the Periodic Table arranged?
Bagaimanakah unsur-unsur dalam Jadual Berkala disusun?

..... [1 mark]

- (b). Based on Diagram, state
Berdasarkan Rajah, nyatakan

(i). The type of element Q
Jenis unsur Q : [1 mark]

(ii). The element with the biggest proton number
Unsur yang mempunyai nombor proton paling besar : [1 mark]

- (c). State the changes of element type from P to T in the Periodic Table
Nyatakan perubahan jenis unsur dari P ke T dalam Jadual Berkala.

..... [1 mark]

- (d). State the similar characteristic between element T and element U
Nyatakan satu sifat yang sama antara unsur T dan unsur U

..... [1 mark]

- (e). Based on Diagram, state two elements which will form an ionic substance when combined.
Beradsarkan Rajah, nyatakan dua unsur yang akan membentuk bahan ion apabila bergabung.

..... [1 mark]

SECTION C

SPM 2008

11. Study the following statement:

Kaji pernyataan berikut:

Electrical conductivity of metals and non-metals are different.
Kekanduksian elektrik bagi logam dan bukan logam adalah berbeza

You are given a copper rod and a glass rod of the same size, one dry cell and a bulb.
Anda dibekalkan dengan rod kuprum dan rod kaca yang sama saiz, satu sel kering dan sebiji mentol.

- (a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- | | |
|---|----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 maks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

12. Study the following statement:

Kaji pernyataan berikut:

Madam Wong finds out that the water in the aluminium pot boils faster than the water in the iron pot.

Puan Wong mendapati air di dalam bekas aluminium mendidih lebih cepat berbanding air di dalam bekas besi.

You are given iron rod, aluminium rod, thumbtack, stopwatch and other apparatus
Anda diberi rod besi, rod aluminium, paku tekan, jam randik dan radas lain.

a) Suggest one hypothesis to investigate the above statement

Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[1 mark]

(b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:

Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:

(i) Aim of the experiment

[1 mark]

Tujuan eksperimen

(ii) Identification of variables

[2 mark]

Mengenalpasti pembolehubah

(iii) List of apparatus and materials

[1 mark]

Senarai bahan dan radas

(iv) Procedure or method

[4 maks]

Kaedah

(v) Tabulation of data

[1 mark]

Penjadualan data

13. Study the following statement.

Kaji pernyataan berikut:

Electrical conductivity of metals and non metals are different.
Kekonduksiaan elektrik badi logam dan bukan logam adalah berbeza

You are given a copper rod and a glass rod of the same size, one dry cell, crocodile clips and wire.

Anda diberi rod kuprum dan rod kacayang sama saiz, satu sel kering, klip buaya dan wayar

a) Suggest one hypothesis to investigate the above statement

Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[1 mark]

(b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:

Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:

(i) Aim of the experiment

Tujuan eksperimen

[1 mark]

(ii) Identification of variables

Mengenalpasti pembolehubah

[2 mark]

(iii) List of apparatus and materials

Senarai bahan dan radas

[1 mark]

(iv) Procedure or method

Kaedah

[4 maks]

(v) Tabulation of data

Penjadualan data

[1 mark]

14. Study the following statement.

Kaji pernyataan berikut:

A student found that boiling point of distilled water is 100°C but adding salt increase the boiling point of distilled water.

Pelajar mendapati takat didih bagi air suling ialah 100°C tetapi penambahan garam akan meningkatkan takat didih air suling.

Describe an experiment that you can carry out in a laboratory. You are given, salt, thermometer, beaker, tripod stand, wire gauze, Bunsen burner and other material.

Terangkan eksperimen yang anda dijalankan di makmal. Anda diberi garam, termometer, bikar, tungku kaki tiga, kasa dawai, penunu Bunsen dan radas lain.

a) Suggest one hypothesis to investigate the above statement

Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[1 mark]

(b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:

Huraikan satu eksperimen untuk menguji hipotesis di 10(a) berdasarkan kriteria berikut:

(i) Aim of the experiment

Tujuan eksperimen

[1 mark]

(ii) Identification of variables

Mengenalpasti pembolehubah

[2 mark]

(iii) List of apparatus and materials

Senarai bahan dan radas

[1 mark]

(iv) Procedure or method

Kaedah

[4 maks]

(v) Tabulation of data

Penjadualan data

[1 mark]

15. Study the following statement.

Kaji pernyataan berikut:

Potassium chloride and sulphur have a different electrical conductivity characteristic.
Kalium klorida dan sulfur mempunyai sifat kekonduksiaan yang berbeza.

You are given, potassium chloride powder, sulphur powder, spatula, carbon electrodes, connecting wire, crocodile clip, Bunsen burner, tripod stand and other apparatus.

Anda diberi serbuk kalium klorida, serbuk sulfur, spatula, elektrod karbon, wayar penyambung, klip buaya, penunu Bunsen, tungku kaki tiga dan radas lain.

- a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di l(a) berdasarkan kriteria berikut:
- | | |
|---|----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 maks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

16. Study the following statement.

Kaji pernyataan berikut:

Molten ionic substance can conduct electric but solid ionic substance cannot conduct electric
Sebatian ionik leburan boleh mengalirkan elektrik tetapi sebatian ionik pepejal tidak boleh mengalirkan elektrik

You are given, lead(II) bromide, crucible, tripod stand, pipe clay triangle, carbon electrode, connecting wire, crocodile clip, Bunsen burner and dry cells.

Anda diberi plumbum (II) bromida, mangkuk pijar, tungku kaki tiga, tanah liat segitiga, elektrod karbon, wayar penyambung, klip buaya, penunu Bunsen dan sel kering.

- a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- | | |
|---|----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 maks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

17. Study the following statement:

Kaji pernyataan berikut:

Metal is a good conductor of heat whereas non metal is heat insulator
Logam ialah pengalir haba yang baik manakala bukan logam ialah penebat haba

You are given thumb tack, glass rod, copper rod, Bunsen burner, retort stand
Anda diberi paku tekan, rod kaca, rod kuprum, penunu Bunsen, retort stand.

- a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- | | |
|---|----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 maks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

TRIAL SABAH 2009

18. (a) State two differences between atomic elements and ionic compounds.

Give one example of an atomic elements and ionic compounds.

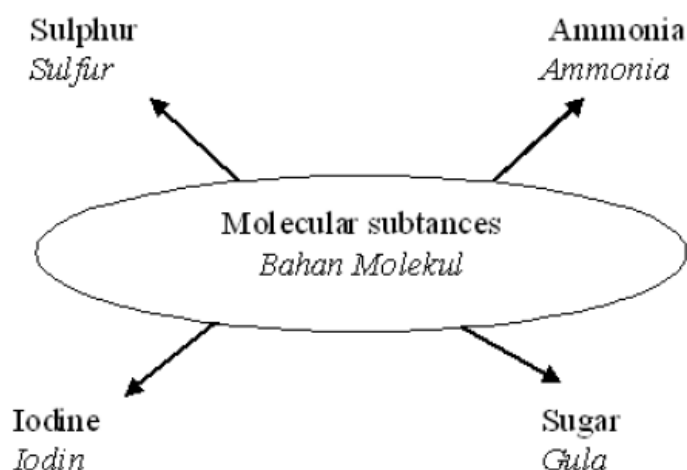
Nyatakan dua perbezaan antara unsur atom dan sebatian ion.

Beri satu contoh unsur atom dan sebatian ion.

[4 marks]

(b) Diagram shows four examples of molecular substances.

Rajah menunjukkan empat contoh bahan molekul.



Study the examples in Diagram and construct the concept of molecular substances.

Kaji contoh-contoh dalam Rajah dan bina konsep bahan molekul.

Your answer should be based on the following aspects:

Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- Identify two common characteristics.

Kenalpasti dua ciri sepunya

[2 marks]

- Give one other example of molecular substances.

Beri satu contoh lain bagi bahan molekul

[1 mark]

- Give one example of non molecular substances and the reason for your choice.

Beri satu contoh bahan bukan molekul dan sebab kepada pemilihan anda.

[2 marks]

- State the actual concept of molecular substances.

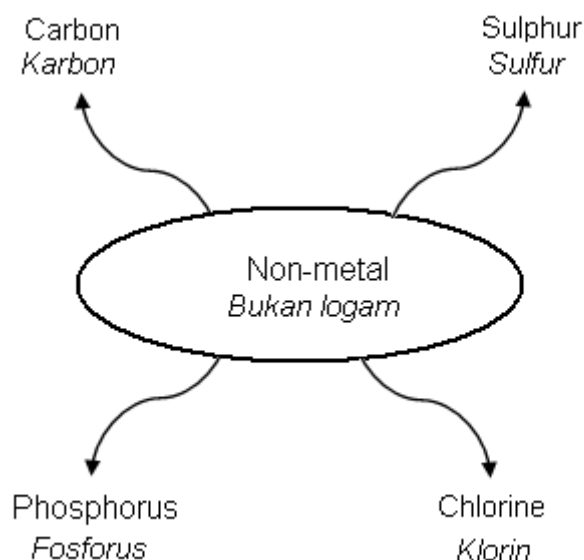
Nyatakan konsep sebenar bahan molekul

[1 mark]

TRIAL SABAH 2010

19. (a) State two uses of metal in daily life and the physical properties being applied.
Nyatakan dua kegunaan logam dalam kehidupan harian dan ciri fizikal yang diaplikasikan.
[4 marks]

- (b) Diagram shows four examples of non-metals.
Rajah menunjukkan empat contoh bukan logam.



Study the examples in Diagram and construct the concept of non-metal.
Kaji contoh-contoh dalam Rajah dan bina konsep bukan logam.

Your answer should be based on the following aspects:
Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- Identify **two** common characteristics [2 marks]
*Kenal pasti **dua** ciri sepunya*
- Give **one** other example of non-metal [1 mark]
*Beri **satu** contoh lain bagi bukan logam*
- Give **one** example of metal and the reason for your choice. [2 marks]
*Beri **satu** contoh logam dan sebab kepada pemilihan anda*
- State the actual concept of non-metal. [1 mark]
Nyatakan konsep sebenar bukan logam

SPM 2004

20. Iron is an atomic substance whereas sugar is a molecular substance. State four differences between iron and sugar based on the substances, atomic and molecular properties.

Besi ialah bahan atom manakala gula ialah bahan molekul. Nyatakan empat perbezaan antara besi dan gula berdasarkan sifat-sifat bahan atom dan molekul.

- (b) A student finds that the sugar she kept in a jar has dissolved to form a solution. Explain how to obtain the sugar crystals from the sugar solution. Your explanation should include the following:
seorang pelajar mendapati gula yang disimpannya di dalam balang melarut menjadi larutan. Terangkan bagaimana untuk memperolehi hablur gula daripada larutan gula. Penerangan anda mestilah mengandungi yang berikut:

- Problem statement
Pernyataan masalah
- Name of the method used
Nama kaedah yang digunakan
- Steps of the method used.
Langkah-langkah kaedah yang digunakan

CHAPTER 5: ENERGY AND CHEMICAL CHANGES

PAPER 1

5.1

PHYSICAL AND CHEMICAL CHANGES

SPM 2003

1. Which of the following characteristics indicate physical changes of a substance?
Antara berikut yang manakah merupakan perubahan fizik pada suatu bahan ?

- I. No new substances are formed
Tidak menghasilkan bahan baru
- II. May change back into the original state
Boleh ditukarkan kepada bahan asal
- III. Involves a lot of energy change
Melibatkan perubahan tenaga yang banyak

- | | |
|---------------|------------------|
| A. I and II | C. II and III |
| B. II and III | D. I, II and III |

SPM 2004

2. Which of the following is a physical change?
Antara berikut yang manakah perubahan fizik?

- A. Boiling of water
Mendidihkan air
- B. Heating of zinc carbonate
Memanaskan zink karbonat
- C. Heating of iron and sulphur
Memanaskan ferum dan sulfur
- D. Putting a piece of calcium into water
Memasukkan cebisan kalsium dalam air

TRIAL JOHOR 2009

3. What gas is released when a piece of paper is burnt?
Gas apakah yang dibebaskan apabila sehelai kertas dibakar?

- | | |
|--|--------------------------------|
| A. Sulphur dioxide
<i>Sulfur dioksida</i> | C. Oxygen
<i>Oksigen</i> |
| B. Carbon dioxide
<i>Karbon dioksida</i> | D. Hydrogen
<i>Hidrogen</i> |

TRIAL KELANTAN 2009

4. Which of the following is related to the chemical change?
Pernyataan yang manakah berkaitan dengan perubahan kimia?

- A. The change is reversible
Perubahan adalah berbalik
- B. Substances are only altered physically
Bahan hanya mengalami perubahan secara fizikal
- C. The chemical characteristics is unchanged
Ciri-ciri kimia bahan tidak berubah
- D. Produce new substances from original substances.
Menghasilkan bahan baru daripada bahan asal.

TRIAL PERAK 2008

5. Which of the following is a chemical change?
Manakah yang berikut, merupakan perubahan kimia?

- | | |
|---|---|
| A. Sublimation of ammonium salt
<i>Pemeljawapan garam ammonium</i> | C. Rusting of iron nails
<i>Pengaratan paku besi</i> |
| B. Condensation of steam | D. Crystallization of sugar |

TRIAL TERENGGANU 2010

6. Which comparison is true about a physical change and a chemical change?
 Perbandingan yang manakah benar tentang perubahan fizik dan perubahan kimia?

	Physical change <i>Perubahan fizik</i>	Chemical change <i>Perubahan kimia</i>
A	No new substance is formed <i>Tiada bahan baru terbentuk</i>	A new substance is formed <i>Bahan baru terbentuk</i>
B	The chemical properties of reactants and products are different <i>Sifat kimia bahan dan hasil berbeza</i>	The chemical properties of reactants and products remain the same <i>Sifat kimia bahan dan hasil adalah sama</i>
C	Reversible <i>Boleh berbalik</i>	Irreversible <i>Tidak boleh berbalik</i>
D	A lot of energy is required <i>Banyak tenaga diperlukan</i>	Little energy is required <i>Sedikit tenaga diperlukan</i>

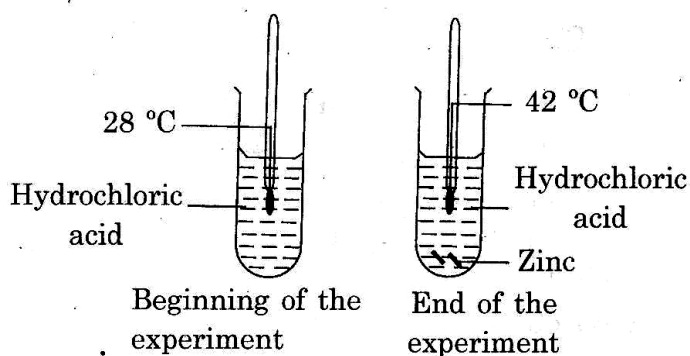
TRIAL KELANTAN 2010

7. Which of the following shows a chemical change?
 Antara berikut yang manakah merupakan perubahan kimia?
- A Ice melting
Peleburan ais
- B Salt dissolving in water
Garam dilarutkan dalam air
- C Milk turning sour
Susu menjadi masam
- D Water evaporates from pool
Air tersejat dari kolam

5.2

HEAT CHANGE IN CHEMICAL REACTIONS**TRIAL PAHANG 2008**

8. Diagram shows an experiment to study the heat change in a chemical reaction.
 Rajah menunjukkan suatu eksperimen untuk mengkaji perubahan haba dalam satu tindak balas kimia.

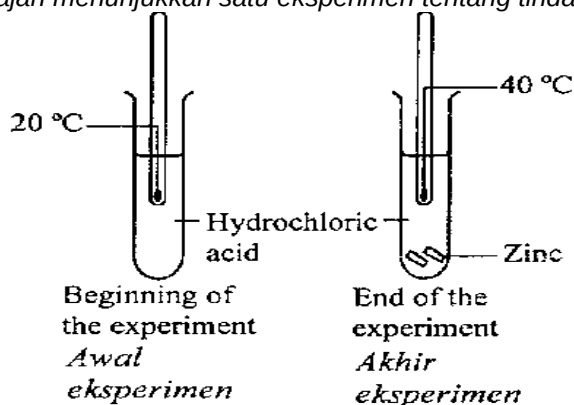


What type of reaction is involved?
 Apakah jenis tindak balas yang berlaku?

- A Exothermic (*Eksotermik*)
- B Endothermic (*Endotermik*)
- C Neutralization (*Peneutralan*)
- D Decomposition (*Penguraian*)

TRIAL PERAK 2008

9. Diagram shows an experiment of reaction between zinc and hydrochloric acid.
Rajah menunjukkan satu eksperimen tentang tindakbalas antara zink dan asid hidriklorik.



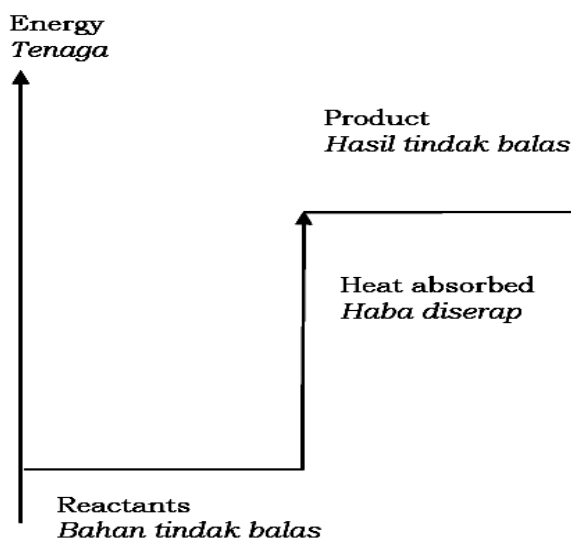
Which of the following is true?

Manakah antara berikut adalah betul?

- | | |
|---|---|
| A Endothermic reaction
<i>Tindakbalas endotermik</i> | C Combination reaction
<i>Tindakbalas penggabungan</i> |
| B Exothermic reaction
<i>Tindakbalas eksotermik</i> | D Decomposition reaction
<i>Tindakbalas penguraian</i> |

TRIAL KEDAH 2009

10. Diagram shows an energy graph for a chemical reaction.
Rajah menunjukkan graf tenaga bagi satu tindak balas kimia.



Which chemical reaction is shown by the above Diagram?

Antara berikut tindakbalas yang manakah ditunjukkan oleh Rajah di atas?

- | | |
|-----------------------------------|---|
| A Respiration
<i>Respirasi</i> | C Photosynthesis
<i>Fotosintesis</i> |
| B Combustion
<i>Pembakaran</i> | D Neutralisation
<i>Peneutralan</i> |

TRIAL PERLIS 2009

11. Which of the following is an example of exothermic reaction?
Antara berikut, manakah contoh tindakbalas eksotermik?

- | | |
|--------------------------------|---|
| A Boiling
<i>Pendidihan</i> | C Photosynthesis
<i>Fotosintesis</i> |
| B Frying an egg | D Fuel combustion |

TRIAL SABAH 2009

12. Which of the following is an example of an endothermic reaction?

Antara berikut yang manakah contoh tindakbalas endotermik?

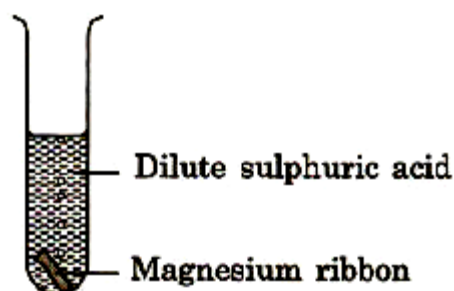
- | | | | |
|---|---|---|---|
| A | Haber process
<i>Proses Haber</i> | C | Ammonium salt dissolved in water
<i>Garam ammonium dilarutkan dalam air</i> |
| B | Acid reacts with alkali
<i>Asid bertindakbalas dengan alkali</i> | D | Sodium hydroxide crystals dissolved in water
<i>Hablur natrium hidroksida dilarutkan dalam air</i> |

5.3

THE REACTIVITY SERIES OF METALS**SPM 2004**

13. The diagram shows a chemical reaction.

Rajah menunjukkan suatu tindakbalas kimia.



What is the gas released?

Apakah gas yang dibebaskan?

- | | | | |
|----|------------------|----|----------|
| A. | Nitrogen dioxide | C. | Hydrogen |
| B. | Carbon dioxide | D. | Oxygen |

SPM 2007

14. Table shows the observation obtained when three types of metal powder react with oxygen.

Jadual menunjukkan pemerhatian yang diperolehi apabila tiga jenis serbuk logam bertindak balas dengan oksigen.

Metal powder	Observation
X	Bright glow <i>Baraan terang</i>
Y	No change <i>Tiada perubahan</i>
Z	Dim glow <i>Baraan malap</i>

Choose the correct sequence of the reactivity of the metals in descending order.

Pilih urutan yang betul bagi kereaktifan logam itu dalam tertib menurun.

- | | | | |
|----|---------|----|---------|
| A. | X, Z, Y | C. | Y, X, Z |
| B. | X, Y, Z | D. | Z, Y, X |

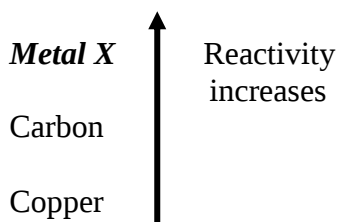
15. Table shows the observation results obtained after three types of metal reacted with oxygen.
Jadual menunjukkan pemerhatian yang didapati apabila tiga jenis logam bertindakbalas dengan oksigen.

Types of metal <i>Jenis logam</i>	Observation <i>Pemerhatian</i>
K	No change <i>Tiada perubahan</i>
M	Dim glow <i>Baraan malap</i>
N	Burns with bright flame <i>Terbakar dengan nyalaan terang</i>

Arrange the sequence of the reactivity of three types of K, M, N in an ascending order?
Susunkan kereaktifan logam K, M, N secara menaik?

- | | | | |
|---|---------|---|---------|
| A | K, M, N | C | N, M, K |
| B | M, N, K | D | N, K, M |

16. The diagram shows the position of metal X in the reactivity series of metals.
Gambarajah menunjukkan kedudukan logam X dalam siri kereaktifan logam.



What is metal X?
Apakah logam X?

- | | | | |
|---|-------------------------|---|--------------------------------|
| A | Zinc (<i>Zink</i>) | B | Iron (<i>Ferum</i>) |
| C | Lead (<i>Plumbum</i>) | D | Magnesium (<i>Magensium</i>) |

17. Table shows the reactivity of metals P, Q and R with water and dilute acid respectively.
Jadual menunjukkan kereaktifan logam P,Q dan R dengan asid cair

Metal Logam	Reaction with <i>Tindakbalas dengan</i>	
	Water <i>Air</i>	Dilute hydrochloric acid <i>Asid hidroklorik cair</i>
P	✓	✓
Q	X	✓
R	X	X

✓: Reaction takes place
Ada tindakbalas

X: No reaction
Tiada tindakbalas

Which of the following shows their reactivity in a descending order?
Antara berikut yang manakah menunjukkan susunan kereaktifan menurun bagi logam-logam

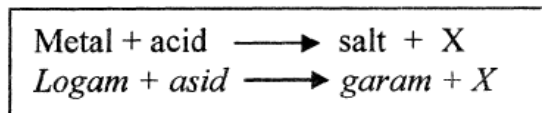
tersebut?

- A P, Q, R
B P, R, Q

- C R, Q, P
D Q, R, P

TRIAL TERENGGANU 2008

18. The following word equation represents a chemical reaction.
Persamaan perkataan berikut mewakili satu tindakbalas kimia.



What is X?

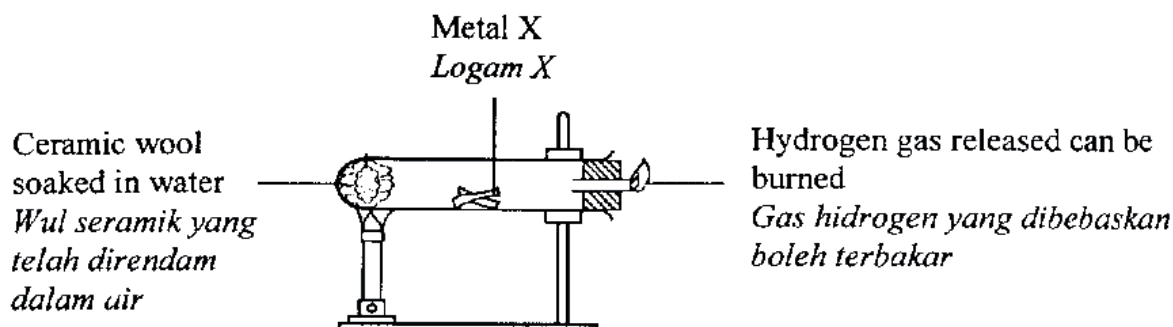
Apakah X?

- A Carbon
Karbon
B Carbon dioxide
Karbon dioksida

- C Oxygen
Oksigen
D Hydrogen
Hidrogen

TRIAL PERAK 2008

19. Diagram shows an experiment of reaction of a metal X with steam.
Rajah menunjukkan satu eksperimen tindakbalas logam X dengan stim.



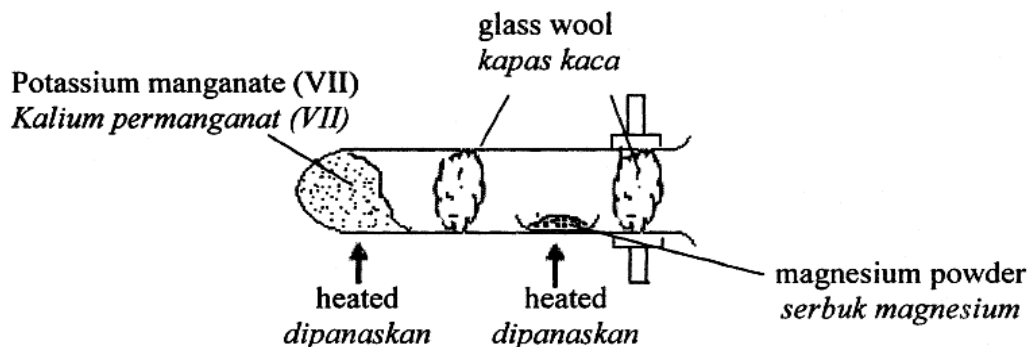
Which of the following result is true?

Manakah antara keputusan berikut adalah betul?

	Metal X <i>Logam X</i>	Reactivity <i>Kereaktifan</i>	Red litmus paper test <i>Ujian kertas litmus merah</i>
A	Magnesium <i>Magnesium</i>	No reaction <i>Tiada tindakbalas</i>	Turns blue <i>Bertukar menjadi biru</i>
B	Aluminium <i>Aluminium</i>	Fast with water <i>Cergas dalam air</i>	No change <i>Tiada perubahan</i>
C	Calcium <i>Kalsium</i>	Fast with water <i>Cergas dalam air</i>	Turns blue <i>Bertukar menjadi biru</i>
D	Sodium <i>Natrium</i>	Very fast with water <i>Sangat cergas dalam air</i>	No change <i>Tiada perubahan</i>

TRIAL TERENGGANU 2008

20. Diagram shows the apparatus set up of an experiment.
Rajah menunjukkan susunan radas bagi satu eksperimen.



What is the function of potassium manganate (VII)?

Apakah fungsi kalium permanganat (VII)?

- A. Produces oxygen
Menghasilkan oksigen
- B. Attract hydrogen gas
Menarik gas hidrogen
- C. Releases heat for reaction
Membebaskan haba untuk tindakbalas
- D. Reacts with magnesium powder
Bertindakbalas dengan serbuk magnesium

TRIAL JOHOR 2009

21. Which of the correct sequence of reactivity of metals from the most reactive to the least reactive?
Manakah susunan kereaktifan logam bermula dari paling cergas kepada yang kurang cergas?

- | | | | |
|---|--|---|--|
| A | Magnesium → Zinc → Copper
Magnesium → Zink → Kuprum | C | Magnesium → Copper → Zinc
Magnesium → kuprum → Zink |
| B | Copper → Zinc → Magnesium
Kuprum → Zink → Magnesium | D | Zinc → Magnesium → Copper
Zink → magnesium → Kuprum |

TRIAL KELANTAN 2009

22. The word equation shows the reactions between X oxides and Y oxides with carbon.
Persamaan perkataan menunjukkan tindakbalas antara oksida logam X dan oksida logam Y dengan karbon.

X oxides + Carbon → Metal X + Carbon dioxide

Y oxides + carbon → No reactions

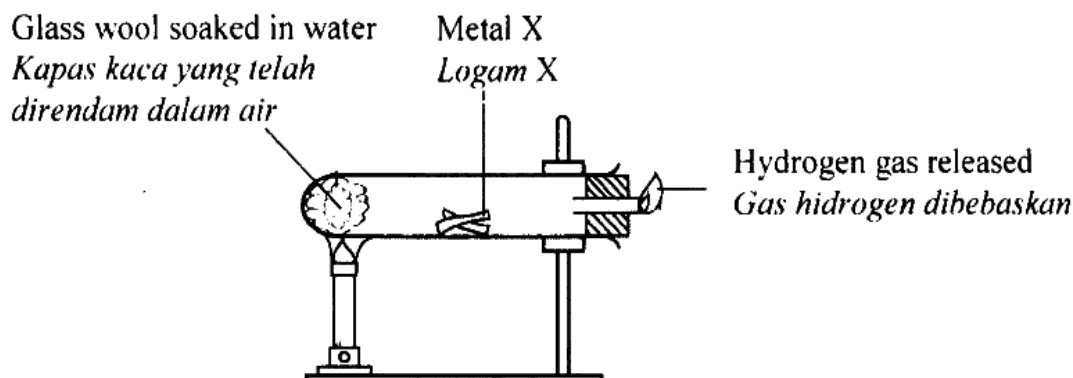
Which of the following list shows the reactivity series of carbon, metal X and metal Y in descending order?

Antara senarai berikut, yang manakah menunjukkan siri kereaktifan bagi karbon, logam X dan logam Y dalam susunan menurun?

- | | | | |
|---|--|---|--|
| A | Metal X, metal Y, carbon
Logam X, logam Y, karbon | C | Metal X, carbon, metal Y
Logam X, karbon, logam Y |
| B | Metal Y, carbon, metal X
Logam Y, karbon, logam X | D | Carbon, metal Y, metal X
Karbon, logam Y, logam X |

TRIAL PERLIS 2009

23. Diagram shows the reaction of a metal X with steam.
Rajah menunjukkan tindakbalas logam X dengan stim.

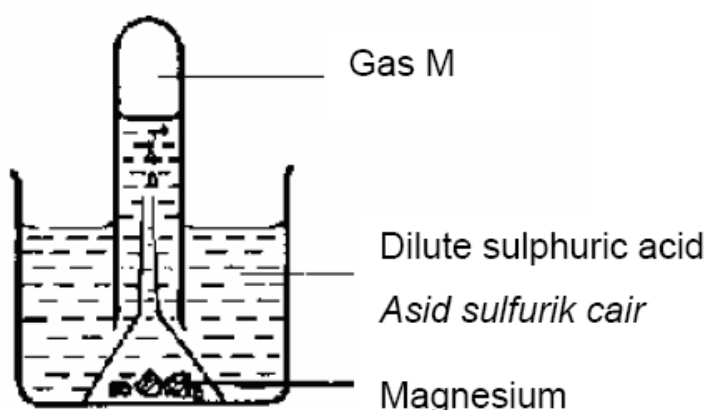


What is metal X?
Apakah logam X?

	Metal X <i>Metal X</i>	Hydrogen gas tested <i>Ujian gas hidrogen</i>
A	Lead <i>Plumbum</i>	The lime water turn cloudy <i>Air kapur menjadi keruh</i>
B	Ferum <i>Besi</i>	Rekindle the glowing wooden splinter <i>Kayu uji berbara akan menyala</i>
C	Cooper <i>Kuprum</i>	Turn moist blue litmus paper to red <i>Kertas litmus biru lembab bertukar ke merah</i>
D	Magnesium <i>Magnesium</i>	Give a 'pop' sound when tested with burning wooden splinter <i>Mengeluarkan bunyi 'pop' apabila diuji dengan kayu uji menyala</i>

TRIAL PERLIS 2008

24. Diagram shows the reaction between magnesium and dilute sulphuric acid.
Rajah menunjukkan tindakbalas di antara magnesium dan asid sulfurik cair.



What is gas M?
Apakah gas M?

- | | | | |
|---|---|---|--------------------------|
| A | Sulphur dioxide
<i>Sulfur dioksida</i> | C | Oxygen
<i>Oksigen</i> |
| B | Carbon dioxide | D | Hydrogen |

TRIAL SABAH 2009

25. Table shows the observations of metals P, Q and R when heated.
Jadual menunjukkan pemerhatian ke atas logam P, Q dan R apabila dipanaskan.

Metals <i>Logam</i>	Observation <i>Pemerhatian</i>
P	Burns with bright white flame <i>Terbakar dengan nyalaan putih yang terang</i>
Q	A bright flame spreads slowly <i>Nyalaan terang merebak perlahan</i>
R	A glow spreads slowly <i>Berbara secara perlahan</i>

Which is the correct arrangement of the reactivity of metals P, Q and R in an increasing order?
Manakah susunan yang betul tenrang kereaktifan logam P, Q dan R secara menaik?

- | | | | |
|---|---------|---|---------|
| A | P, Q, R | C | R, Q, P |
| B | P, R, Q | D | Q, R, P |

TRIAL SABAH 2010

26. Three metals powders react with oxygen and the observations are as in Table.
Tiga jenis serbuk logam bertindakbalas dengan oksigen dan keputusan adalah seperti dalam Jadual.

Metal powder <i>Serbuk logam</i>	Reaction <i>Tindakbalas</i>
<i>P</i>	Glows brightly <i>Membara dengan terang</i>
<i>Q</i>	Glows dimly <i>Membara dengan malap</i>
<i>R</i>	Burns with dazzling flame <i>Terbakar dengan nyala silau</i>

Arrange the three metals in ascending order of reactivity.
Susun ketiga-tiga logam dalam urutan kereaktifan meningkat.

- | | | | |
|---|---------|---|---------|
| A | P, Q, R | C | R, Q, P |
| B | P, R, Q | D | Q, R, P |

TRIAL KEDAH 2010

- 27.** The following information shows about metals X, Y and Z.
Maklumat berikut menunjukkan logam X, Y dan Z.

- Metal X reacts vigorously with steam but not in cold water
Logam X bertindakbalas cergas dengan stim tetapi tidak dalam air sejuk
- Metal Y does not reacts with cold water or steam
Logam Y tidak bertindakbalas dengan air sejuk atau stim
- Metal Z reacts vigorously with cold water
Logam Z bertindakbalas cergas dengan air sejuk

Which is the correct descending order of reactivity of metals X, Y and Z?
Urutan menurun yang manakah betul tentang kereaktifan logam X, Y dan Z?

- | | | | |
|---|---------|---|---------|
| A | X, Y, Z | C | Z, X, Y |
| B | Y, X, Z | D | Z, Y, X |

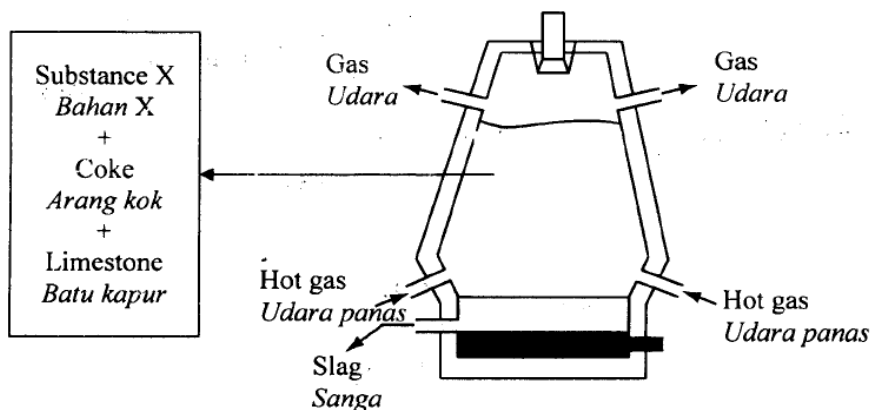
5.4

APPLICATION OF REACTIVITY SERIES OF METALS

TRIAL PERLIS 2009

28. Diagram shows the extraction process in a blast furnace.

Rajah menunjukkan proses pengekstrakan dalam relau bagas.



What is substance X?

Apakah bahan X?

- | | | | |
|---|--------------------|---|------------------------|
| A | Tin
Timah | C | Aluminium
Aluminium |
| B | Calcium
Kalsium | D | Magnesium
Magnesium |

TRIAL KELANTAN 2010

29. Which metal can be extracted from its ore by heating with carbon?

Logam yang manakah boleh diekstrak daripada bijihnya secara pemanasan dengan karbon?

- | | | | |
|---|--------------------|---|------------------------|
| A | Iron
Besi | C | Aluminium
Aluminium |
| B | Calcium
Kalsium | D | Magnesium
Magnesium |

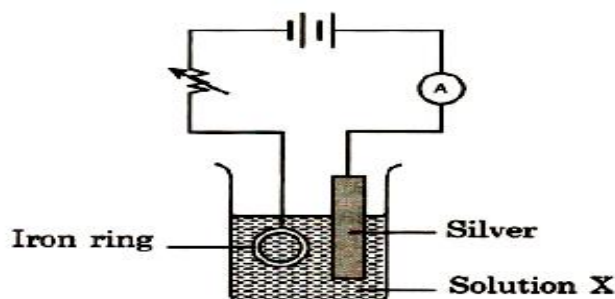
5.5

ELECTROLYSIS

SPM 2004

30. The diagram shows an electroplating of an iron ring.

Rajah menunjukkan penyaduran cincin besi.



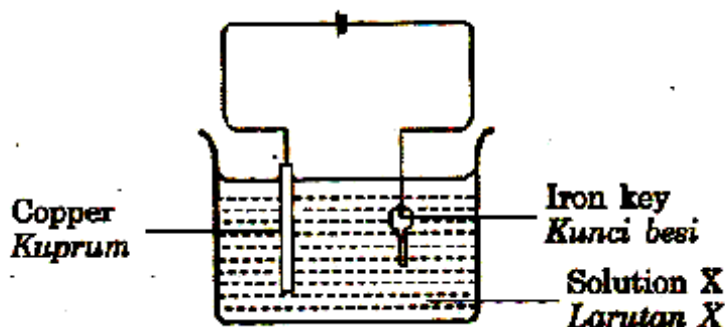
What is solution X?

Apakah larutan X?

- | | | | |
|----|----------------------|----|--------------------|
| A. | Aluminium nitrate | C. | Silver nitrate |
| B. | Copper (II) sulphate | D. | Iron (II) sulphate |

SPM 2007

31. Diagram shows the electroplating of an iron key with copper.
Rajah menunjukkan peyaduran kunci besi dengan kuprum.

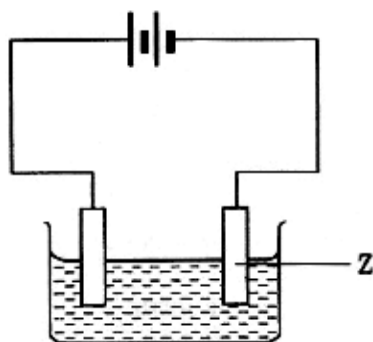


What is solution X?
Apakah larutan X?

- | | |
|--------------------|------------------------|
| A. Silver nitrate | C. Copper sulphate |
| B. Sodium chloride | D. Potassium hydroxide |

SPM 2008

32. Diagram shows an electrolytic cell.
Rajah menunjukkan sel elektrolis is.

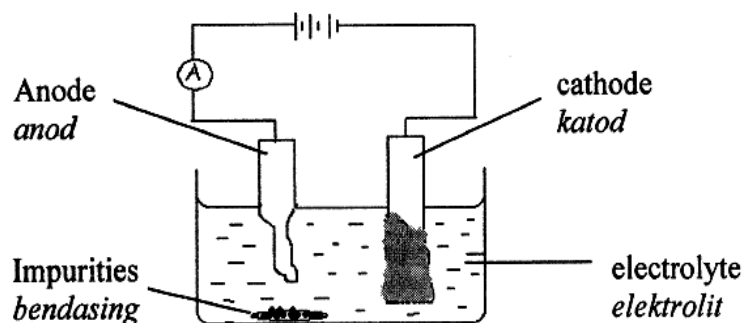


What is Z?
Apakah Z?

- | | |
|-------------------|---------------------|
| A. Anion
Anion | C. Cation
Kation |
| B. Anode
Anod | D. Cathode
Katod |

TRIAL PERAK 2008

33. The diagram shows the process of purification of silver
Rajah menunjukkan proses penulenan argentum

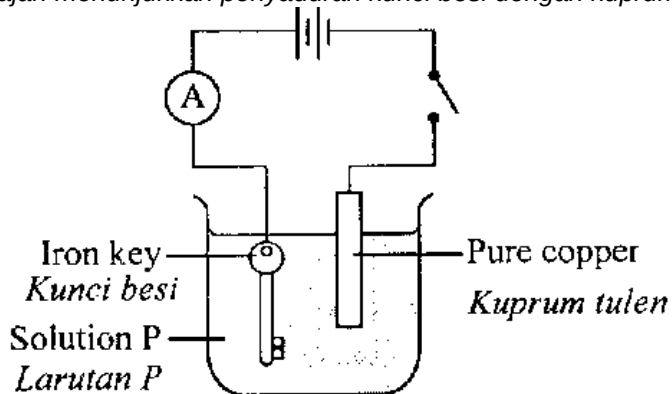


Which of the following is true about the process?
Antara berikut yang manakah benar tentang proses tersebut?

- A. Pure silver is used as the anode
Argentum tulen digunakan sebagai anod
- B. Impure silver is used as the cathode.
Argentum tak tulen digunakan sebagai katod
- C. Silver nitrate solution is used as the electrolyte
Larutan argentum nitrat digunakan sebagai elektrolit
- D. Pure silver is collected at the anode
Argentum tulen terkumpul di anod.

TRIAL PERAK 2008

34. Diagram shows the electroplating an iron key with copper.
Rajah menunjukkan penyaduran kunci besi dengan kuprum.

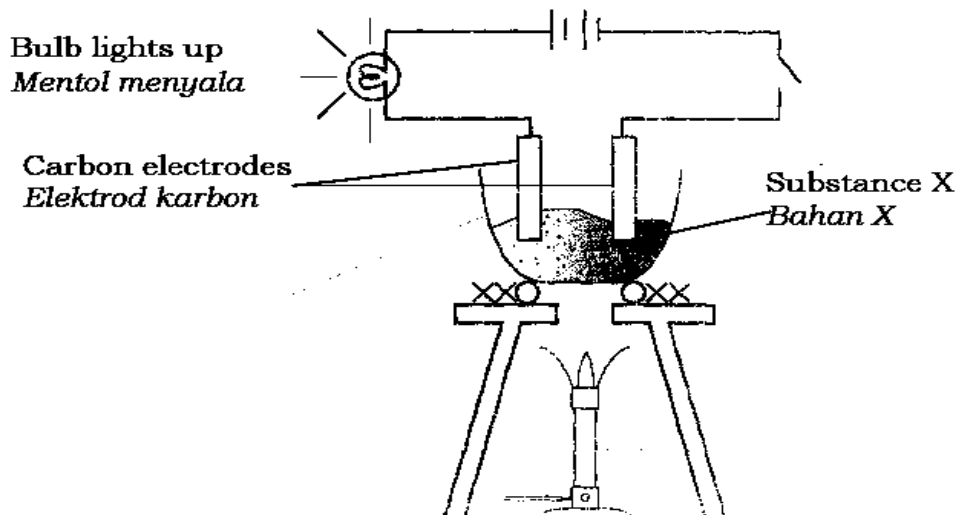


Solution P should be
Larutan P yang mungkin ialah

- | | |
|---|---|
| A Sodium chloride
<i>Natrium klorida</i> | C Copper (II) sulphate
<i>Kuprum (II) sulfat</i> |
| B Molten lead (II) bromide
<i>Leburan plumbum (II) bromida</i> | D Iron (II) sulphate
<i>Besi (II) sulfat</i> |

TRIAL KEDAH 2009

35. Diagram shows a process of electrolysis.
Rajah menunjukkan satu proses elektrolisis

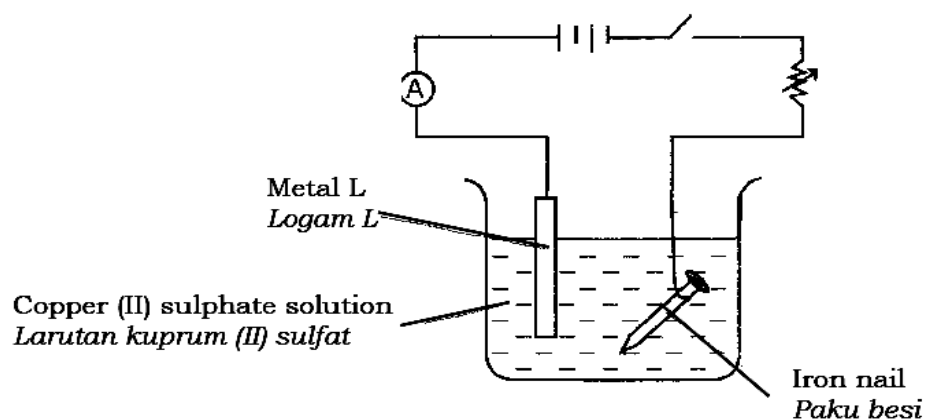


What is substance X?
Apakah bahan X?

- | | |
|----------------------------|--|
| A Sugar
<i>Gula</i> | C Naphthalene
<i>Naftalena</i> |
| B Sulphur
<i>Sulfur</i> | D Lead (II) bromide
<i>Plumbum (II) bromida</i> |

TRIAL KEDAH 2009

36. Diagram shows the electroplating of iron nail with metal L.
Rajah menunjukkan penyaduran paku besi dengan satu logam L.

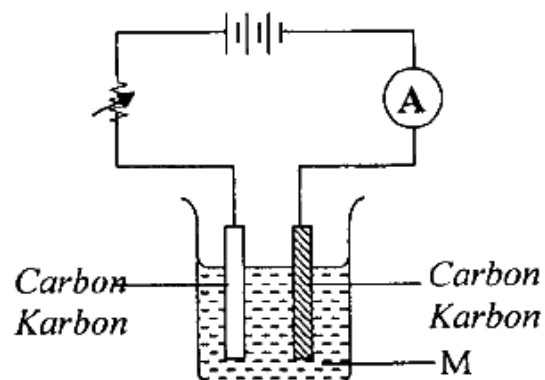


What is metal L?
Apakah logam L?

- | | | | |
|---|---------------------|---|-------------------------------|
| A | Iron
<i>Besi</i> | C | Copper
<i>Kuprum</i> |
| B | Zinc
<i>Zink</i> | D | Aluminium
<i>Aluminium</i> |

TRIAL KELANTAN 2009

37. Diagram shows the electrolysis cell
Rajah menunjukkan satu sel elektrolisis.

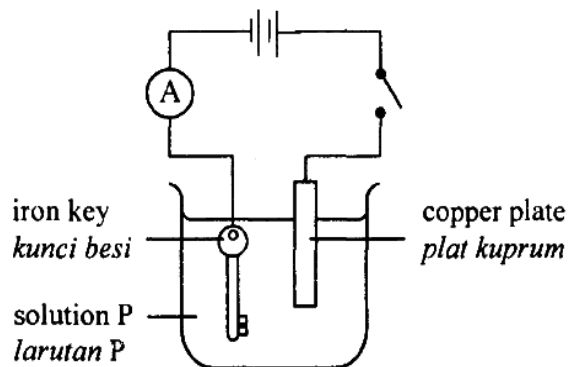


What is M?
Apakah M?

- | | | | |
|---|-------------------------|---|----------------------------------|
| A | Anode
<i>Anod</i> | C | Dry cell
<i>Sel kering</i> |
| B | Cathode
<i>Katod</i> | D | Electrolyte
<i>Elektrolit</i> |

TRIAL PERLIS 2009

38. Diagram shows the process of electroplating of iron key with copper.
Rajah menunjukkan proses penyaduran kunci besi dengan kuprum.

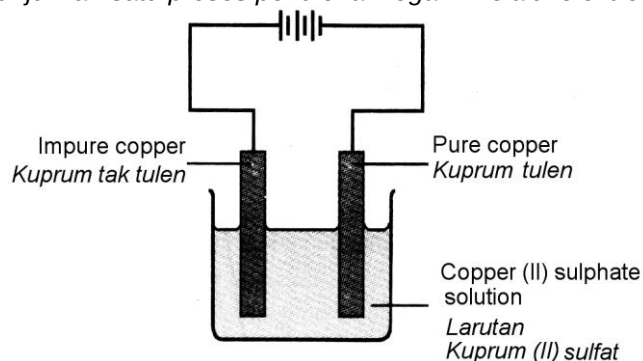


Solution P is
Larutan P ialah

- | | | | |
|---|---|---|--|
| A | Copper (II) sulphate solution
Larutan kuprum (II) sulfat | C | Sodium chloride solution
Larutan natrium klorida |
| B | Molten lead (II) chloride
Leburan plumbum (II) klorida | D | Iron (II) sulphate solution
Larutan ferum (II) sulfat |

TRIAL SABAH 2010

39. Diagram shows the purification of metal by electrolysis.
Rajah berikut menunjukkan satu proses penulenan logam melalui elektrolisis.



Which of the following statements is **true** about the process?

Antara pernyataan yang berikut, yang manakah **benar** tentang proses itu?

- | | |
|---|---|
| A | Copper ions receive electrons from the cathode and form copper atoms.
Ion kuprum menerima elektron daripada katod dan membentuk atom kuprum. |
| B | A layer of pure copper builds up on the anode.
Satu lapisan kuprum tulen terenal pada anod. |
| C | The anode is made of pure copper.
Anod diperbuat daripada kuprum tulen. |
| D | The anode grows thinner.
Anod menjadi semakin nipis. |

5.6

ELECTRICAL ENERGY FROM CHEMICAL ENERGY

SPM 2004

40. What type of battery is used in a car?
Apakah jenis bateri yang digunakan oleh kereta?
- | | | | |
|----|-------------------|----|------------------------|
| A. | Alkaline battery | C. | Nickel-cadmium battery |
| B. | Acid-lead battery | D. | Silver oxide battery |

SPM 2007

41. Table shows the advantages and disadvantages of a type of cell.
Jadual menunjukkan kelebihan dan kekurangan bagi sejenis sel.

Advantages	Disadvantages
- High voltage <i>Voltan tinggi</i> - Rechargeable <i>Boleh dicas semula</i> - Long lasting <i>Tahan lama</i>	- Heavy <i>Berat</i> - Expensive <i>Mahal</i> - Electrolyte spills easily <i>Elektrolit mudah tumpah</i>

What is the cell?
Apakah sel itu?

- | | |
|--------------------------|---------------------------------|
| A. Dry cell | C. Nickel-cadmium battery |
| B. Lead-acid accumulator | D. Silver oxide-mercury battery |

SPM 2008

42. The following information shows the characteristics of battery X.
Maklumat berikut menunjukkan ciri-ciri bateri X.

- | |
|--|
| <ul style="list-style-type: none"> Rechargeable
<i>Boleh dicas semula</i> Use in mobile phone
<i>Digunakan dalam telefon mudah</i> |
|--|

What is X?
Apakah X?

- | | |
|--|--|
| A. Dry cell
<i>Sel kering</i> | C. Mercury cell
<i>Sel merkuri</i> |
| B. Lead-acid accumulator
<i>Akumulator asid plumbum</i> | D. Nickel cadmium battery
<i>Bateri nikel kadmium</i> |

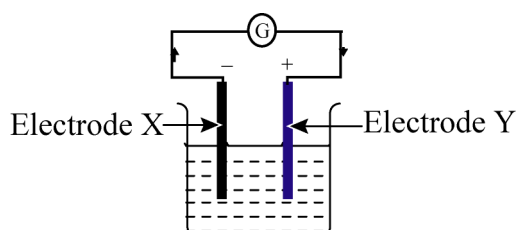
TRIAL SABAH 2008

43. Which of these chemical cells that can be recharged?
Manakah antara sel kimia berikut yang boleh dicas semula?

- | | |
|--|---------------------------------------|
| A. Dry cell
<i>Sel kering</i> | C. Mercury cell
<i>Sel merkuri</i> |
| B. Lead-acid accumulator
<i>Akumulator asid plumbum</i> | D. Alkali cell
<i>Sel alkali</i> |

TRIAL SABAH 2008

44. Diagram shows the simple cell was set up by immersing two metal electrodes in an electrolyte.
 The electrons flowed from electrode X to electrode Y along the wires.
Rajah menunjukkan susunan radas bagi suatu sel ringkas dengan merendam dua elektrod logam ke dalam elektrolit. Elektron mengalir dari elektrod X ke elektrod Y.

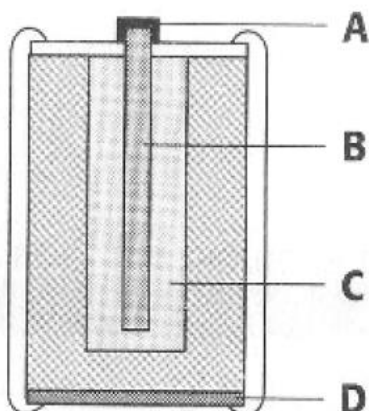


What are electrode X and Y?
Apakah elektrod X dan Y?

	Electrode X <i>Elektrod X</i>	Electrode Y <i>Elektrod Y</i>
A	Copper <i>Kuprum</i>	Iron <i>Besi</i>
B	Zinc <i>Zink</i>	Magnesium <i>Magnesium</i>
C	Copper <i>Kuprum</i>	Silver <i>Perak</i>
D	Copper <i>Kuprum</i>	Zinc <i>Zink</i>

TRIAL PERLIS 2008

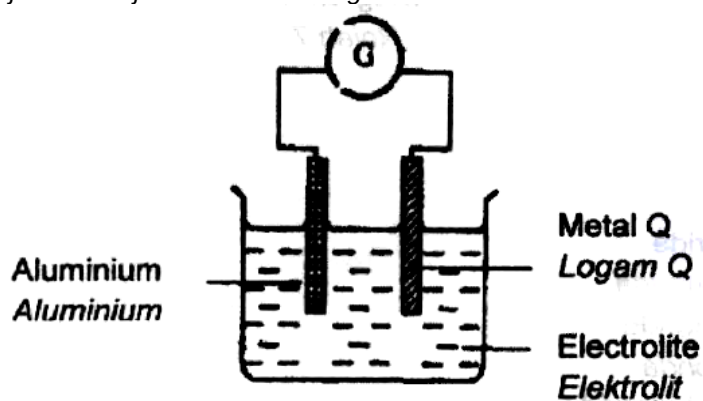
45. Diagram shows a cross section of a dry cell.
Rajah menunjukkan keratan rentas bagi sel kering.



The negative terminal of the cell is
Terminal negatif bagi sel ialah

TRIAL JOHOR 2009

46. Diagram shows a simple cell.
Rajah menunjukkan satu sel ringkas



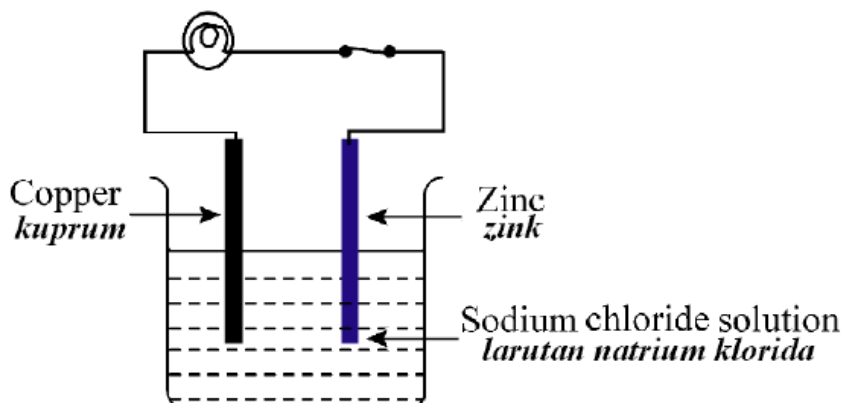
Metal Q shows the greatest deflection of galvanometer when paired with Aluminium.
What is metal Q?

Logam Q menghasilkan pesongan jarum galvanometer yang paling besar apabila berpasangan dengan Aluminium. Apakah logam Q?

- | | | | |
|---|----------------------|---|-------------------------|
| A | Zinc
<i>Zink</i> | C | Copper
<i>Kuprum</i> |
| B | Ferum
<i>Besi</i> | D | Stanum
<i>Timah</i> |

TRIAL SABAH 2009

47. Diagram shows a simple voltaic cell
Rajah menunjukkan sebuah sel ringkas.

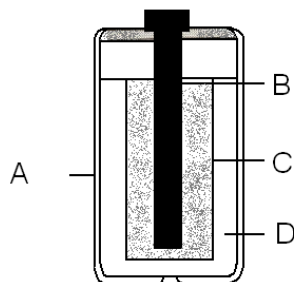


Which sequence of energy conversion is correct?
Manakah urutan perubahan tenaga yang betul?

- Electrical energy → chemical energy → heat energy → light energy
Tenaga elektrik → tenaga kimia → tenaga haba → tenaga cahaya
- Chemical energy → electrical energy → heat energy → light energy
Tenaga kimia → tenaga elektrik → tenaga haba → tenaga cahaya
- Electrical energy → chemical energy → light energy → heat energy
Tenaga elektrik → tenaga kimia → tenaga cahaya → tenaga haba
- Chemical energy → electrical energy → light energy → heat energy
Tenaga kimia → tenaga elektrik → tenaga cahaya → tenaga haba

TRIAL SABAH 2010

48. Diagram shows cross section of a dry cell.
Rajah menunjukkan keratan rentas sel kering.



Which of the parts **A**, **B**, **C** or **D** act as the positive terminal?
Manakah antara **A**, **B**, **C** atau **D** yang bertindak sebagai terminal positif?

TRIAL TERENGGANU 2010

49. What type of battery is used in a calculator?
Apakah jenis bateri yang digunakan dalam kalkulator?

- | | |
|---|--|
| A Alkaline battery
<i>Bateri alkali</i> | C Mercury oxide battery
<i>Bateri merkuri oksida</i> |
| B Lead-acid battery
<i>Bateri asid plumbum</i> | D Nickel cadmium battery
<i>Bateri merkuri oksida</i> |

SPM 2003

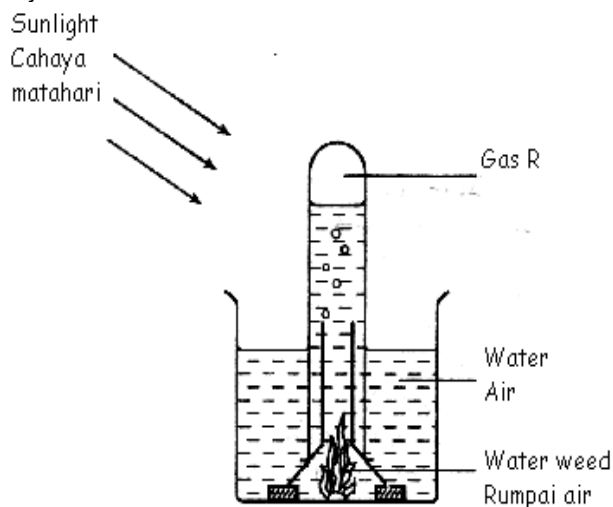
50. What is the advantage of a dry cell compared to an acid-lead accumulator?
Apakah kelebihan sel kering berbanding akumulator asid-plumbum?

- | | |
|---|--|
| A. The voltage is higher
<i>Voltannya lebih besar</i> | C. The current is more stable
<i>Arusnya lebih stabil</i> |
| B. It has longer life span
<i>Jangka hayatnya lebih lama</i> | D. Its electrolyte does not spill
<i>Elektrolitnya tidak tumpah</i> |

5.7

LIGHT AND CHEMICAL REACTIONS**SPM 2003**

51. Figure shows the set-up of an experiment. Which is placed in sunlight for 6 hours?
Rajah menunjukkan susunan radas satu eksperimen yang diletakkan di bawah cahaya matahari selama 6 jam

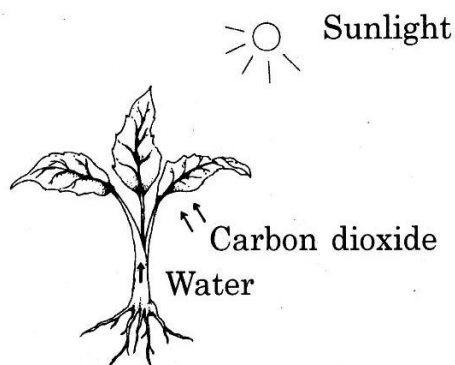


What is gas R?
Apakah gas R?

- | | |
|-------------|-------------------|
| A. Oxygen | C. Nitrogen |
| B. Hydrogen | D. Carbon dioxide |

TRIAL PAHANG 2008

52. Diagram shows a process involved in a green plant.
Rajah menunjukkan satu proses yang berlaku dalam tumbuhan hijau.



Which of the following substances are produced in the above process?
Antara berikut bahan yang manakah dihasilkan daripada proses di atas?

- | | |
|-----|------------------------------|
| I | Glucose (<i>Glukosa</i>) |
| II | Oxygen (<i>Oksigen</i>) |
| III | Nitrogen (<i>Nitrogen</i>) |

- A I and II only
C II and III only

- B I and III only
D I, II and III

TRIAL TERENGGANU 2008

53. Which of the following are the products of photosynthesis?

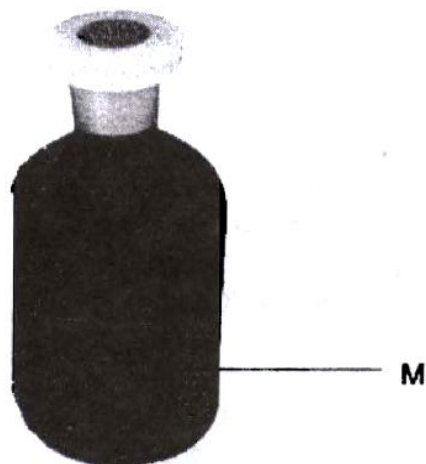
Antara berikut yang manakah hasil fotosintesis?

- A Carbon dioxide and glucose
Karbon dioksida dan glukosa
B Oxygen and glucose
Oksigen dan glukosa
C Water and carbon dioxide
Air dan karbon dioksida
D Chlorophyll and oxygen
Klorofil dan oksigen

TRIAL JOHOR 2009

54. Diagram shows how a photosensitive chemical, M is stored.

Rajah menunjukkan satu bahan kimia yang sensitive kepada cahaya, M disimpan.



What is M?

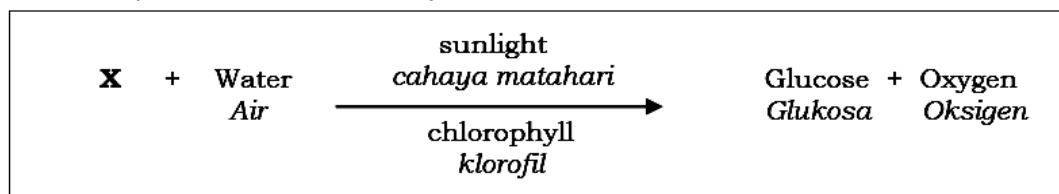
Apakah M?

- A Silver chloride
Argentum klorida
B Sodium chloride
Natrium klorida
C Potassium hydroxide
Kalium hidroksida
D Copper (II) sulphate
Kuprum (II) sulfat

TRIAL KEDAH 2009

55. The following word equation shows a chemical reaction in a plant.

Persamaan perkataan berikut menunjukkan suatu tindakbalas kimia dalam tumbuhan.



What is X?

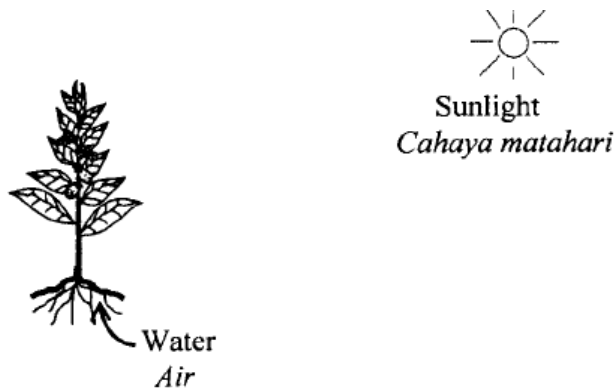
Apakah X?

- A Oxygen
Oksigen
B Nitrogen
Nitrogen
C Hydrogen
Hidrogen
D Carbon dioxide
Karbon dioksida

TRIAL KELANTAN 2009

56. Diagram shows a process involved in a green plant.

Rajah menunjukkan satu proses yang berlaku dalam tumbuhan hijau.



Which of the following substances are needed in the above process?

Antara bahan berikut yang amnakah diperlukan untuk proses di atas?

- | | | | |
|---|-----------------------------|---|--|
| A | Oxygen
<i>Oksigen</i> | C | Hydrogen
<i>Hidrogen</i> |
| B | Nitrogen
<i>Nitrogen</i> | D | Carbon dioxide
<i>Karbon dioksida</i> |

TRIAL KELANTAN 2010

57. Which reaction needs light energy?

Tindakbalas manakah memerlukan tenaga cahaya?

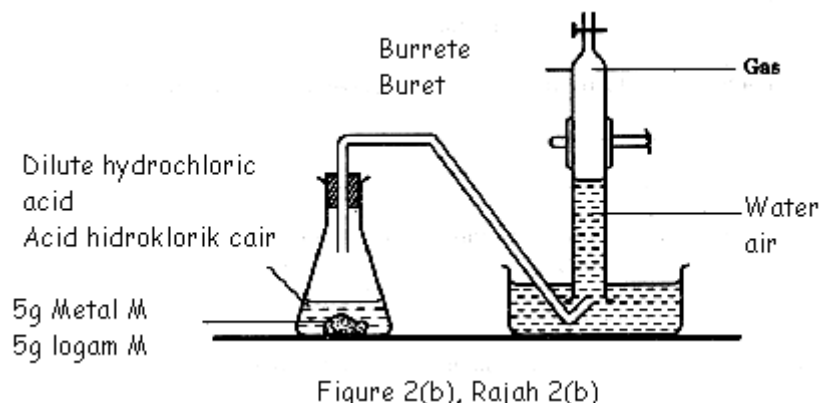
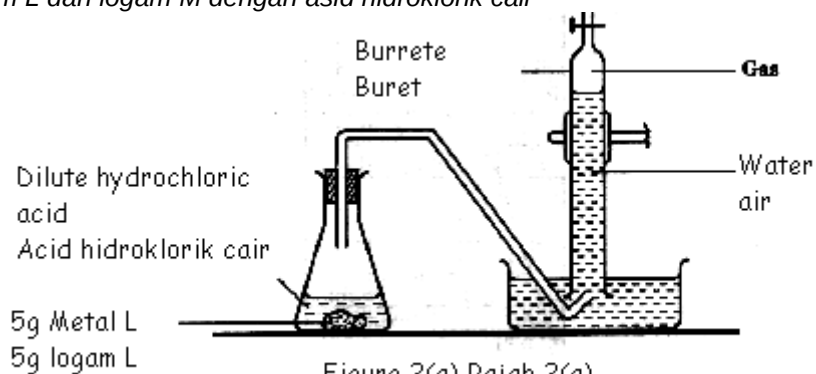
- A** **Glucose** $\longrightarrow$ **Ethanol + Carbon dioxide**
Glukosa $\longrightarrow$ *Etanol + Karbon dioksida*
- B** **Water + Carbon dioxide** $\longrightarrow$ **Glucose + Oxygen**
Air + Karbon dioksida $\longrightarrow$ *Glukosa + Oksigen*
- C** **Ethanol + Oxygen** $\longrightarrow$ **Carbon dioxide + Water**
Etanol + Oksigen $\longrightarrow$ *Karbon dioksida + Air*
- D** **Stanum oxide + Karbon** $\longrightarrow$ **Stanum + Carbon dioxide**
Timah oksida + Karbon $\longrightarrow$ *Timah + Karbon dioksida*

SECTION A

SPM 2003

1. Figure 2(a) and Figure 2(b) show an experiment to compare the reactivity of metals L and J with dilute hydrochloric acid.

Rajah 2(a) dan Rajah 2(b) menunjukkan eksperimen untuk membandingkan kecergasan tindak balas logam L dan logam M dengan asid hidroklorik cair



- (a) Write down **one** observation for the above experiment

Tuliskan **satu** pemerhatian bagi eksperimen di atas.

..... [1 mark]

- (b) Write down **one** inference that can be made from the above observation.

Tuliskan **satu** inferens yang boleh dibuat berdasarkan pemerhatian di atas.

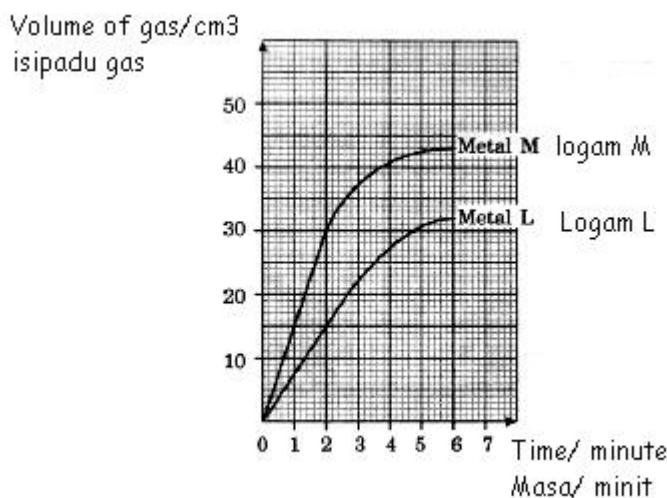
.....[1 mark]

- (c) State **one** controlled variable in this experiment.

Nyatakan **satu** pembolehubah yang dimalarkan dalam eksperimen ini.

.....[1 mark]

The result of the experiment is shown in Figure.
Keputusan eksperimen ditunjukkan dalam Rajah di bawah..



- (d) (i) What is the relationship between the volume of gas and the reaction time in the first 2 minutes?
Apakah hubungan antara isipadu gas dengan masa tindak balas dalam 2 minit pertama?

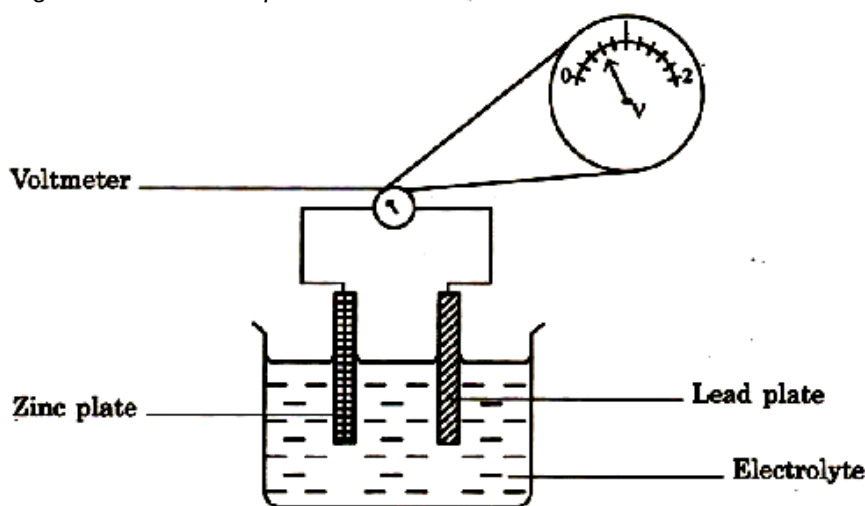
..... [1 mark]

- (ii) Predict the volume of gas collected by the seventh minute for metal M.
Ramalkan isipadu gas yang terkumpul pada minit ketujuh bagi logam M.

..... [1 mark]

SPM 2004

2. Figure shows an experiment of the apparatus in an experiment to study the production of electrical energy. Zinc and lead are used in the experiment.
Rajah menunjukkan satu eksperimen untuk mengkaji penghasilan tenaga elektrik. Zink dan plumbum digunakan dalam eksperimen ini.



The experiment is repeated by using other pairs of metals
The voltmeter readings are recorded in Table.
Eksperimen diulangi dengan menggunakan pasangan logam yang lain.

Pair of metals Pasangan logam	Voltmeter reading / V Bacaan ammeter / V
Aluminium and lead	1.5
Lead and lead	0.0

- (a) Write down the voltmeter reading with the appropriate unit for the pair of metals, zinc and lead.

Tuliskan bacaan ammeter dengan unit yang sesuai untuk pasangan logam, zink dan plumbum.

_____ [1 mark]

- (b) What can you infer from the deflected voltmeter needle?

Apakah yang dapat anda simpulkan dengan jarum ammeter terpesong?

_____ [1 mark]

- (c) State the manipulated variable in the experiment.

Nyatakan pembolehubah manipulasi dalam eksperimen ini.

_____ [1 mark]

- (d) Predict the voltmeter reading when pair of zinc plates is used.

Ramalkan bacaan ammeter apabila pasangan plat zink digunakan.

_____ [1 mark]

SPM 2007

3. A student has conducted an experiment to study the reaction of magnesium and hydrochloric acid. *Seorang pelajar telah menjalankan eksperimen untuk mengkaji tindakbalas antara magnesium dan asid hidroklorik.*

Hydrogen gas is produced during the reaction. The volume of gas collected is recorded every 30 seconds. Table below shows the result of the experiment.

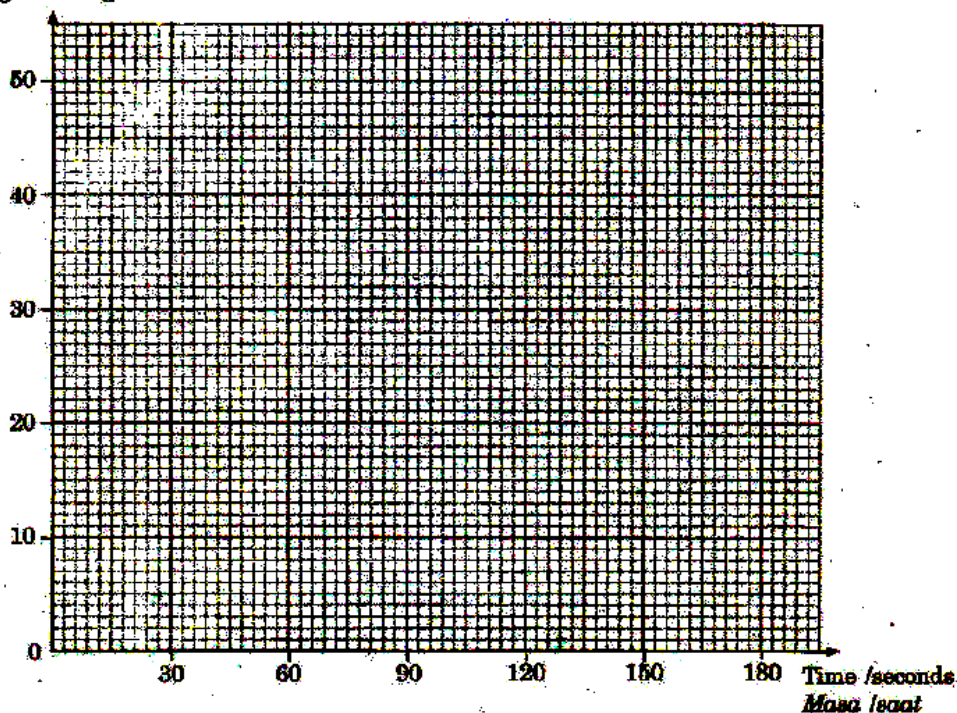
Gas hidrogen terhasil semasa tindakbalas ini. Isipadu gas yang terkumpul direkodkan setiap 30 saat. Jadual menunjukkan keputusan eksperimen.

Time/seconds <i>Masa/saat</i>	0	30	60	90	120	150	180
Volume of hydrogen gas/cm ³ <i>Isipadu gas hidrogen /cm³</i>	0	15	26	35	40	40	40

- (a) Based on Table above, draw a graph of the volume of hydrogen gas against time.

Berdasarkan Jadual di bawah, lukiskan graf isipadu hidrogen melawan masa. [2 marks]

Volume of hydrogen gas / cm³
Isipadu gas hidrogen / cm³



- (b) Based on the graph in 2(a), state the relationship between the volume of hydrogen gas and time in the first 90 seconds.

Berdasarkan graf di 2(a), nyatakan hubungan antara isipadu gas hidrogen dan masa dalam 90 saat pertama.

[1 mark]

- (c) Tick (✓) in the boxes in Table below the substances which can be used to replace magnesium in this experiment.

Tandakan (✓) dalam kotak Jadual dibawah bagi bahan yang boleh menggantikan magnesium dalam eksperimen ini.

Iron Besi	
Carbon Karbon	
Sulphur Sulfur	
Zinc Zink	

SPM 2008

4. Diagram 1.1 and Diagram 1.2 show an experiment to study the heat change in chemical reactions at room temperature.

Rajah 1.1 dan Rajah 1.2 menunjukkan satu eksperimen untuk mengkaji perubahan haba dalam tindak balas kimia pada suhu bilik.

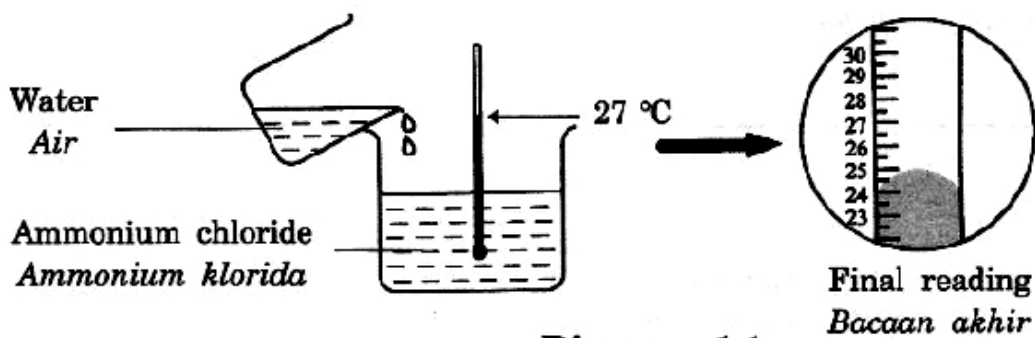
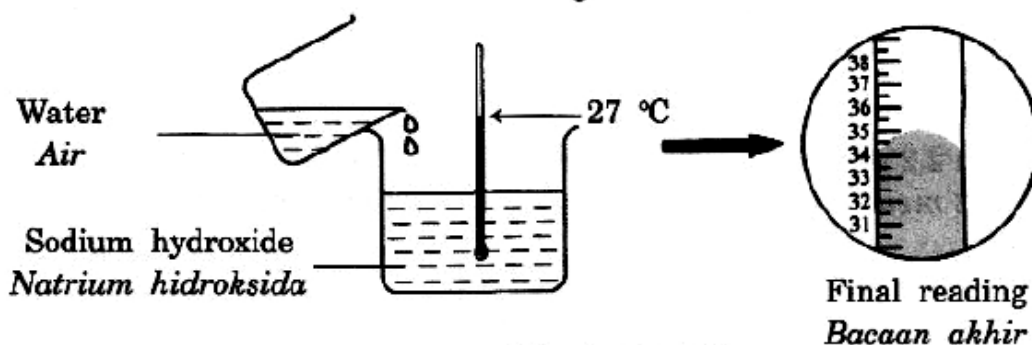


Diagram 1.1
Rajah 1.1



- (a) Based on Diagram 1.1, what is your observation about the change in temperature?
Berdasarkan Rajah 1.1, apakah pemerhatian anda tentang perubahan suhu?

Mark (/) for your answer in Table..

Tandakan (/) untuk jawapan anda dalam Jadual.

[1 mark]

Temperature decrease Suhu menurun	No change in temperature Tiada perubahan suhu	Temperature increase Suhu menaik

- (b) What is the final reading of the thermometer in Diagram 1.2?
Apakah bacaan akhir termometer pada Rajah 1.2?

..... [1 mark]

- (c) State the variables in this experiment.
Nyatakan pembolehubah dalam eksperimen ini.

(i) Constant variable

Pembolehubah dimalarkan: [1 mark]

(ii) Responding variable

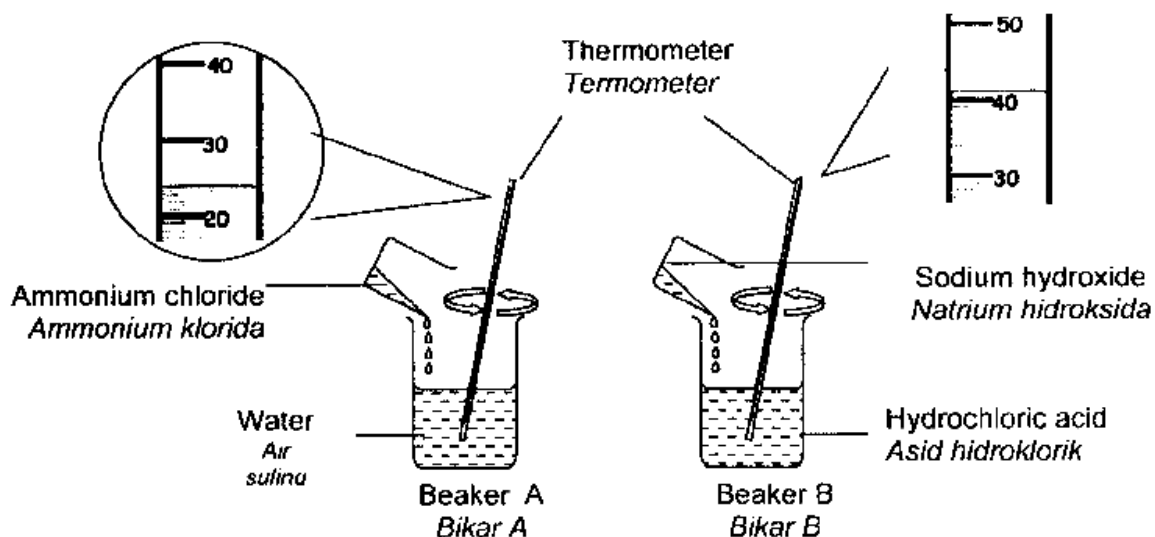
Pembolehubah bergerak balas : [1 mark]

- (d) State **one** hypothesis for this experiment.
Nyatakan **satu** hipotesis untuk eksperime ini

..... [1 mark]

TRIAL KELANTAN 2008

5. Diagram shows the temperature of the reaction between distilled water with ammonium chloride (Beaker A) and hydrochloric acid with sodium hydroxide (Beaker B)
Rajah menunjukkan suhu tindakbalas antara asid hidroklorik dengan ammonium klorida (Bikar A) dan suhu tindakbalas antara asid hidroklorik dengan natrium hidroksida (Bikar B)



The results of the experiment are recorded in Table.
Keputusan eksperimen diperoleh dicatikan dalam Jadual.

Beaker Bikar	Substances Bahan	Initial temperature / °C Suhu awal / °C	Final temperature / °C Suhu akhir / °C
A	Distilled water + Ammonium chloride <i>Air suling + ammonium klorida</i>	29	
B	Hydrochloric acid + Sodium hydroxide <i>Asid hidroklorik + natrium hidroksida</i>	29	

- (a) Based on the above experiment, complete Table.
Berdasarkan eksperimen di atas, lengkapkan Jadual.

[1 mark]

- (b) Write down one inference based on the results of this experiment.
Tuliskan satu inferens berdasarkan keputusan eksperimen itu.

.....

..... [1 mark]

- (c) (i) Which beaker shows the exothermic reaction?
Bikar yang manakah menunjukkan berlaku tindakbalas eksotermik?

..... [1 mark]

- (ii) State the operational definition for exothermic reaction.
Nyatakan operasi secara definisi untuk tindakbalas eksotermik.

.....

..... [1 mark]

- (d) Mark (✓) the chemical substance that will give the same observation as in beaker A.

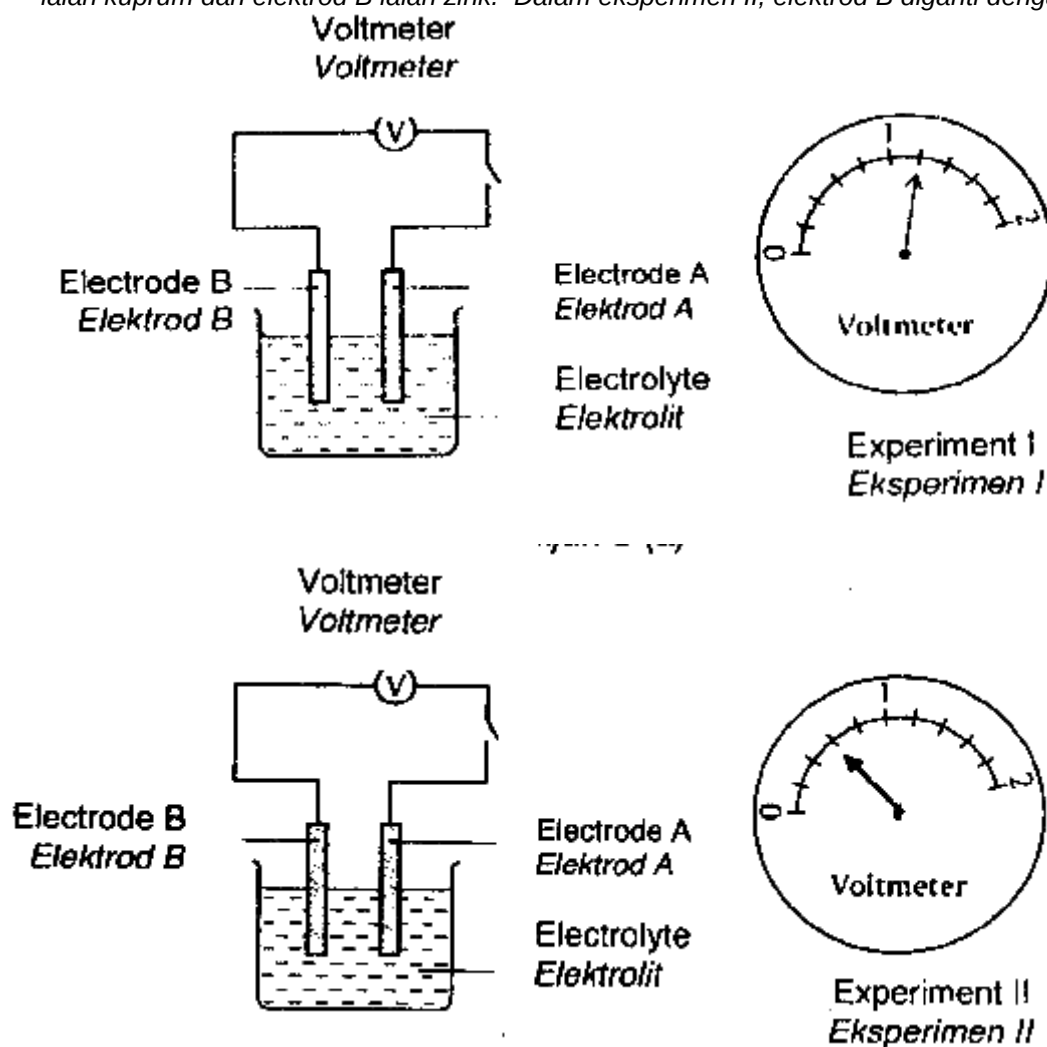
Tandakan (✓) bagi bahan kimia yang akan memberi pemerhatian yang sama seperti bikar A.

Sodium nitrate + distilled water <i>Natrium nitrat + air suling</i>	Sodium hydroxide + distilled water <i>Natrium hidroksida + air suling</i>	Concentrated sulphuric acid + distilled water <i>Asid sulfurik pekat + air suling</i>

[1 mark]

TRIAL KELANTAN 2008

6. Diagram shows a simple cell for the production of electrical energy. For experiment I, electrode A is a copper and electrode B is zinc. In experiment II, electrode B was replaced by lead.
Rajah menunjukkan sel ringkas bagi penghasilan tenaga elektrik. Untuk eksperimen I, elektrod A ialah kuprum dan elektrod B ialah zink. Dalam eksperimen II, elektrod B diganti dengan plumbum.



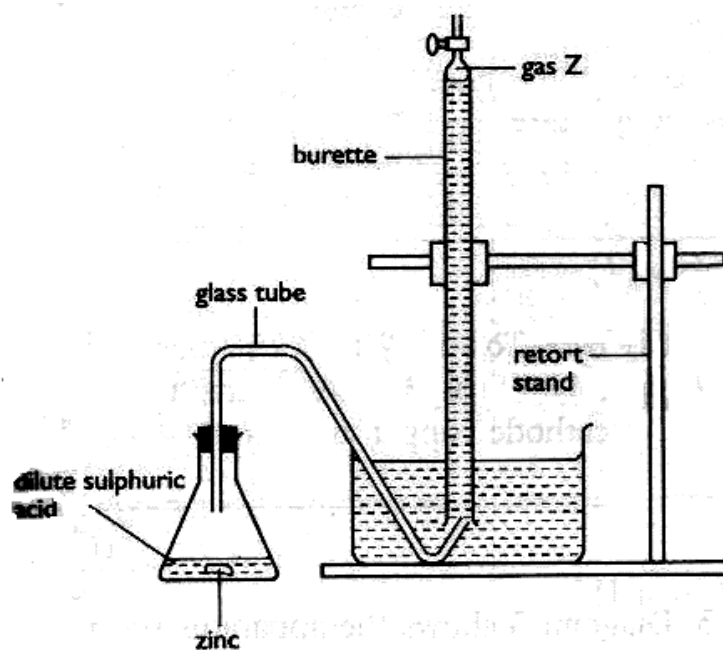
The results of the experiment are recorded in Table
Keputusan eksperimen direkodkan di dalam Jadual.

Experiment <i>Eksperimen</i>	Pair of metals <i>Pasangan logam</i>	Voltmeter reading/V <i>Bacaan voltmeter/V</i>
I	Zinc and copper <i>Zink dan kuprum</i>	1.2
II	Lead and copper <i>Plumbum dan kuprum</i>	

- (a) Based on experiment above, complete the voltmeter reading in Table.
Berdasarkan eksperimen di atas, lengkapkan bacaan voltmeter di dalam Jadual. [1 mark]
- (b) What can you infer from the deflected voltmeter needle?
Apakah yang boleh anda simpulkan mengenai pesongan jarum voltmeter?
..... [1 mark]
- (c) State the variables in this experiment
Nyatakan pembolehubah dalam eksperimen ini.
- (i) Manipulated variable:
Pembolehubah manipulasi : [1 mark]
- (ii) Responding variable:
Pembolehubah bergerakbalas : [1 mark]
- (d) If copper plates are used for electrode A and B, predict the voltmeter reading.
Jika plat kuprum digunakan sebagai elektrod A dan B, ramalkan bacaan voltmeter.
..... [1 mark]

TRIAL PAHANG 2008

7. Diagram shows the apparatus set up to study the reaction between zinc and dilute sulphuric acid.
A type of gas is produced and collected in a burette.
Rajah menunjukkan radas yang digunakan untuk mengkaji tindakbalas di antara zink dan asid sulfurik. Sejenis gas dihasilkan dan dikumpul di dalam buret.



The experiment is carried out for 10 minutes and the volume of gas is recorded every two minutes. The result is shown in Table.

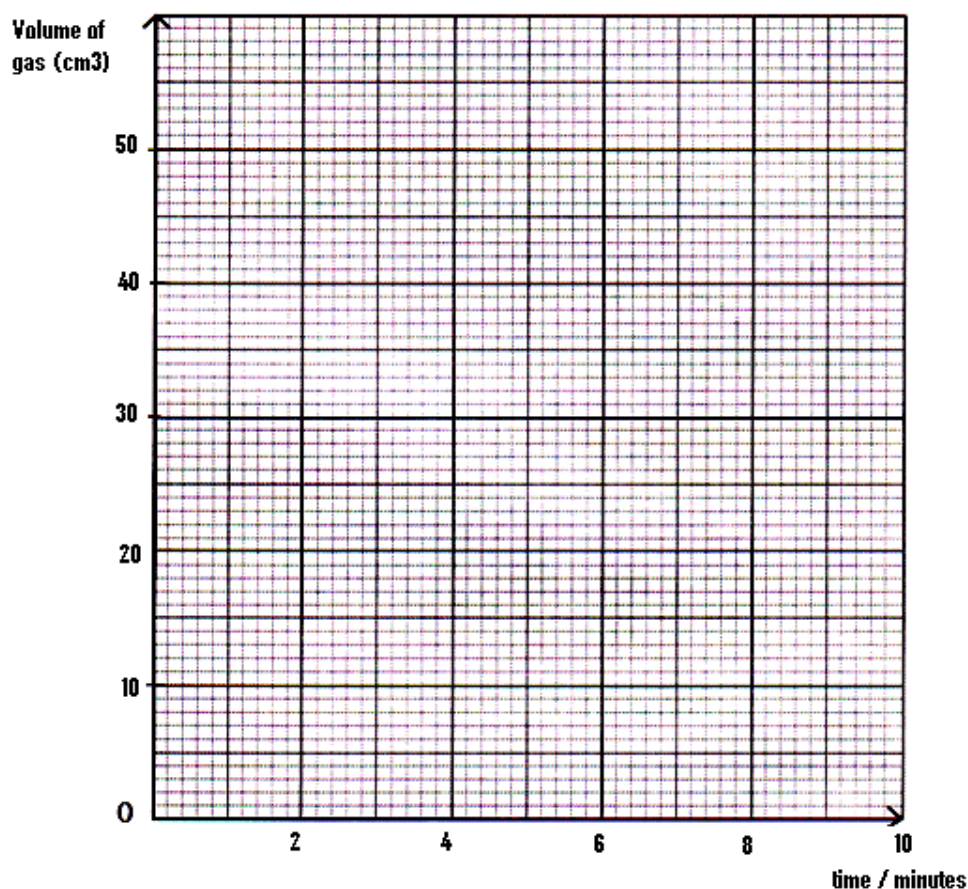
Eksperimen ini dijalankan selama 10 minit dan isipadu gas dicatatkan setiap dua minit. Keputusan ditunjukkan dalam Jadual.

Times (minutes) <i>Masa (minit)</i>	0	2	4	6	8	10
Volume of gas (cm ³) <i>Isipadu gas</i>	0	15	25	33	38	40

- a) Using the results in Table, draw a graph of the volume of gas collected against time.

Dengan menggunakan Jadual, lukiskan graf isipadu gas yang terkumpul melawan masa.

[2 marks]



- (b) Based on the graph that you had drawn, state the relationship between the volume of gas Z and time?

Berdasarkan graf yang telah anda lukis, nyatakan hubungan di antara isipadu gas Z dan masa?

..... [1 mark]

- (c) State the responding variable in this experiment?

Nyatakan pembolehubah bergerakbalas dalam eksperimen ini?

..... [1 mark]

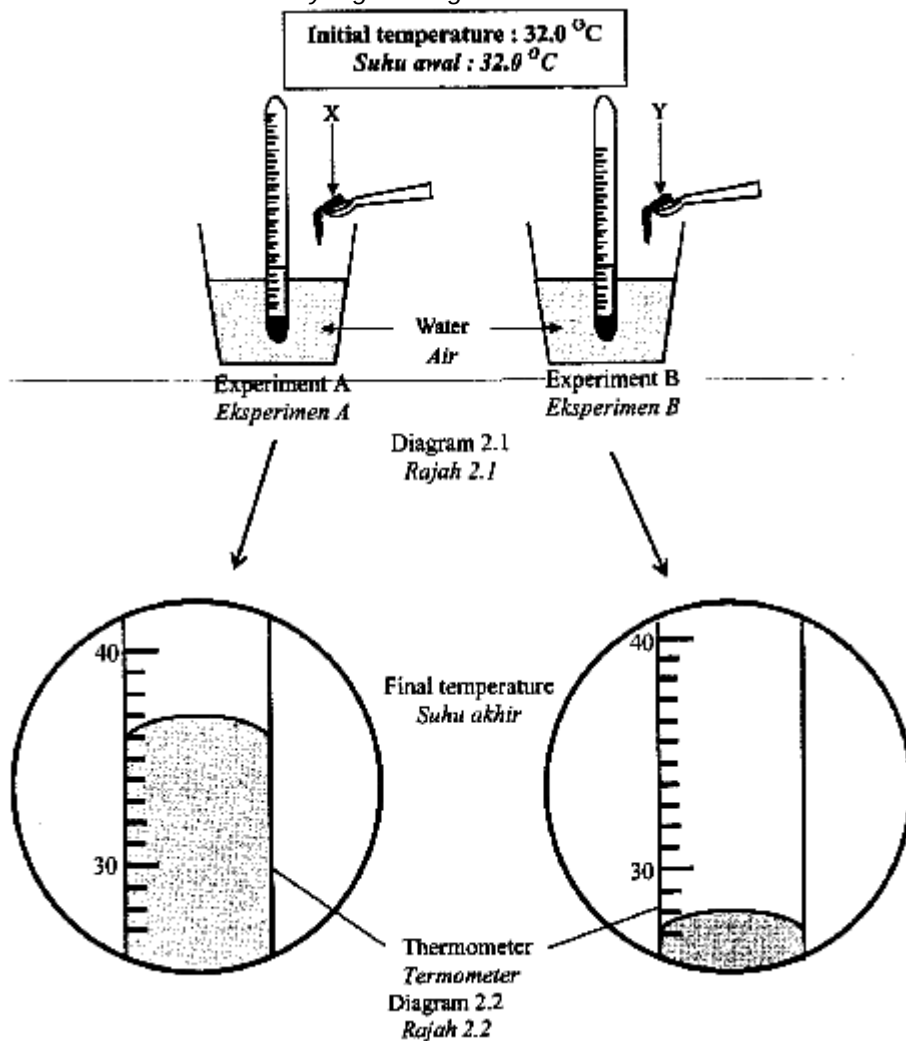
- (d) What is the volume of gas collected at the fifth minute?
 Berapakah isipadu gas yang dikumpul pada minit ke lima?

[1mark]

TRIAL PERAK 2008

8. Diagram shows an experiment to compare the heat changes in chemical reactions of substance X and substance Y while being dissolved in water.

Rajah menunjukkan eksperimen untuk membandingkan perubahan haba dalam tindakbalas kimia ke atas bahan X dan bahan Y yang sedang melarut dalam air.



- (a) Based on the result in Diagram 2.2, complete Table.
 Berdasarkan keputusan eksperimen dalam Rajah 2.2, lengkapkan Jadual.

Substance Bahan	Final Temperature (°C) Suhu akhir (°C)	Change in temperature (°C) Perubahan suhu (°C)
X	37	5
Y		

[1 mark]

- (b) State the variables in this experiment.
 Nyatakan pembolehubah dalam eksperimen ini.

- (i) Manipulated variable:

Pembolehubah dimanipulasikan : [1 mark]

(ii) Responding variable:
Pembolehubah bergerakbalas: [1 mark]

(c) State one inference for this experiment.
Nyatakan satu inferens bagi eksperimen ini.
..... [1 mark]

(d) Experiment A is an exothermic reaction. State the operational definition for an exothermic reaction.
Eksperimen A merupakan tindakbalas eksotermik. Nyatakan definisi secara operasi bagi tindakbalas eksotermik.
..... [1 mark]

TRIAL KEDAH 2009

9. Diagram show exothermic and endothermic reactions. Initial temperature of distilled water is 24°C .

Rajah menunjukkan tindakbalas eksotermik dan endotermik. Suhu awal air suling ialah 24°C .

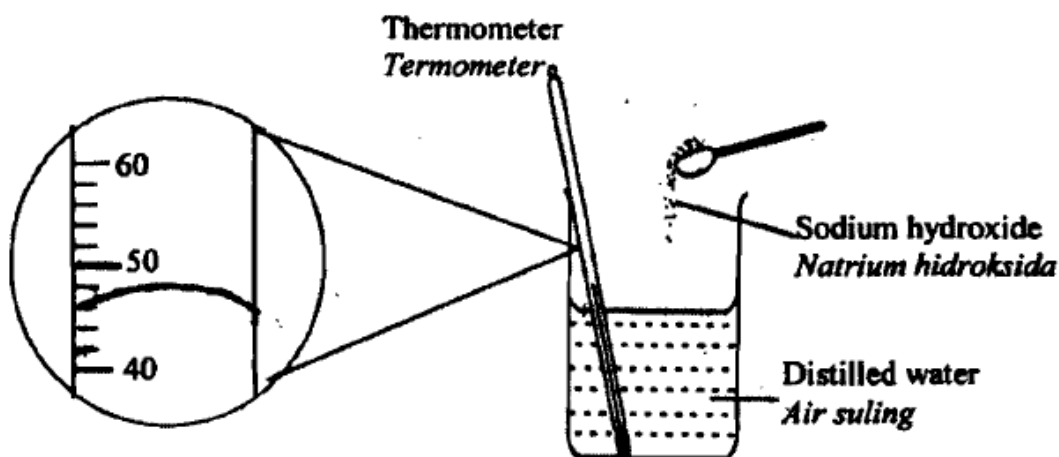


Diagram 2.1

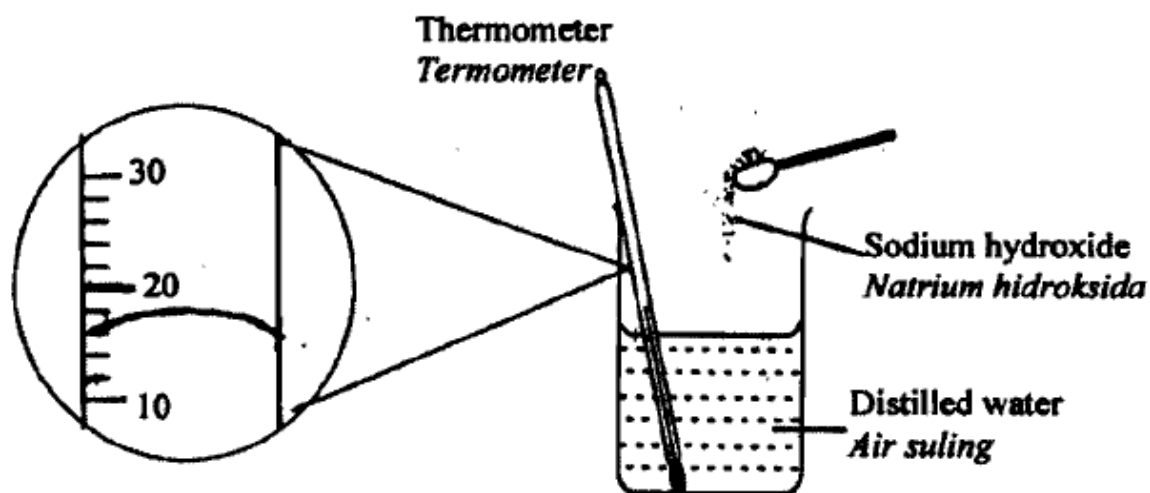


Diagram 2.2

- (a) Based on Diagram 2.2, complete Table.
Berdasarkan Rajah 2.2, lengkapkan Jadual.

Substances <i>Bahan</i>	Thermometer Reading/ $^{\circ}\text{C}$ <i>Bacaan Termometer/$^{\circ}\text{C}$</i>
Distilled water + sodium hydroxide <i>Air suling + natrium hidroksida</i>	48
Distilled water + ammonium chloride <i>Air suling + ammonium klorida</i>	

[1 mark]

- (b) (i) Based on Diagram 2.1 and 2.2 state your observation on the thermometer reading.
Berdasarkan Rajah 2.1 dan 2.2, nyatakan pemerhatian anda ke atas bacaan termometer.

.....
 [1 mark]

- (ii) State the inference that can be made based on your answer in (b)(i).
Nyatakan inferens yang boleh dibuat berdasarkan jawaoan anda di (b)(i)

.....
 [1 mark]

- (c) State the constant variable in this experiment.
Nyatakan pembolehubah dimalarkan dalam eksperimen ini.

..... [1 mark]

- (d) Diagram 2.2 is an endothermic reaction. State the operational definition for endothermic reaction.
Rajah 2.2 ialah satu tindakbalas endotermik. Nyatakan definisi secara operasi bagi tindakbalas endotermik.

.....
 [1 mark]

TRIAL PAHANG 2009

10. Diagram shows the apparatus set up to study the reaction between zinc and dilute sulphuric acid. A type of gas is produced and collected in a burette.
Rajah menunjukkan radas yang digunakan untuk mengkaji tindakblas di antara zink dan asid sulfurik cair. Sejenis gas dihasilkan dan dikumpul di dalam buret.

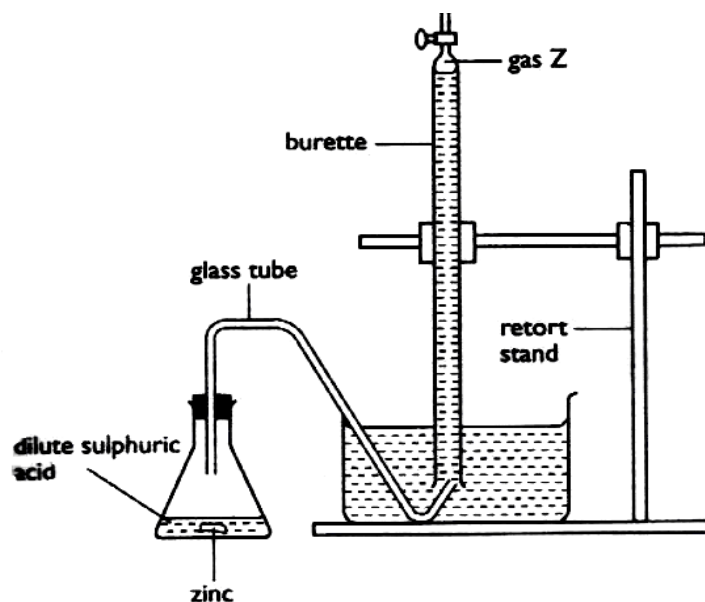


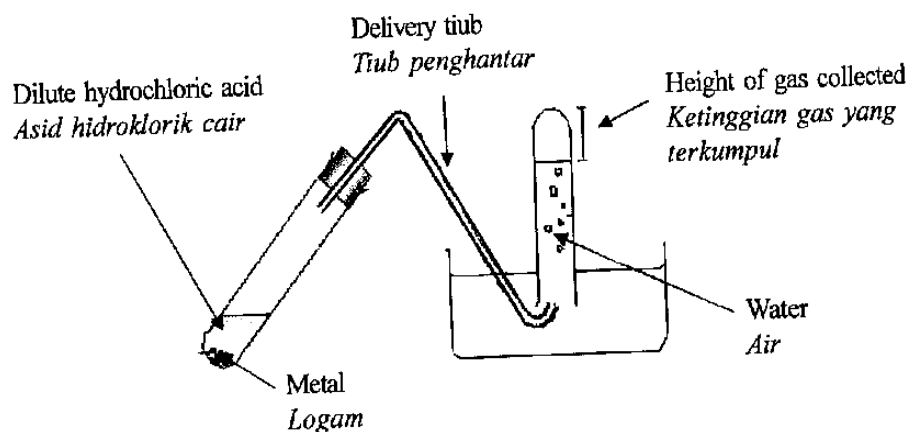
Table shows the volume of gas collected in the reaction of dilute sulphuric acid and zinc.
 Jadual menunjukkan isipadu gas yang dibebaskan apabila asid sulfurik cair bertindakbalas dengan zink.

Times (minutes) <i>Masa (minit)</i>	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Burette reading (cm ³) <i>Bacaan burette (cm³)</i>	50	40	35	28	20	16	12	9	7
Volume of gas (cm ³) <i>Isipadu gas</i>	0	10	15	----	30	24	-----	41	43

- (a) Complete Table by writing the volumes of gas released.
 Lengkapkan jadual dengan mengisi isipadu gas yang dibebaskan. [2 marks]
- (b) Based on the table above, state the relationship between the volumes of gas Z and time.
 Berdasarkan jadual di atas, nyatakan hubungan di antara isipadu gas Z dan masa.
 [1 mark]
- (c) State the variables in this experiment.
 Nyatakan pembolehubah dalam eksperimen ini.
- (i) Manipulated variable:
 Pembolehubah dimanipulasikan : [1 mark]
- (ii) Responding variable:
 Pembolehubah bergerakbalas: [1 mark]

TRIAL PERAK 2009

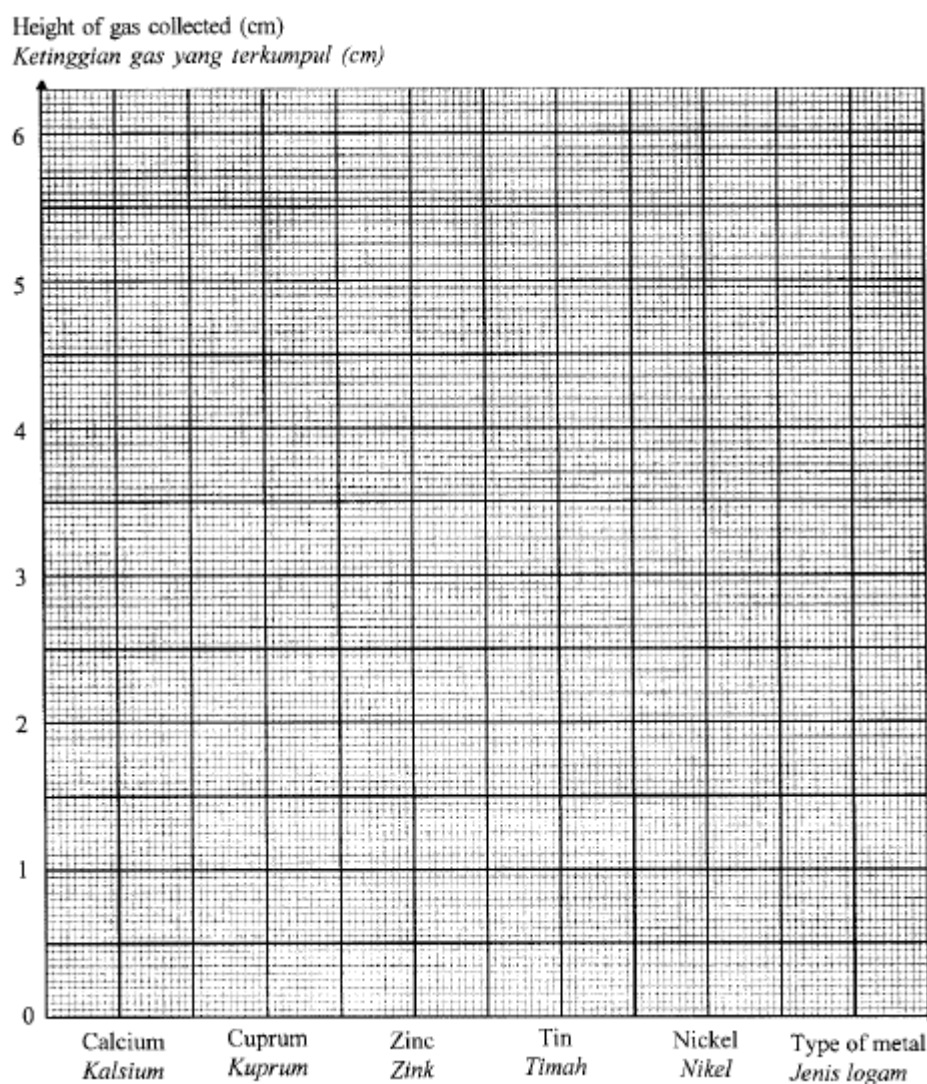
11. Diagram shows an experiment to study the reactivity of metals. The reactivity of metals can be determined by the reaction between metal and dilute acid. Five different metals; calcium, copper, zinc, tin, nickel are added to dilute hydrochloric acid respectively. The height of gas collected in the first 25 seconds in each case is measured.
 Rajah menunjukkan eksperimen untuk mengkaji kereaktifan logam. Kereaktifan logam boleh ditentukan melalui tindakbalas logam dengan asid cair. Lima logam yang berbeza; kalsium, kuprum, zink, timah dan nikel dimasukkan secara berasingan ke dalam asid hidroklorik cair. Ketinggian gas yang terkumpul pada 25 saat yang pertama bagi setiap logam diukur.



The results are shown in Table.
Keputusan eksperimen ditunjukkan dalam Jadual.

Type of metals <i>Jenis logam</i>	Calcium <i>Kalsium</i>	Copper <i>Kuprum</i>	Zinc <i>Zink</i>	Tin <i>Timah</i>	Nickel <i>Nikel</i>
Height (cm) of gas collected in the first 25 seconds <i>Ketinggian (cm) gas yang terkumpul pada 25 saat yang pertama.</i>	5.5	1	4.5	0	2.5

- (a) Based on the results in Table, draw a bar chart to show the height of gas collected against the type of metals.
Berdasarkan keputusan dalam Jadual, lukiskan carta bar yang menunjukkan ketinggian gas yang terkumpul melawan jenis logam.



[2 marks]

- (b) What is the relationship between the height of the gas collected and the types of metals?
Apakah hubungan antara ketinggian gas yang terkumpul dengan jenis logam?

..... [1 mark]

- (c) Arrange the reactivity of four metals in descending order from the result in Table.
Susunkan kereaktifan empat logam sahaja, mengikut urutan menurun berdasarkan keputusan eksperimen pada Jadual.

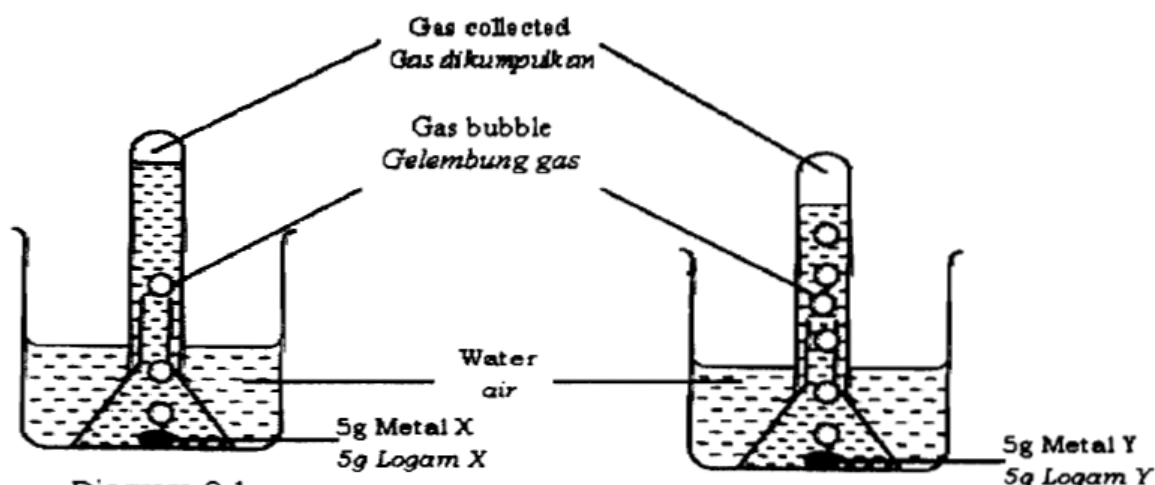
Reactivity decreases
Kereaktifan menurun

[2 marks]

TRIAL KEDAH 2010

12. Diagram shows an experiment to study the reactivity of metal X and metal Y with water. Gas collected within five minutes.

Rajah menunjukkan satu eksperimen untuk mengkaji kereaktifan logam X dan logam Y dengan air. Gas dikumpulkan dalam masa lima minit.



(a) (i) State one observation from this experiment.

Nyatakan satu pemerhatian daripada eksperimen ini

.....
 [1 mark]

(ii) Based on the experiment, mark (✓) the metal which is more reactive in table.

Berdasarkan eksperimen, tandakan (✓) bagi logam yang lebih reaktif dalam Jadual.

Metal X Logam X	Metal Y Logam Y

[1 mark]

(b) State the variables in this experiment.

Nyatakan pembolehubah dalam eksperimen ini.

(iii) Manipulated variable:

Pembolehubah dimanipulasikan : [1 mark]

(iv) Responding variable:

Pembolehubah bergerakbalas: [1 mark]

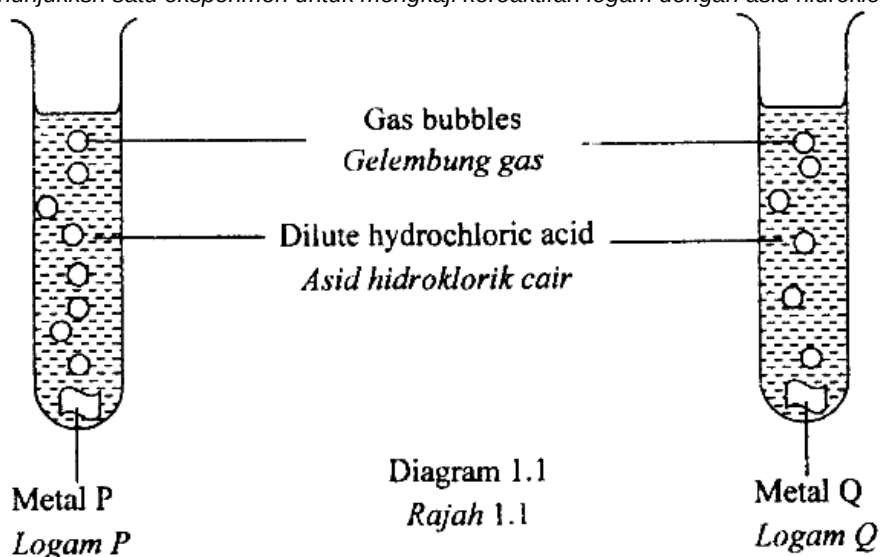
(c) State the operational definition of reactivity of metal.

Nyatakan definisi secara operasi bagi kereaktifan logam.

.....
 [1 mark]

TRIAL KELANTAN 2010

13. Diagram 1 shows the experiment to study the reactivity of metals with dilute hydrochloric acid.
Rajah menunjukkan satu eksperimen untuk mengkaji kereaktifan logam dengan asid hidroklorik cair.



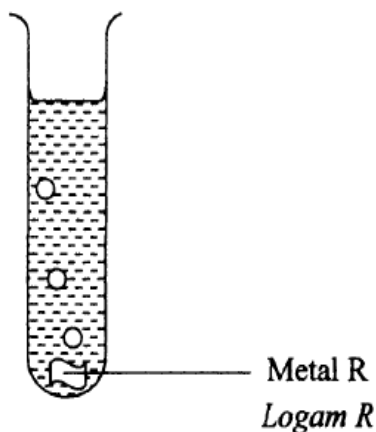
- (a) State one inference for this experiment.
Nyatakan satu inferens bagi eksperimen ini.

..... [1 mark]

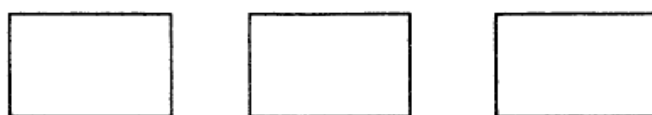
- (b) State one responding variables in this experiment.
Nyatakan satu pemboleh ubah yang bergerakbalas dalam eksperimen ini.

..... [1 mark]

- (c) Experiment is repeated by using metal R.
Eksperimen diulang dengan menggunakan logam R.



Based on diagram, arrange the reactivity of metals P, Q and R in ascending order.
Berdasarkan Rajah, susun logam P, Q dan R mengikut kereaktifan dalam tertib menaik.



Increase of metals reactivity

Kereaktifan logam menaik

[2 marks]

(d) State the operational definition for reactive metal in this experiment.

Nyatakan definisi secara operasi bagi logam reaktif dalam eksperimen ini.

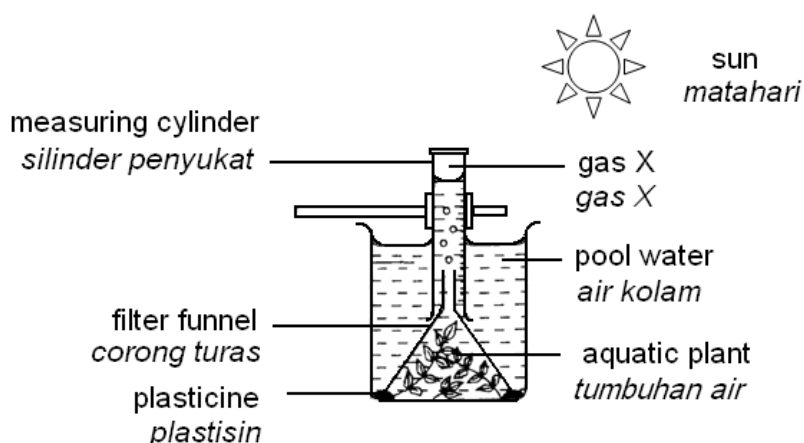
.....

..... [1 mark]

TRIAL SABAH 2010

14. Diagram shows an experiment to study the relationship between the intensity of light and photosynthesis.

Rajah menunjukkan satu eksperimen untuk mengkaji hubungan diantara keamatan cahaya dengan fotosintesis



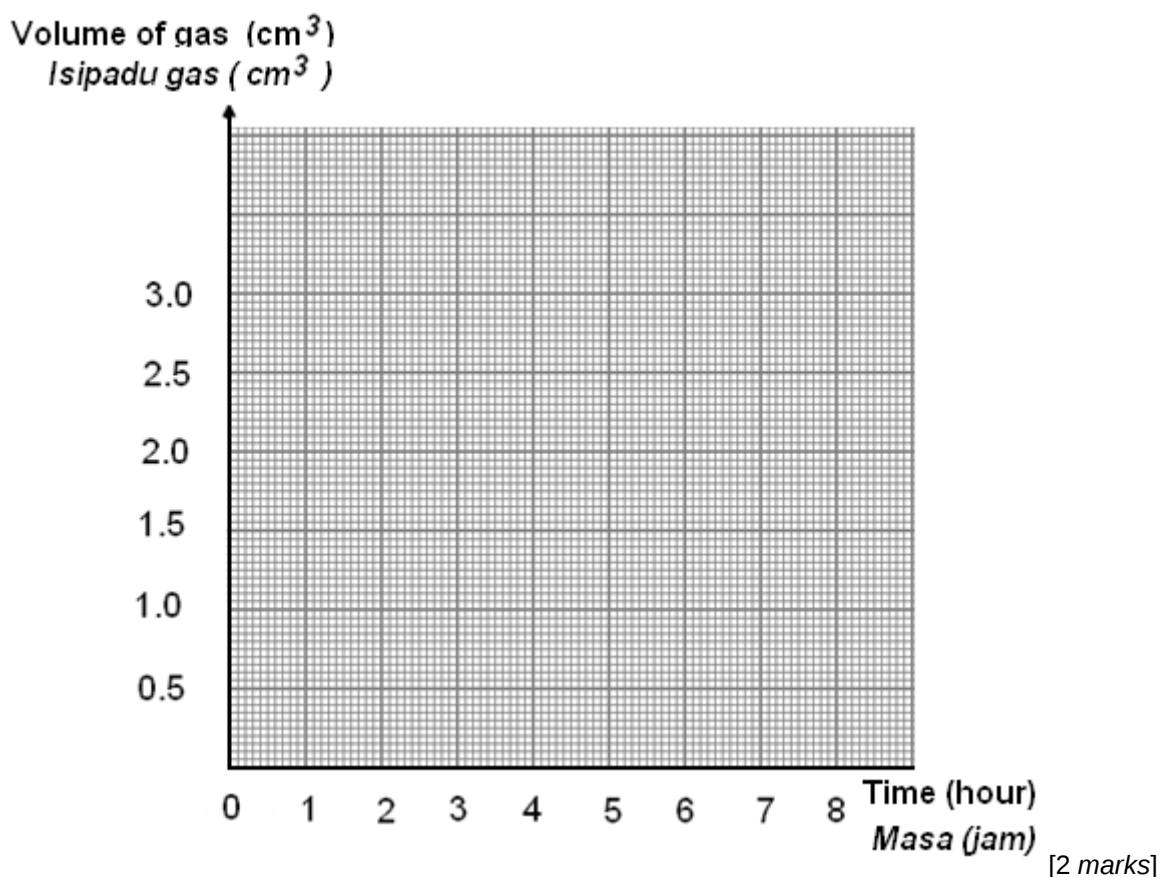
The result is showed on the Table

Keputusan ditunjukkan di dalam Jadual

Time exposed to light (hour) <i>Masa pendedahan kepada cahaya (jam)</i>	0	1	2	3	4	5	6	7
The volume of gas X (cm ³) <i>Isipadu gas X (cm³)</i>	0	0.7	1.3	1.7	2.0	2.2	2.3	2.3

(a) Based on the result in Table, draw a graph of volume of gas X against the time exposed to light.

Berdasarkan keputusan di dalam Jadual 1, lukiskan graf isipadu melawan masa pendedahan kepada cahaya.



- (b) Based on the graph, state the relationship between the volume of gas X and time exposed to light.

Berdasarkan graf, nyatakan hubungan di antara isipadu gas X dengan masa didedahkan kepada cahaya.

_____ [1 mark]

- (d) Based on the graph, determine the volume of gas X produced at $3\frac{1}{2}$ hour
Berdasarkan graf, tentukan isipadu gas X yang dihasilkan pada $3\frac{1}{2}$ jam.

_____ [1 mark]

- (c) Predict the the volume of gas produced at the 8th hour.
Ramalkan isipadu gas yang dihasilkan pada jam ke-8.

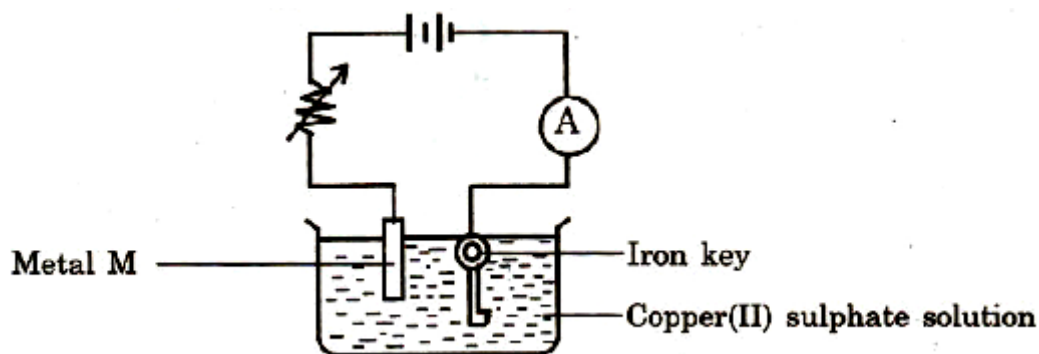
_____ [1 mark]

SECTION B

SPM 2006

15. Diagram below shows the set up apparatus in an experiment.

Rajah di bawah menunjukkan susunan radas dalam satu eksperimen.



(a) Name the process in Diagram.

Namakan proses dalam Rajah

_____ [1 mark]

(b) (i) Name metal M

Namakan logam M

_____ [1 mark]

(ii) What happens to metal M during the process in Diagram?

Apakah yang berlaku pada logam M semasa proses dalam Rajah?

_____ [1 mark]

(c) Which metal function as the cathode?

Logam manakah berfungsi sebagai katod?

_____ [1 m ark]

(d) (i) What will happen to the iron key at the end of the experiment?

Apakah akan berlaku pada kunci besi di akhir eksperimen?

_____ [1 mark]

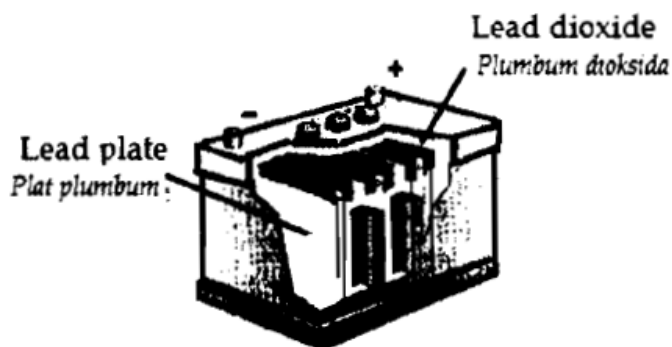
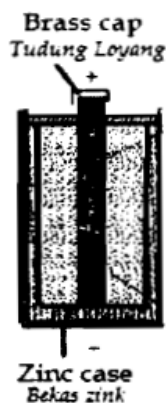
(ii) State one method to get a good result in (d)(i)

Nyatakan satu kaedah untuk mendapatkan keputusan yang baik dalam (d)(i)

_____ [1 mark]

TRIAL KEDAH 2010

16. Diagram shows two typed of cell P and Q.
Rajah menunjukkan dua jenis sel P dan Q.



P:.....

Q:.....

- (a) On Diagram, name cell P and Q by choosing the following words
Pada Rajah, namakan sel P dan Q dengan memilih perkataan yang berikut: [2 marks]

Nickel-cadmium batteries Bateri nikel- kadmium	Silver oxide- zinc cell Sel zink - Argentum oksida
Dry cell Sel kering	Lead-acid accumulator Akumulator -asid plumbum

- (b) Name one equipment that uses the P cell.
Namakan satu alat yang menggunakan sel P.

..... [1 mark]

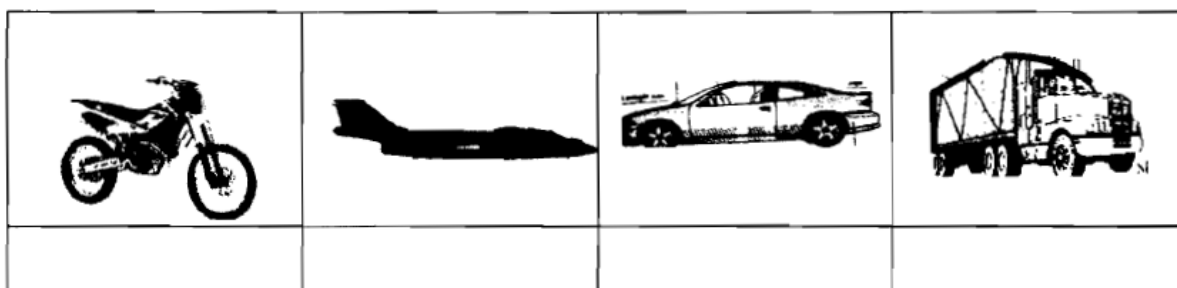
- (c) (i) State one characteristic of cell P.
Nyatakan satu ciri sel P.

..... [1 mark]

- (ii) Name the liquid used as the electrolyte in cell Q.
Namakan cecair yang digunakan sebagai elektrolit dalam sel Q.

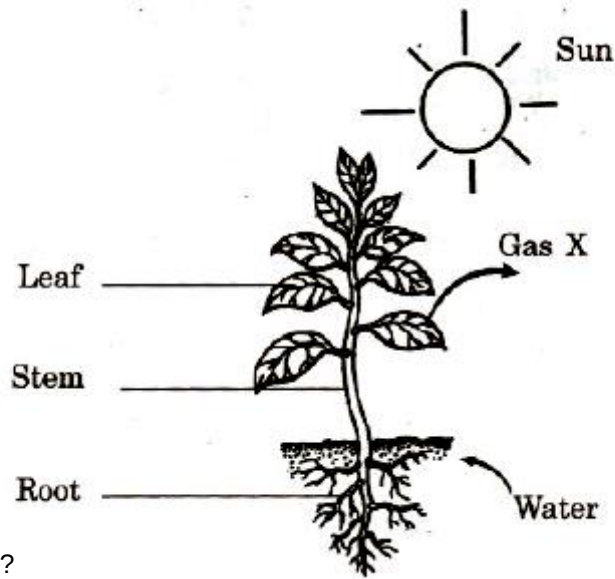
..... [1 mark]

- (d) Mark (✓) at the vehicles which use cell P for moving smoothly.
Tandakan (✓) pada kenderaan-kenderaan yang menggunakan sel Q untuk bergerak dengan lancar. [1 mark]



SPM 2006

17. Diagram below shows a green plant under the sunlight.
Rajah menunjukkan tumbuhan hijau di bawah cahaya matahari.



- (a) What is gas X?
Apakah gas X?

_____ [1 mark]

- (b) (i) What process takes place in the green plant in Diagram?
Apakah proses yang berlaku dalam tumbuhan hijau dalam Rajah?

_____ [1 mark]

- (ii) Write down the word equation for the process in (b) (i).
Tuliskan persamaan perkataan untuk proses dalam (b)(i)

_____ [1 mark]

- (c) (i) Name the pigment found in the leaves involved in the process in Diagram?
Namakan pigmen yang terdapat dalam daun yang terlibat dalam proses dalam Rajah.

_____ [1 mark]

- (ii) What is the function of the pigment in (c) (i)?
Apakah fungsi pigment dalam (c)(i)?

_____ [1 mark]

- (d) State one benefit of the process in (b) (i) to living things
Nyatakan satu kelebihan proses dalam (b)(i) kepada benda hidup.

_____ [1 mark]

SECTION C

TRIAL TERENGGANU 2008

18. Study the following statement.

Kaji pernyataan berikut

The temperature of water changes when different chemicals dissolve in it
Suhu air akan berubah apabila bahan kimia yang berbeza dilarutkan ke dalamnya.

You are given, ammonium chloride, sodium hydroxide, distilled water, glass rod, spatula and thermometer.

Anda diberi ammonium klorida, natrium hidroksida, air suling, rod kaca, spatula dan termometer.

- (a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- (i) Aim of the experiment [1 mark]
Tujuan eksperimen
- (ii) Identification of variables [2 mark]
Mengenalpasti pembolehubah
- (iii) List of apparatus and materials [1 mark]
Senarai bahan dan radas
- (iv) Procedure or method [4 marks]
Kaedah
- (v) Tabulation of data [1 mark]
Penjadualan data

19. Study the following statement
Kaji pernyataan berikut

A large amount of air bubbles is released when a magnesium strip is placed in hydrochloric acid but when a copper plate is placed in the same acid, no changes are observed.
Banyak gelembung udara dibebaskan apabila pita magnesium dimasukkan ke dalam asid hidroklorik tetapi plat kuprum dimasukkan dalam asid yang sama tiada perubahan

You are given with magnesium strip, copper plate, hydrochloric acid and other apparatus.
Anda diberikan dengan pita magnesium, plat kuprum, asid hidroklorik dan radas lain.

- (a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- | | |
|---|-----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 marks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

20. Study the following statement:

Kaji pernyataan berikut:

Various metals show different reactivity towards oxygen
Logam berbeza menunjukkan kereaktifan berbeza terhadap oksigen

You are given metals magnesium, zinc, copper, potassium manganate (VII), glass wool, retort stand, boiling tube, Bunsen burner and other apparatus.

Anda diberi logam magnesium, zink, kuprum, kalium manganat (VII), wul kaca, kaki retort, tabung didih, penunu Bunsen dan radas lain.

- (a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- | | |
|---|-----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 marks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

21. Study the following statement.
Kaji pernyataan berikut.

Carbon is positioned between aluminium and zinc in the reactivity series.
Karbon terletak antara aluminium dan zink dalam siri kereaktifan

You are given carbon, aluminium oxide, zinc oxide, copper oxide, Bunsen burner and pipe clay triangle.

Anda diberi karbon, aluminium oksida, zink oksida, penunu Bunsen dan segitiga tanahliat.

- (a) Suggest one hypothesis to investigate the above statement
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- (b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:
Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:
- | | |
|---|-----------|
| (i) Aim of the experiment
<i>Tujuan eksperimen</i> | [1 mark] |
| (ii) Identification of variables
<i>Mengenalpasti pembolehubah</i> | [2 mark] |
| (iii) List of apparatus and materials
<i>Senarai bahan dan radas</i> | [1 mark] |
| (iv) Procedure or method
<i>Kaedah</i> | [4 marks] |
| (v) Tabulation of data
<i>Penjadualan data</i> | [1 mark] |

22. Study the following statement:

Kaji pernyataan berikut:

Reaction of different metals with acid will produce different volume of gas.
Tindakbalas logam yang berbeza dengan asid akan menghasilkan isipadu gas yang berbeza

You are given boiling tube, cork stopper, delivery tube glass trough, water, magnesium powder, zinc powder and dilute sulphuric acid.

Anda diberi tabung didih, penutup, salur penghantar, air, serbuk magnesium, serbuk zink dan asid sulfurik cair.

(a) Suggest one hypothesis to investigate the above statement

Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[1 mark]

(b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:

Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:

(i) Aim of the experiment

[1 mark]

Tujuan eksperimen

(ii) Identification of variables

[2 mark]

Mengenalpasti pembolehubah

(iii) List of apparatus and materials

[1 mark]

Senarai bahan dan radas

(iv) Procedure or method

[4 marks]

Kaedah

(v) Tabulation of data

[1 mark]

Penjadualan data

TRIAL PERAK 2009

23. Study the following statement:

Kaji pernyataan berikut:

Reaction of metal and acid releases heat energy to the surroundings.
Tindakbalas logam dengan asid akan membebaskan tenaga haba ke sekeliling

You are given boiling tube, boiling tube rack, spatula, 25 ml measuring cylinder, thermometer, powdered zinc and powdered iron.

Anda dibekalkan dengan tabung didih, rak tabung didih, silinder penyukat 25 ml, termometer, serbuk zink dan serbuk besi

(a) Suggest one hypothesis to investigate the above statement

Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[1 mark]

(b) Describe one experiment to test your hypothesis in 10(a) based on the following criteria:

Huraikan satu eksperimen untuk menguji hipotesis di 1(a) berdasarkan kriteria berikut:

(i) Aim of the experiment

[1 mark]

Tujuan eksperimen

(ii) Identification of variables

[2 mark]

Mengenalpasti pembolehubah

(iii) List of apparatus and materials

[1 mark]

Senarai bahan dan radas

(iv) Procedure or method

[4 marks]

Kaedah

(v) Tabulation of data

[1 mark]

Penjadualan data

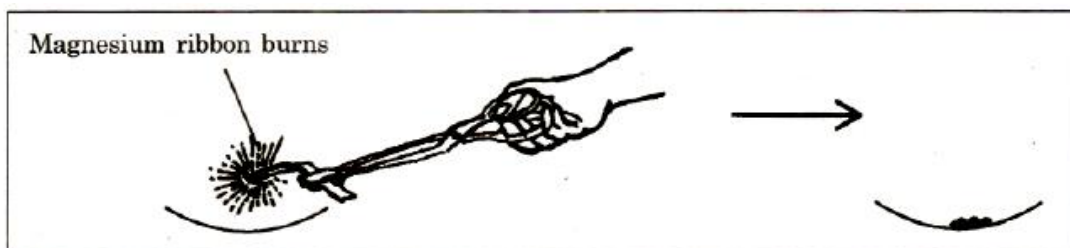
SPM 2005

24. There are two types of change in matter, physical change and chemical change.

Terdapat dua jenis perubahan jirim, perubahan fizikal dan perubahan kimia.

(a) Figure shows the burning of magnesium ribbon in air.

Rajah menunjukkan pembakaran magnesium dalam udara.



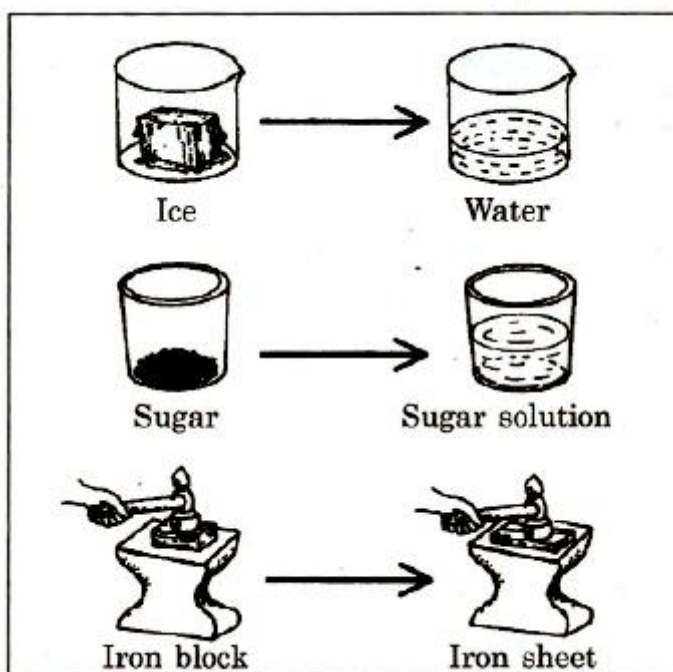
State four reasons why the above reaction is considered to be a chemical change

Nyatakan empat alasan kenapa tindakbalas di atas dikatakan sebagai perubahan kimia.

[4 marks]

(b) Figure shows physical changes in three different substances.

Rajah menunjukkan perubahan fizikal dalam tiga bahan yang berbeza.



Study the information in Figure above and construct the concept of physical change. Your answer should be based on the following steps;

Kaji maklumat dalam Rajah di atas dan bina konsep bagi perubahan fizikal. Penerangan anda mestilah mengandungi langkah-langkah berikut.

- Identify the information
Kenalpasti maklumat

[1 mark]

- Identify the common characteristics [2 marks]
Kenalpasti ciri sepunya
- Relate the common characteristics to the physical change and a non physical change [2 marks]
Hubungkaitkan ciri sepunya perubahan fizikal dan bukan perubahan fizikal
- State the actual concept of physical change. [1 mark]
Nyatakan konsep sebenar bagi perubahan fizikal

TRIAL SABAH 2008

25. (a) Explain the process of photosynthesis in green plants. [4 marks]
Terangkan proses fotosintesis dalam tumbuhan hijau.

(b) Green plants are not able to absorb light and carry out their normal activities when the air polluted with heavy smoke. Explain this phenomenon.
Tumbuhan hijau tidak dapat menyerap cahaya dan menjalankan aktiviti dengan normal apabila udara tercemar oleh asap tebal. Terangkan fenomena ini.

Your explanation should include the following aspects:

Penerangan anda hendaklah mengandungi aspek-aspek berikut :

- Identify the problem [1 mark]
Kenalpasti masalah
- Explain **two** methods to solve the problem. [4 marks]
*Terangkan **dua** kaedah penyelesaian.*
- Choose the best method and explain your choice. [1 mark]
Pilih kaedah terbaik dan jelaskan pilihan anda.

CHAPTER 6: NUCLEAR ENERGY

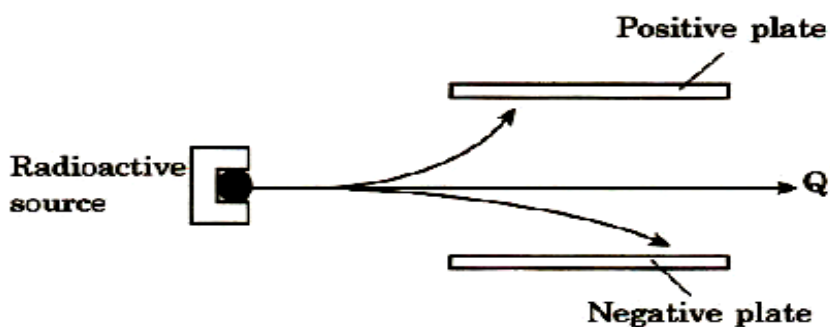
PAPER 1



RADIOACTIVE SUBSTANCE

SPM 2004

1. The figure shows radioactive radiation passing through an electric field.
Rajah menunjukkan sinaran radioaktif yang melalui medan elektrik.

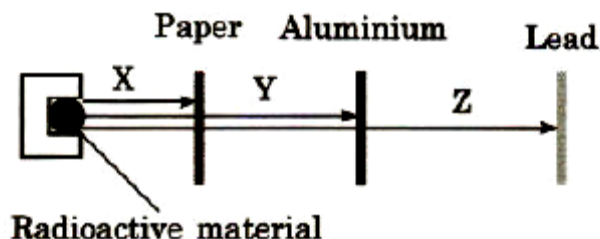


What is labelled Q?
Apakah berlabel Q?

- | | |
|--------------|--------------|
| A. X-ray | C. Beta ray |
| B. Alpha ray | D. Gamma ray |

SPM 2004

2. The figure shows how radioactive rays penetrate through different materials.
Rajah menunjukkan bagaimana sinar radioaktif menembusi bahan yang berbeza,

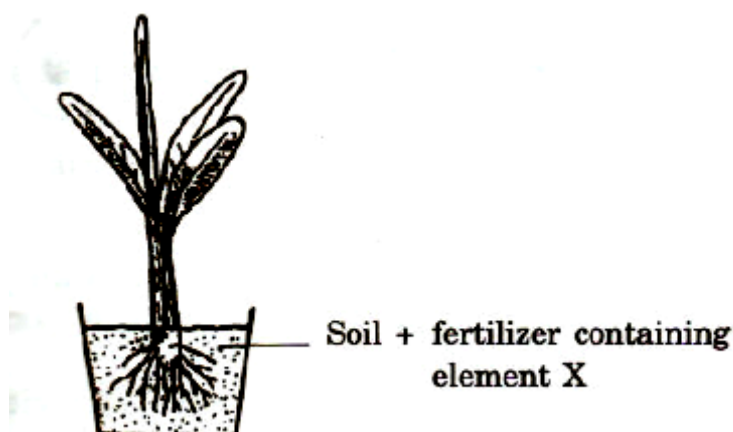


What are rays X, Y and Z?
Apakah sinar X, Y dan Z?

- | | X | Y | Z |
|---|-------|-------|-------|
| A | Alpha | Beta | Gamma |
| B | Gamma | Alpha | Beta |
| C | Beta | Alpha | Gamma |
| D | Alpha | Gamma | Beta |

SPM 2004

3. The diagram shows an experiment to study the absorption of fertilizer in a young banana tree. The absorption is studied by adding element X to fertilizer.
Gambarajah menunjukkan eksperimen untuk mengkaji penyerapan baja oleh anak pokok pisang. Penyerapan itu dikaji dengan menambah unsur X dalam baja



Element X is
Unsur X ialah

- | | |
|---------------|------------------|
| A. Iodine-131 | C. Carbon-14 |
| B. Cobalt-60 | D. Phosphorus-32 |

SPM 2005

4. Which of the following are the uses of radioactive substances?

Antara berikut yang manakah kegunaan bahan radioaktif?

- | | |
|-----|---|
| I | to detect the leaking of underground pipes |
| | <i>Megesan kebocoran paip di bawah tanah</i> |
| II | to sterilize pests |
| | <i>Memandulkan serangga perosak</i> |
| III | to kill micro organism on surgical instruments |
| | <i>Membunuh mikroorganisma pada alatan pembedahan</i> |
- | | |
|-------------------|--------------------|
| A. I and II only | C. II and III only |
| B. I and III only | D. I, II and III |

SPM 2006

5. What are the charges of alpha rays, beta rays and gamma rays?

Apakah cas bagi sinar alfa, sinar beta dan sinar gamma?

	<u>Alpha rays</u>	<u>Beta rays</u>	<u>Gamma rays</u>
A	Positive	Negative	Neutral
B	Positive	Neutral	Negative
C	Negative	Neutral	Negative
D	Neutral	Positive	Neutral

SPM 2006

6. A group of archaeologist found a human skeleton which was believed to be buried thousand of years ago. They want to estimate the age of skeleton. What is the radioactive material they would use?

Sekumpulan ahli arkeologi menemui rangka manusia yang dipercayai tertimbus beribu ribu tahun dahulu. Mereka hendak menganggarkan usia rangka itu. Apakah bahan radioaktif yang akan mereka gunakan?

- | | |
|---------------|----------------|
| A. Iodine-131 | C. Carbon-14 |
| B. Cobalt-60 | D. Uranium-235 |

SPM 2007

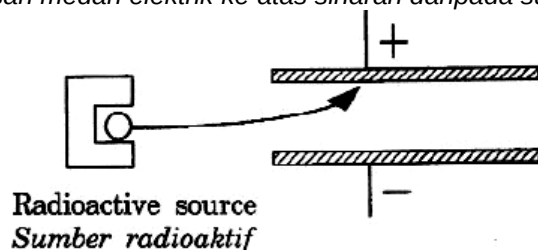
7. Which of the following is a radioactive substance?

Antara yang berikut, manakah bahan radioaktif?

- | | |
|--------------|---------------|
| A. Cobalt-60 | C. Oxygen-16 |
| B. Carbon-12 | D. Hydrogen-1 |

SPM 2008

8. Diagram shows the effect of an electrical field on radiation from a radioactive source.
Rajah menunjukkan kesan medan elektrik ke atas sinaran daripada suatu sumber radioaktif



What is the type of radiation?

Apakah jenis sinaran itu?

- | | |
|----------------------------------|-----------------------------------|
| A. X-ray
<i>Sinar-X</i> | C. Alpha ray
<i>Sinar alfa</i> |
| B. Beta ray
<i>Sinar beta</i> | D. Gamma ray
<i>Sinar gama</i> |

TRIAL JOHOR 2008

9. The statement below shows the properties of radioactive rays.
Pernyataan di bawah menunjukkan ciri-ciri sinar radioaktif.

- | | |
|----|---|
| P: | Can penetrated with a thick sheet of aluminium
<i>Boleh menembusi sekeping aluminium nipis</i> |
| Q: | Have fast speed.
<i>Mempunyai kelajuan tinggi</i> |
| R: | Have negative charge
<i>Mempunyai cas negatif</i> |

Which radioactive rays have these properties?

Sinar radioaktif manakah yang mempunyai ciri ini?

- | | |
|----------------------------------|-----------------------------------|
| A. X-ray
<i>Sinar-X</i> | C. Alpha ray
<i>Sinar alfa</i> |
| B. Beta ray
<i>Sinar beta</i> | D. Gamma ray
<i>Sinar gama</i> |

TRIAL JOHOR 2008

10. Which of the following radioisotopes is used for treating cancer patients?
Antara radioisotop berikut, yang manakah digunakan untuk merawat pesakit kanser?

- | | |
|----------------------------------|-----------------------------------|
| A. Cobalt-60
<i>Kobalt-60</i> | C. Sodium-24
<i>Sodium-24</i> |
| B. Carbon-14
<i>Karbon-14</i> | D. Iodine-131
<i>Iodin-131</i> |

TRIAL PERAK 2008

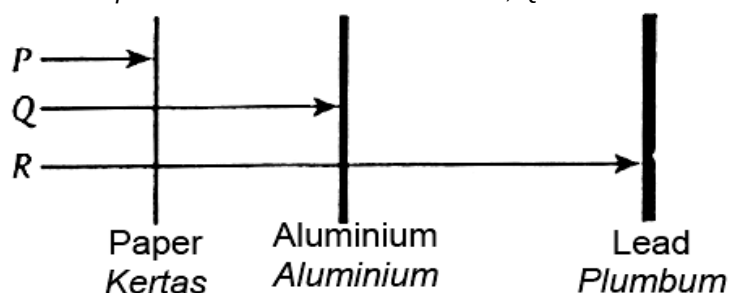
11. Which of the following radioactive radiation is negatively charged?

Manakah antara sinaran radioaktif berikut bercas negatif?

- | | |
|--|--|
| A. X-ray
<i>Sinar-X</i> | C. Alpha radiation
<i>Sinaran alfa</i> |
| B. Beta radiation
<i>Sinaran beta</i> | D. Gamma radiation
<i>Sinaran gamma</i> |

TRIAL PERLIS 2008

12. Diagram shows the penetration power of radioactive rays P, Q and R.
Rajah menunjukkan kuasa penembusan sinaran radioaktif P, Q and R.



What is ray R?
Apakah sinar R?

- | | |
|----------|----------|
| A. Gamma | C. Alpha |
| B. Beta | D. X-ray |
| Beta | Sinar-X |

TRIAL KEDAH 2009

13. The use of gamma radiation in medical field is to
Kegunaan sinaran gamma di dalam bidang perubatan ialah untuk

- | | |
|---|--|
| A. detect brain tumour
<i>mengesan ketumbuhan dalam otak</i> | C. check fracture of bone
<i>memeriksa keretakan tulang</i> |
| B. kill cancerous cells
<i>membunuh sel kanser</i> | D. detect blood clot in the body
<i>mengesan darah beku dalam badan</i> |

TRIAL TERENGGANU 2008

14. Which of the following emits radioactive rays?
Antara berikut yang manakah memancarkan sinaran radioaktif?

- | | |
|--------------------------------------|-----------------------------------|
| A. Uranium-238
<i>Uranium-238</i> | C. Oxygen-12
<i>Oksigen-12</i> |
| B. Carbon-12
<i>Karbon-12</i> | D. Iodine-127
<i>Iodin-127</i> |

TRIAL TERENGGANU 2008

15. Which of the following is a use of radioactive substance?
Antara berikut yang manakah kegunaan bahan radioaktif?

- | | |
|--|--|
| A. To treat genetic disease
<i>Untuk merawat penyakit genetik</i> | C. To determine the age of living organism
<i>Untuk menentukan usia organisma hidup</i> |
| B. To kill cancerous cell
<i>Untuk membunuh sel-sel kanser</i> | D. To sterilize livestock
<i>Untuk memandulkan haiwan ternakan</i> |

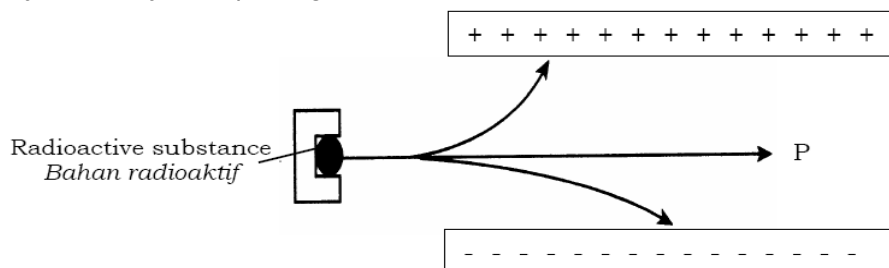
TRIAL KEDAH 2009

16. Beta particles is
Zarah beta adalah

- | | |
|------------------------------|---|
| A. Proton
<i>Proton</i> | C. Electromagnetic wave
<i>Gelombang elektromagnet</i> |
| B. Neutron
<i>Neutron</i> | D. Electron
<i>Electron</i> |

TRIAL KEDAH 2009

17. Diagram shows the deflection of radioactive rays in an electric field.
Rajah menunjukkan pesongan sinar radioaktif di dalam medan elektrik.



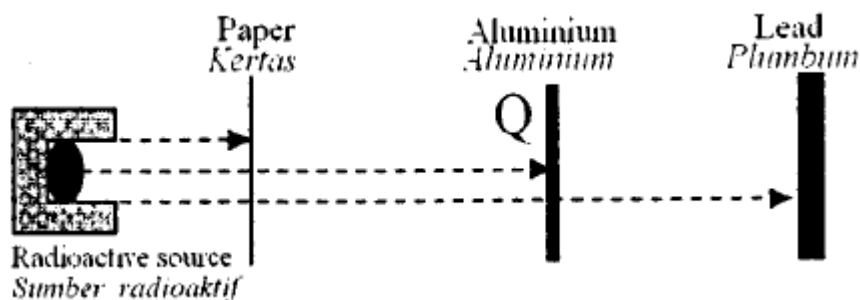
What is P?

Apakah P?

- | | |
|----------|----------|
| A. Gamma | C. Alpha |
| Gamma | Alfa |
| B. Beta | D. X-ray |
| Beta | Sinar-X |

TRIAL KELANTAN 2009

18. Diagram shows the penetrating power of radioactive radiations.
Rajah menunjukkan kuasa penembusan sinaran radioaktif



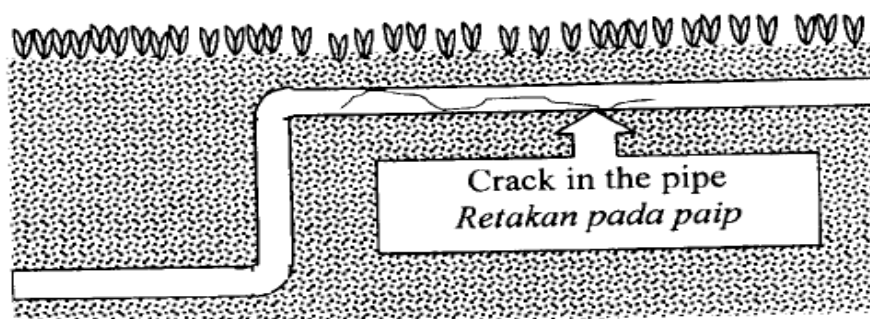
What is the radiation Q?

Apakah sinaran Q?

- | | |
|--------------|---------------|
| A. X-ray | C. Beta ray |
| Sinaran x | Sinaran beta |
| B. Alpha ray | D. Gamma ray |
| Sinaran alfa | Sinaran gamma |

TRIAL KELANTAN 2009

19. Diagram shows the underground gas pipes
Rajah menunjukkan paip gas bawah tanah.



Which radioisotope is the most suitable to detect the damage?

Radioisotop manakah yang paling sesuai digunakan untuk mengesan kerosakan ini?

- | | |
|--------------|------------------|
| A. Sodium-24 | C. Uranium-235 |
| Natrium -24 | Uranium -235 |
| B. Carbon-14 | D. Phosphorus-32 |
| Karbon -14 | Fosforus - 32 |

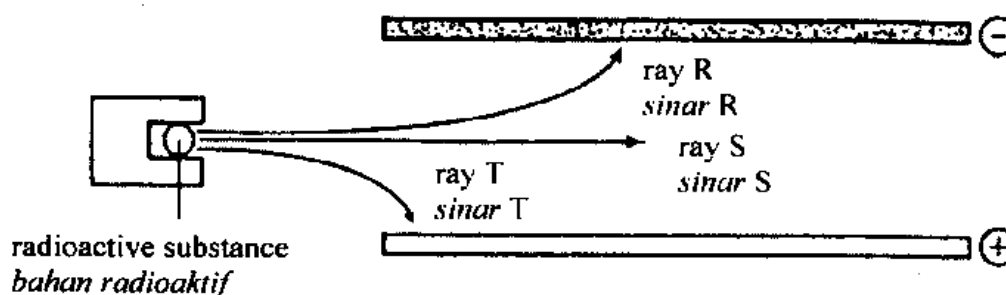
TRIAL PERAK 2009

20. Gamma ray can be stopped by
Sinar gamma boleh dihalang oleh

- | | |
|---|--|
| A. A thick wood
<i>Kayu yang tebal</i> | C. A plumbum block
<i>Blok plumbum</i> |
| B. A piece of paper
<i>Sekeping kertas</i> | D. An aluminium sheet
<i>Kepingan aluminium</i> |

TRIAL PERLIS 2009

21. Diagram shows radioactive radiation passing through an electric field.
Rajah menunjukkan sinaran radioaktif yang melalui medan elektrik.



Ray R, S and T are
Sinar R, S dan T adalah

- | | R | S | T |
|----|-------|-------|-------|
| A. | Alpha | Beta | Gamma |
| B. | Beta | Gamma | Alpha |
| C. | Gamma | Alpha | Beta |
| D. | Alpha | Gamma | Beta |

TRIAL PERLIS 2009

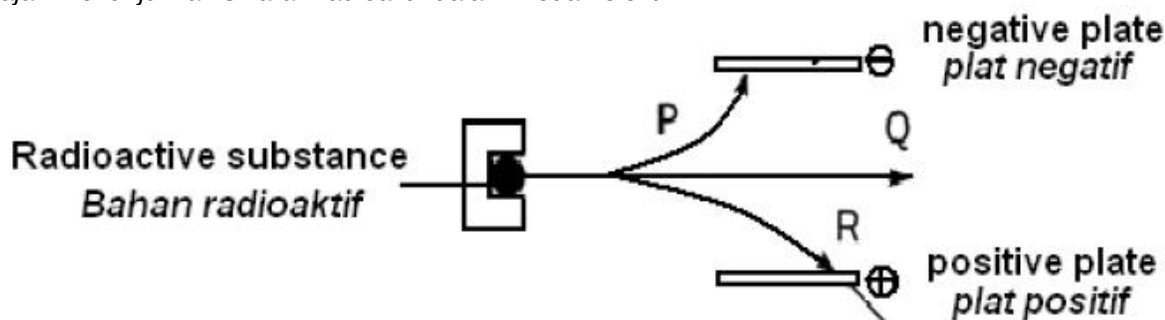
22. Element X is used in carbon dating.
Unsur X digunakan dalam pentarikhan karbon

Element X is
Unsur X ialah

- | | |
|----------------------------------|--|
| A. Carbon-14
<i>Karbon-14</i> | C. Phosphorus-32
<i>Fosforus-32</i> |
| B. Cobalt-60
<i>Kobalt-60</i> | D. Iodine-131
<i>Iodin-131</i> |

TRIAL SABAH 2009

23. Diagram shows radioactive rays in electrical field.
Rajah menunjukkan sinaran radioaktif dalam medan elektrik.



Which is the alpha ray?
Manakah merupakan sinaran alfa?

- | | |
|------|------------|
| A. P | C. Q |
| B. R | D. P and R |

TRIAL SABAH 2010

24. Which of the following are best used to control the thickness of materials?

Antara berikut, yang manakah paling sesuai digunakan untuk mengawal ketebalan suatu bahan?

- | | |
|---|---------------------------------------|
| A. Ultraviolet rays
<i>Sinaran ultraungu</i> | C. Beta rays
<i>Sinaran beta</i> |
| B. Alpha rays
<i>Sinaran alfa</i> | D. Gamma rays
<i>Sinaran gamma</i> |

TRIAL KELANTAN 2010

25. Which of following radioactive are strong of ionising effect?

Sinaran radioaktif manakah mempunyai kesan pengionan yang tinggi?

- | | |
|--------------------------|----------------------------|
| A. Gamma
<i>Gamma</i> | C. Alpha
<i>Alfa</i> |
| B. Beta
<i>Beta</i> | D. X-ray
<i>Sinar-X</i> |

TRIAL KEDAH 2010

26. Archaeologist can estimate the age of ancient artifact through a method known as

Ahli arkeologi dapat menganggarkan usia artifak purba melalui satu kaedah yang dipanggil

- | | |
|---|---|
| A. Carbon dating
<i>Pentarikhan karbon</i> | C. Random process
<i>Proses rawak</i> |
| B. Nuclear fission
<i>Pembelahan nuklear</i> | D. Radioactive tracer
<i>Penyurih radioaktif</i> |

TRIAL KELANTAN 2010

27. Which is correctly matched?

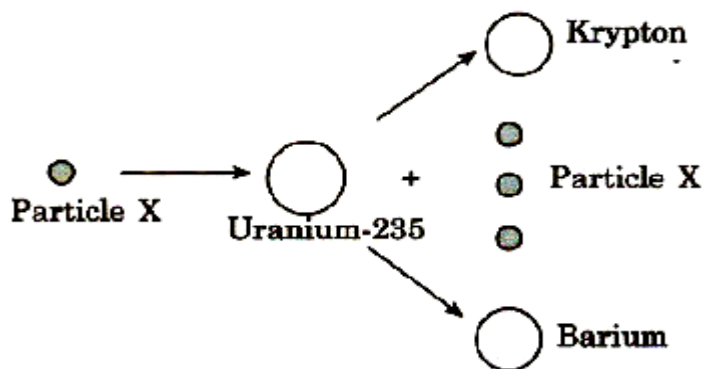
Padanan manakah yang betul?

	Substance <i>Bahan</i>	Usage <i>Kegunaan</i>
A	Iodine-131 <i>Iodin-131</i>	Detect leaks in underground <i>Mengesan kebocoran paip bawah tanah</i>
B	Phosphorus-32 <i>Fosforus-32</i>	To sterile insects <i>Memandulkan serangga perosak</i>
C	Carbon-14 <i>Karbon- 14</i>	Estimate the age of artifacts <i>Menganggarkan usia artifak.</i>
D	Nitrogen-15 <i>Nitrogen-15</i>	Cancer treatment <i>Rawatan kanser</i>

SPM 2004

28. The figure shows a nuclear fission of uranium-235 bombarded by particle X.

Rajah menunjukkan proses pembelahan nukleus uranium-235 apabila dibedil oleh zarah X.



What is particle X?

Apakah zarah X?

- A. Proton
B. Neutron

- C. Nucleon
D. Electron

SPM 2005

29. Which element is used as a source of energy in a nuclear reactor?

Unsur yang manakah digunakan sebagai sumber tenaga dalam reactor nuclear?

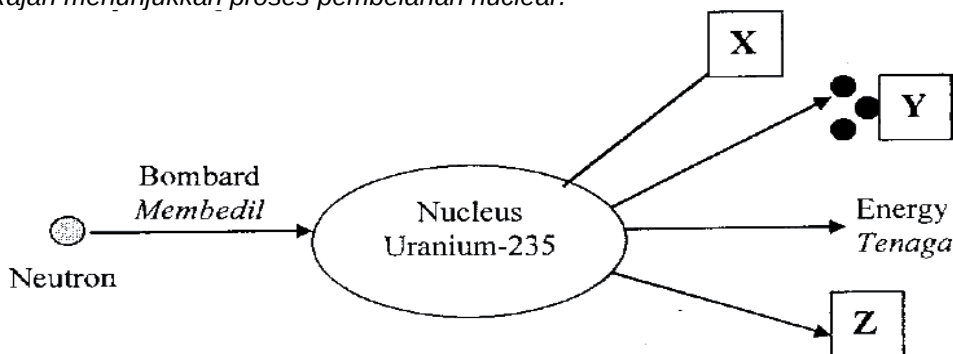
- A. Cobalt
B. Carbon

- C. Radium
D. Uranium

TRIAL PERAK 2008

30. Diagram shows process of nuclear fission.

Rajah menunjukkan proses pembelahan nuclear.



Which of the following represent X, Y and Z?

Antara yang manakah berikut mewakili X, Y dan Z?

	X	Y	Z
A	Uranium-238	Electron	Krypton-92
B	Neutrons	Krypton-92	Barium -141
C	Krypton-92	Uranium-238	Neutrons
D	Barium -141	Neutrons	Krypton-92

TRIAL KEDAH 2009

31. Which of the following is **not** the use of nuclear energy?

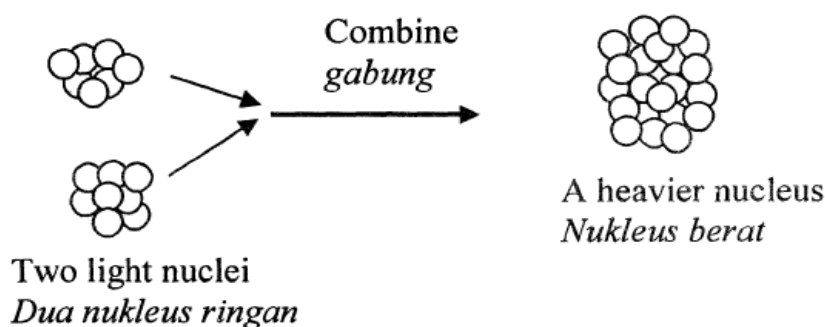
Antara berikut yang manakah **bukan** kegunaan tenaga nuklear ?

- | | |
|--|---|
| A. Kill microorganism
<i>Untuk membunuh mikroorganisma</i> | C. Generate electrical energy
<i>Untuk menjana tenaga elektrik</i> |
| B. Produce nuclear weapon
<i>Menghasilkan senjata nuklear</i> | D. Propel submarine in the sea for long period
<i>Mengerakkan kapal selam di dalam laut dalam jangka masa yang panjang</i> |

TRIAL TERENGGANU 2008

32. Diagram shows the combining process of two light nuclei together to form a heavier nucleus.

Rajah menunjukkan proses gabungan dua nucleus ringan membentuk satu nucleus berat.



What is the process above?

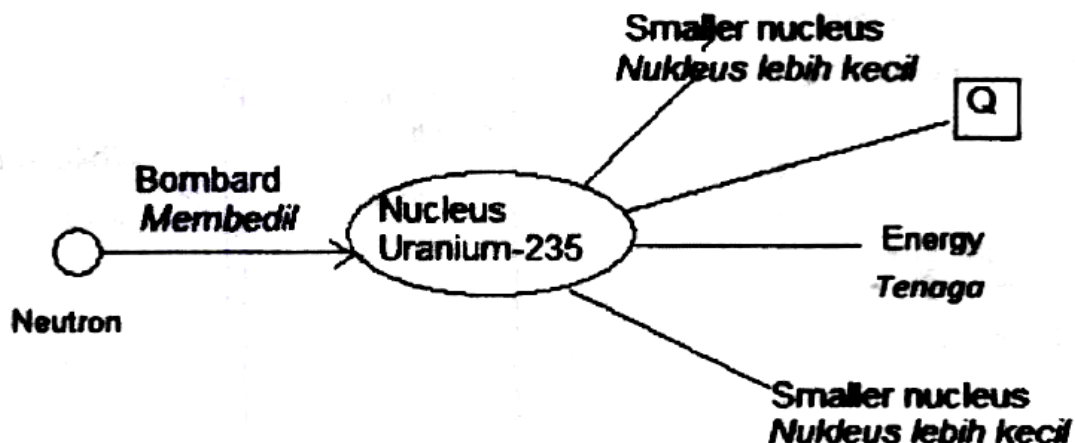
Apakah proses di atas?

- | | |
|---|---|
| A. Nuclear fission
<i>Pembelahan nukleus</i> | C. Nuclear energy
<i>Tenaga nuklear</i> |
| B. Nuclear fusion
<i>Pelakuran nukleus</i> | D. Nuclear combination
<i>Gabungan nuklear</i> |

TRIAL JOHOR 2009

33. Diagram shows a nuclear fission

Rajah menunjukkan satu pembelahan nuclear.



What is Q?

Apakah Q?

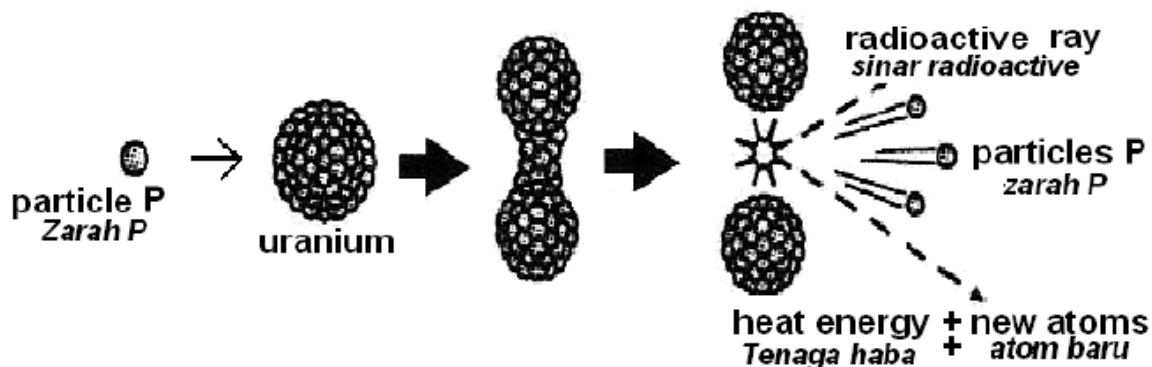
- A. Proton
- B. Neutron

- C. Nucleon
- D. Electron

TRIAL SABAH 2009

34. Diagram shows nuclear fission of uranium.

Rajah menunjukkan pembelahan nuclear bagi uranium.



What is P?

Apakah zarah P?

- A. Proton
- B. Neutron

- C. Atom
- D. Electron

TRIAL SABAH 2010

35. What is produce when uranium undergoes fission?

Apakah yang terhasil apabila uranium mengalami proses pembelahan?

- A. Proton
- B. Neutron

- C. Nucleon
- D. Electron

TRIAL KELANTAN 2010

36. Which of the following is alternative source?

Manakah berikut merupakan sumber tenaga alternatif?

- A. Coal
Arang batu
- B. Petroleum
Petroleum

- C. Nuclear
Nuclear
- D. Natural gas
Gas asli

SPM 2003

37. What is the effect of radioactive leakage?

Apakah kesan kebocoran radioaktif?

- | | |
|--|--|
| A. Acid rain
<i>Berlaku hujan asid</i> | C. Depletion of ozone layer
<i>Penipisan lapisan ozon</i> |
| B. Mutation of living things
<i>Mutasi pada hidupan</i> | D. Increase in earth temperature
<i>Suhu bumi meningkat</i> |

SPM 2003

38. Which of the following safety precautions should be taken handling radioactive substances

Apakah langkah keselamatan yang perlu untuk mengendalikan bahan radioaktif?

I. Use a remote control

. Menggunakan alat kawalan jauh

II. Putting on a photographic film tag

Memakai lencana filem fotografi

III. Keeping the radioactive substances in an aluminium container.

. Menyimpan bahan radioaktif dalam bekas aluminium

- | | |
|--------------|---------------|
| A. II | C. I and III |
| B. I and III | D. II and III |

SPM 2007

39. Why are radioactive substance kept in a thick lead box?

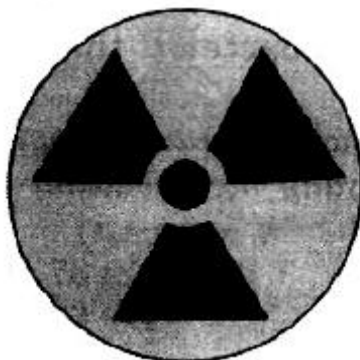
Mengapakah bahan radioaktif disimpan di dalam kotak plumbum yang tebal?

- | |
|---|
| A. To produce nuclear fusion
<i>Untuk menghasilkan pelakuran nuklear</i> |
| B. To produce nuclear fission
<i>Untuk menghasilkan pembelahan nuklear</i> |
| C. To prevent the emission of heat energy to the environment
<i>Untuk menghalang pembebasan haba ke persekitaran</i> |
| D. To prevent radiation being released to the environment.
<i>Untuk menghalang sinaran terbebas ke persekitaran</i> |

SPM 2008

40. Diagram shows a symbol on a container.

Rajah menunjukkan simbol yang terdapat pada suatu bekas.



What is kept in this container?

Apakah yang disimpan dalam bekas ini?

- | | |
|--|---|
| A. Silver bromide
<i>Argentum bromida</i> | C. Concentrated acid
<i>Asid pekat</i> |
| B. Sodium hydroxide
<i>Natrium hidroksida</i> | D. Radioactive substance
<i>Bahan radioaktif</i> |

TRIAL PERLIS 2008

41. What is the effect of radioactive leakage?

Apakah kesan kebocoran radioaktif?

- | | |
|--|--|
| A. Acid rain
<i>Hujan asid</i> | C. Mutation of living things
<i>Mutasi pada hidupan</i> |
| B. Global warming
<i>Pemanasan global</i> | D. Depletion of ozone layer
<i>Penipisan lapisan ozon</i> |

TRIAL SABAH 2008

42. Which of the following is problem related to radioactive waste?

Manakah antara berikut merupakan masalah yang berkaitan dengan sisa bahan radioaktif?

- A. It is very flammable.
Ia mudah terbakar.
- B. It remains radioactive for a long period of time.
Bahan radioaktif kekal pada masa yang lama.
- C. It leaks through the concrete container used to keep it.
Ia dapat menembusi dinding konkrit yang digunakan untuk menyimpannya.
- D. The radiations it releases can penetrate the wall of the container used to store it.
Radiasi yang dibebaskan boleh menembusi dinding bekas yang digunakan untuk menyimpannya

TRIAL SABAH 2010

43. Which the following is the safety measure when handling radioactive substance.

Antara yang berikut, yang manakah langkah keselamatan yang diambil untuk mengendalikan bahan radioaktif ?

- A Placing the warning symbol of radioactive substance where radioactive substance is stored.
Meletakkan simbol amaran bagi bahan radioaktif dimana bahan radioaktif itu disimpan.
- B Keeping the radioactive substance in a case made of lead.
Menyimpan bahan radioaktif di dalam bekas yang diperbuat daripada plumbum.
- C Burying the radioactive substance.
Menanam bahan radioaktif
- D Wearing a film badge
Memakai lencana filem

TRIAL KEDAH 2010

44. Which is the symbol for radioactive substance?

Manakah simbol bahan radioaktif?



TRIAL TERENGGANU 2010

45. What is the effect of radioactive radiation on human health?

Apakah kesan sinaran radioaktif terhadap kesihatan manusia?

- | | |
|--------------------|---|
| A. Stroke
Strok | C. Anorexia
Anoreksia |
| B. Cancer
Barah | D. Arteriosclerosis
Arteriosclerosis |

PAPER 2

SECTION B**TRIAL KELANTAN 2008**

1. Diagram shows a warning symbol for radioactivity. It can be found in places where radioactive substances are used.

Rajah menunjukkan simbol amaran untuk keradioaktifan. Ianya hanya boleh didapati di tempat di mana bahan radioaktif digunakan.



- (a) Give one example of place where the symbol can be seen
Berikan satu tempat di mana simbol ini boleh dilihat.

..... [1 mark]

- (b) Why radioactive wastes must be handling properly?
Kenapa sisa radioaktif mesti diurus dengan cermat?

..... [1 mark]

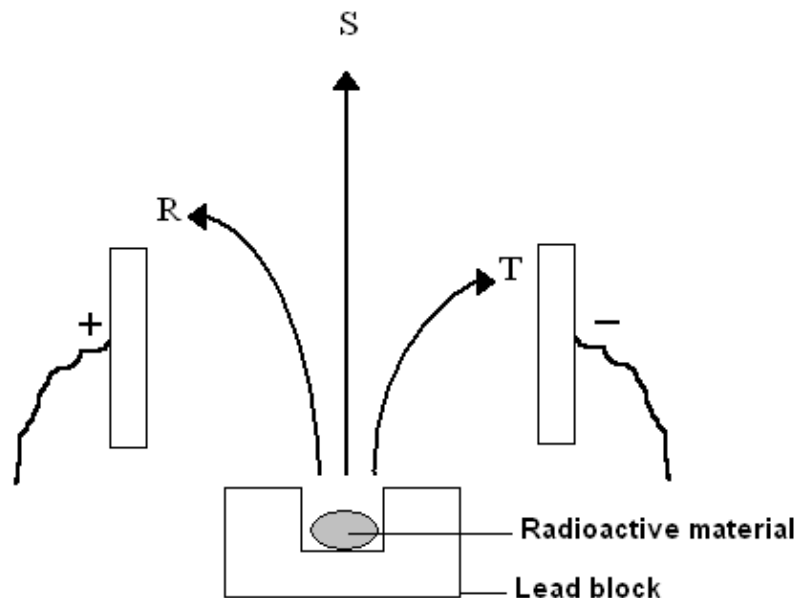
- (c) State two harmful effects as a result of exposure to radioactive radiation
Nyatakan dua akibat pendedahan kepada sinaran radioaktif.

..... [2 marks]

TRIAL PAHANG 2008

2. Diagram shows radioactive radiations released by a radioactive substance being deflected in electrical field.

Rajah menunjukkan sinaran radioaktif dipancarkan oleh bahan radioaktif telah dipesongkan dalam medan elektrik.

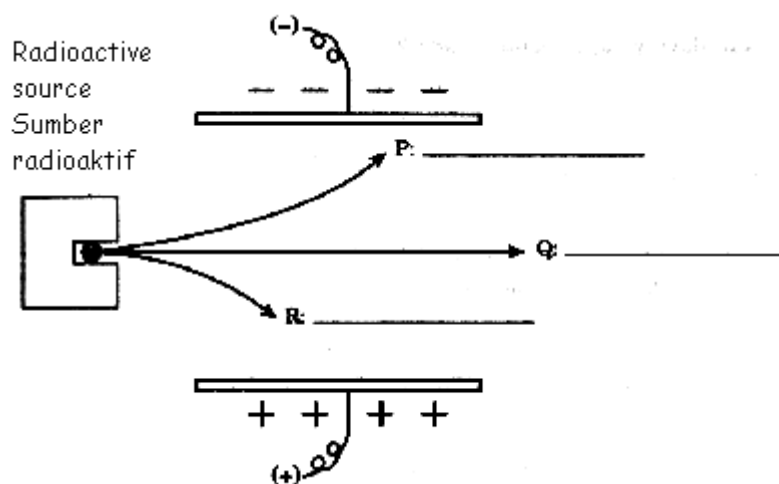


- (a) Name the process shown in Diagram.
Namakan proses yang ditunjukkan dalam Rajah.
 [1 mark]
- (b) State the radioactive radiations labelled S and T.
Nyatakan sinaran radioaktif berlabel S dan T.
 S:.....
 T:..... [2 marks]
- (c) (i) Which radiation is negatively charged?
Sinaran manakah yang bercas negatif?
 [1 mark]
- (ii) Other than radiations R, S and T, what is also produce in process shown above?
Selain sinaran R, S dan T, apakah yang juga dihasilkan dalam proses di atas?
[1 mark]
- (d) State one uses of radioactive radiation in medicine.
Nyatakan satu kegunaan sinaran radioaktif dalam perubatan.
 [1 mark]

SPM 2003

3. Figure shows radioactive rays in an electric field.

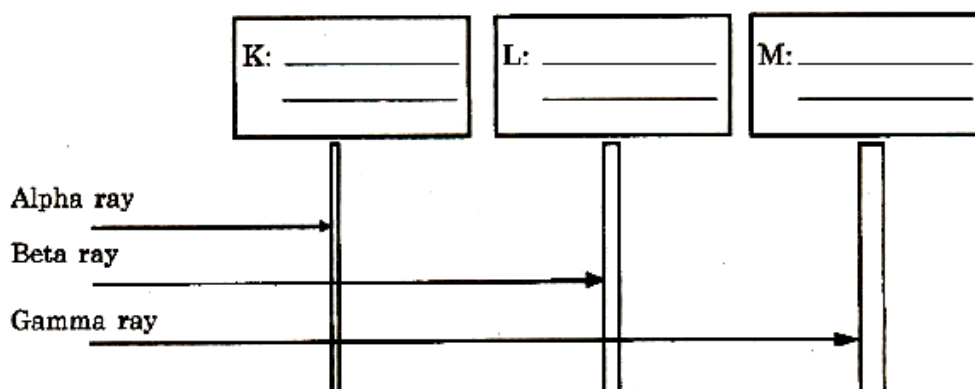
Rajah menunjukkan sinar radioaktif dalam medan elektrik



- (a) Name the radioactive rays P, Q and R in Figure.
Namakan sinar radioaktif P, Q, dan R pada Rajah. [3 marks]
- (b) Why does ray Q not deflect?
Berikan sebab sinar Q tidak terpesong. [1 mark]
-
- (c) Which is the slowest ray?
Sinar manakah yang bergerak paling perlahan? [1 mark]
-
- (d) What is the best method to prevent ray Q from being emitted to the environment?
Apakah kaedah paling baik untuk menghalang sinar Q daripada terpancar ke persekitaran. [1 mark]
-

SPM 2005

4. Figure below shows three radioactive rays, each with different penetration force.
Rajah menunjukkan tiga sinar radioaktif dengan mempunyai daya penembusan yang berbeza bagi setiap satu.



- (a) On Figure above, name K, L and M using the following information ;
Dalam Rajah dibawah, namakan K, L dan M menggunakan maklumat berikut

Aluminium plate
Lead plate
A sheet of paper

[3 marks]

- (b) State one ray which can penetrate K
Nyatakan satu sinar yang boleh menembusi K

[1 mark]

Radioisotopes in Table below are important for human beings.
Radioisotop dalam Jadual di bawah adalah penting bagi manusia

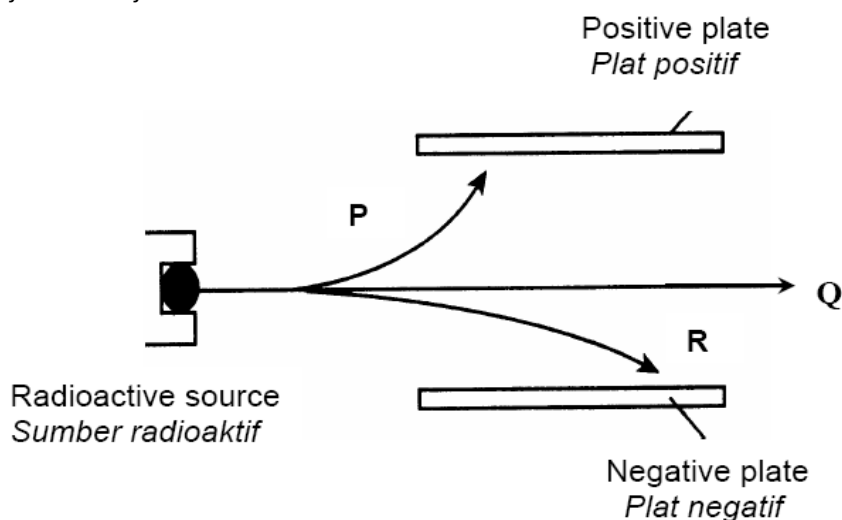
Carbon-14	Cobalt-60	Iodine-131	Uranium-238

- (c) (i) In Table above, mark with a (✓) the radioisotope used for medical purposes.
Dalam Jadual di atas, tandakan (✓) radioisotop yang digunakan untuk tujuan perubatan.
- (ii) Based on Table, which radioisotopes is used to determine the age of ancient bones?
 Write your answer below.
Berdasarkan Jadual, radioisotope manakah yang digunakan untuk menentukan umur bagi tulang artifak. Tulis jawapan anda di bawah.

[1 mark]

TRIAL PERLIS 2008

5. Diagram shows the radioactive rays in an electric field.
Rajah menunjukkan sinaran radioaktif dalam medan elektrik.



- (a) Name the radioactive rays P and Q.
Namakan sinaran radioaktif P dan Q.

P :

Q :

[2 marks]

- (b) Why ray Q is not deflected?
Mengapakah sinar Q tidak terpesong?

..... [1 mark]

- (c) Which radiation can be stopped by a thick of aluminium?
Sinaran manakah boleh dihentikan dengan kepingan aluminium?

..... [1 mark]

- (d) Mark (✓) the substances which produces radioactive rays.
Tandakan (✓) bahan yang mengeluarkan sinaran radioaktif.

Sodium Natrium	Radium Radium	Uranium Uranium

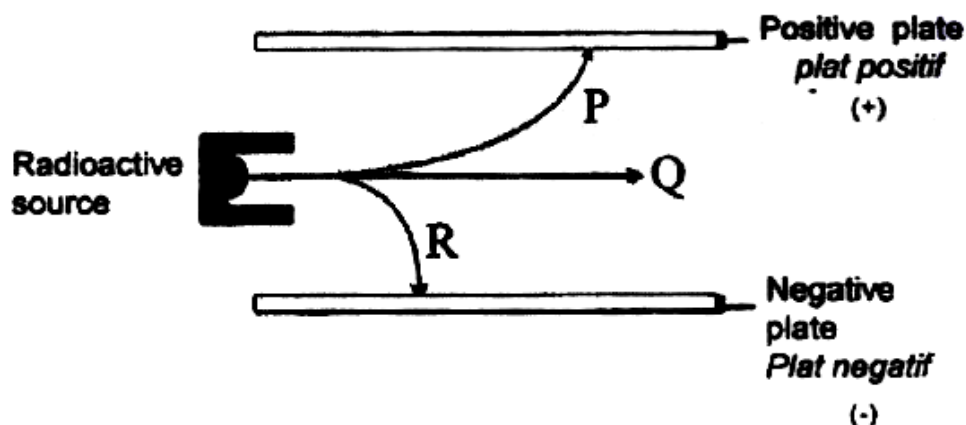
[1 mark]

- (e) Give one correct way of handling radioactive substances.
Berikan satu cara yang betul untuk mengendalikan bahan radioaktif.

..... [1 mark]

TRIAL JOHOR 2009

6. Diagram shows three radioactive radiations which have different charges.
Rajah menunjukkan tiga jenis sinaran radioaktif yang mempunyai cas yang berbeza.



- (a) (i) Name the radioactive radiation represented by R in Diagram.
Namakan sinaran radioaktif yang diwakili oleh R dalam Rajah.

..... [1 mark]

- (ii) What is the electrical charges for rays?
Apakah cas bagi sinaran R?

..... [1 mark]

- (b) Name the radioactive radiation that can be stopped by thick sheet of aluminium.
Namakan sinaran radioaktif yang dapat dihentikan oleh kepingan aluminium tebal.

..... [1 mark]

- (c) (i) Which is the fastest radioactive radiation?
Sinaran radioaktif manakah yang paling laju?

..... [1 mark]

- (ii) Give one reason for your answer in (c)(i)
Berikan satu sebab bagi jawapan di (c)(i)

..... [1 mark]

- (d) Mark (✓) the radioisotope used to kill cancer in radiotherapy.
Tandakan (✓) radioisotop yang digunakan untuk membunuh sel kanser dalam radioterapi.

Cobalt – 60
Kobalt - 60

☐

Carbon – 14
Karbon - 14

☐

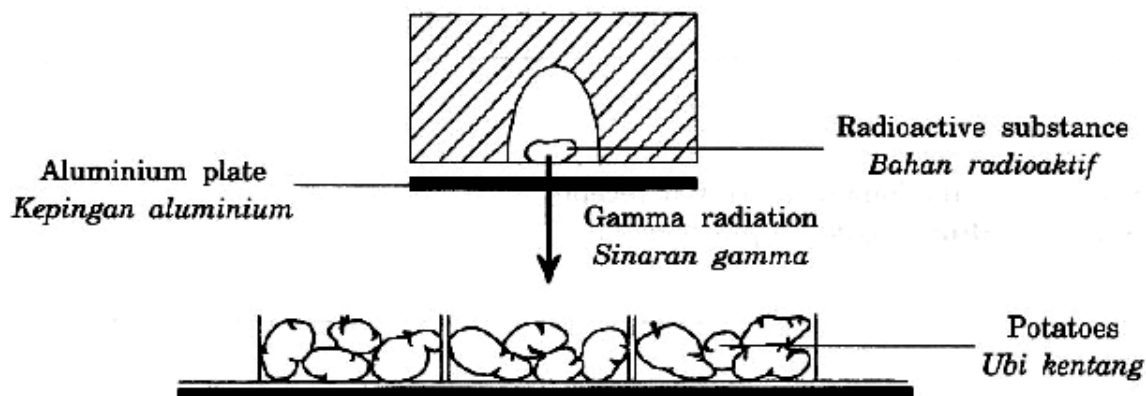
Potassium – 40
Kalium - 40

☐

[1 mark]

SPM 2008

7. Diagram shows the use of a radioactive substance in food preservation.
Rajah menunjukkan kegunaan bahan radioaktif dalam pengawetan makanan.



- (a) State the function of gamma radiation in this process.
Nyatakan fungsi sinar gamma di dalam proses ini

..... [1 mark]

- (b) State **two uses of gamma** radiation other than food preservation.
Nyatakan dua kegunaan: sinaran gama selain daripada pengawetan makanan.

1.

2. [2 marks]

- (c) Name one material which can stop gamma radiation.

Namakan satu bahan yang dapat menghalang sinaran gama.

..... [1 mark]

(d) State **two** dangerous effects of gamma radiation to human beings.

Nyatakan dua ke 'an berbahaya sinaran gama kepada man usia.

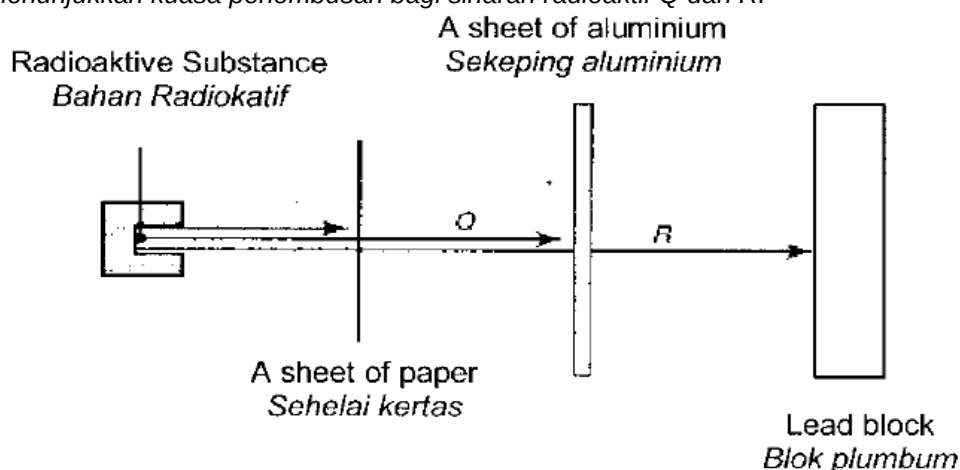
1.

2. [2 marks]

TRIAL SELANGOR 2009

8. Diagram shows the penetrating power of radioactive radiations Q and R.

Rajah menunjukkan kuasa penembusan bagi sinaran radioaktif Q dan R.



(a) Name these radioactive radiations:
Namakan sinaran radioaktif berikut:

P :

Q : [2 marks]

(b) Arrange the penetrating poer of Q and r in an ascending order in the provided boxes.

Susunkan kuasa penembusan bagi Q dan R mengikut urutan menaik di dalam kotak yang disediakan.

--	--

Penetrating power increases
Kuasa penembusan menaik

[2 marks]

(c) State one use of radiation R.

Nyatakan satu kegunaan sinaran R.

..... [1 mark]

(d) State what would probably happen if a person is exposed to radioactive radiation.

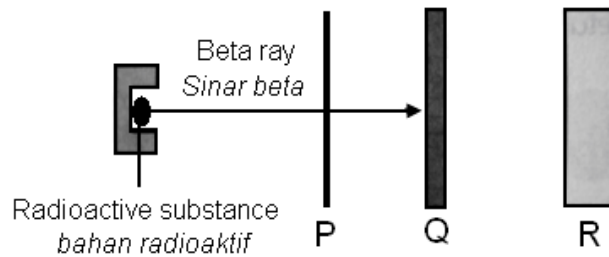
Nyatakan kemungkinan yang berlaku jika seseorang itu terdedah pada sinaran radioaktif.

..... [1 mark]

TRIAL SABAH 2010

9. Diagram shows an experiment to study the penetrating power of beta ray.

Rajah 6 menunjukkan satu eksperimen mengkaji kuasa penembusan sinar beta.



From the observation, the beta ray is blocked by material Q but can penetrate material P.
 Berdasarkan pemerhatian, sinar beta dapat dihalang oleh bahan Q tetapi dapat menembusi bahan P.

- (a) Name material
 Namakan bahan

(i) P: _____

(ii) Q: _____ [2 marks]

- (b) Give one characteristic of beta ray
 Berikan satu ciri sinar beta.

_____ [1 mark]

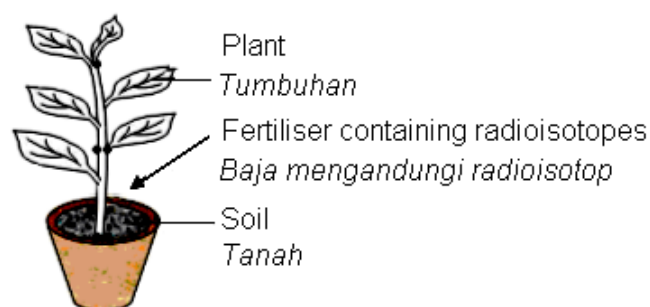
- (c) Explain why alpha ray cannot be used to measure the thickness of paper in industry
 Terangkan kenapa sinar alfa tidak boleh digunakan untuk mengukur ketebalan kertas dalam industri

_____ [1 mark]

- (d) State the use of gamma ray in medicine.
 Nyatakan kegunaan sinar gamma dalam perubatan.

_____ [1 mark]

- (e) Diagram shows the use of radioisotopes to study the absorption of fertiliser by a plant roots.
 Rajah menunjukkan kegunaan radioisotope untuk mengkaji penyerapan baja oleh akar tumbuhan.



Mark (✓) the radioisotopes that is used in the box provided.
 Tandakan (✓) radioisotop yang digunakan dalam petak disediakan.

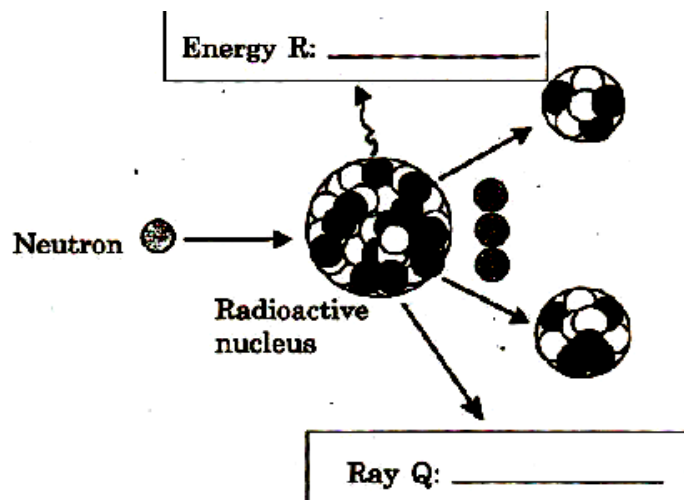
Carbon-14 <i>Karbon-14</i>	
Iodine-31 <i>Iodin-131</i>	
Cobalt-60 <i>Kobalt-60</i>	
Phosphorus-32 <i>Fosforus-32</i>	

[1 mark]

SPM 2006

10. Diagram shows the nuclear fission process of a radioactive substance.

Rajah menunjukkan proses pembelahan nuklear bagi bahan radioaktif.



(a) Namakan tenaga R dan sinar Q dalam kotak yang disediakan dalam Rajah. [2 marks]

(b) State one use of :
Nyatakan satu kegunaan bagi:

(ii) Energy R
Tenaga R _____ [1 mark]

(iii) Ray Q in medical field
Sinar Q dalam bidang perubatan _____ [1 mark]

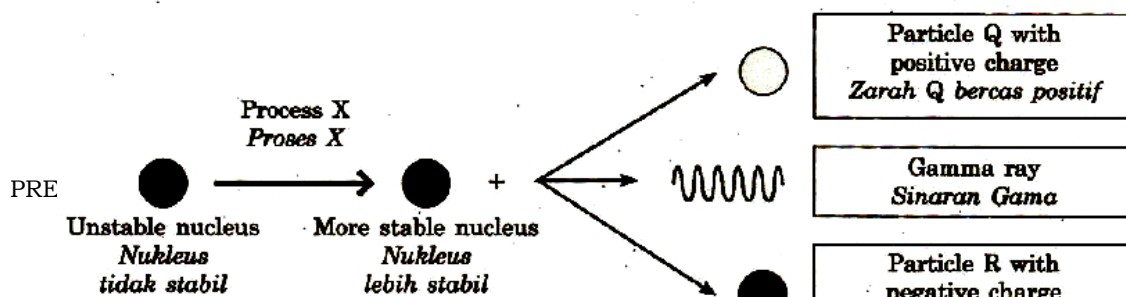
(c) State one method to detect the presence of ray Q.
Nyatakan satu kaedah untuk mengesan kehadiran sinar Q _____ [1 mark]

(d) What is the effect on human beings if exposed to ray Q?
Apakah kesan terhadap manusia jika terdedah kepada sinar Q? _____ [1 mark]

SPM 2007

11. Diagram shows a process that occurs in the nucleus of radioactive substance.

Rajah menunjukkan proses yang berlaku dalam nukleus bahan radioaktif.



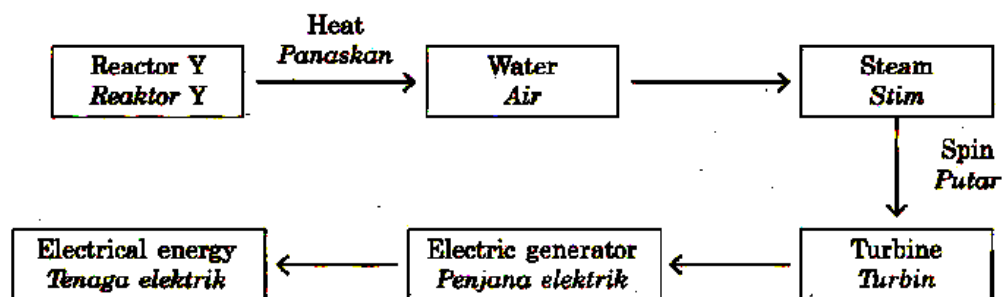
- (a) (i) What is process X in Diagram?
Apakah proses X dalam Rajah? _____ [1 mark]

- (ii) Name particle Q and particle R in Diagram.
Namakan zarah Q dan zarah R dalam Rajah

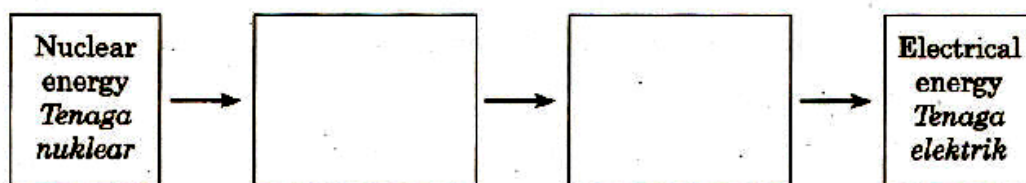
Particle Q: _____

Particle R: _____ [2 marks]

- (b) Diagram shows the flow of the process of generating electrical energy from nuclear energy.
Rajah menunjukkan aliran proses penghasilan tenaga elektrik daripada tenaga nuclear.

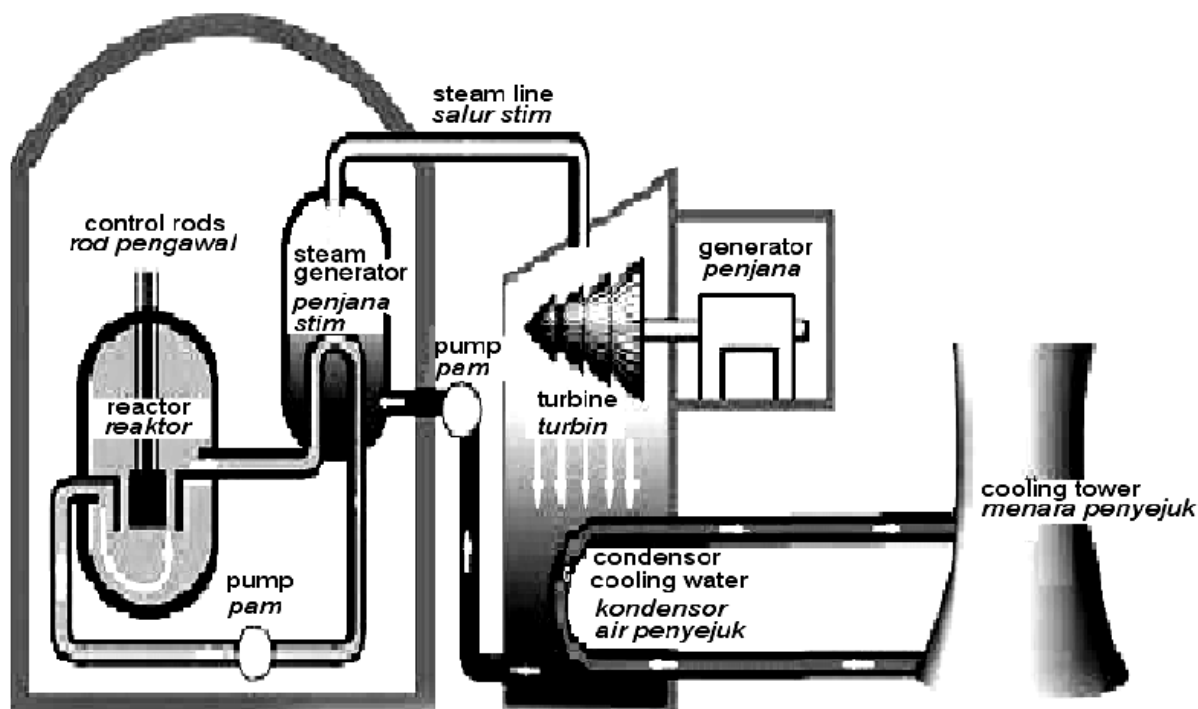


- (v) Name the process which produces heat energy in reactor Y.
Namakan proses yang menghasilkan tenaga haba dalam reaktor Y. _____ [1 mark]
- (c) Complete Diagram to show the energy changes which take place in Diagram below.
Lengkapkan Rajah untuk menunjukkan perubahan tenaga dalam Rajah di bawah.



TRIAL SABAH 2009

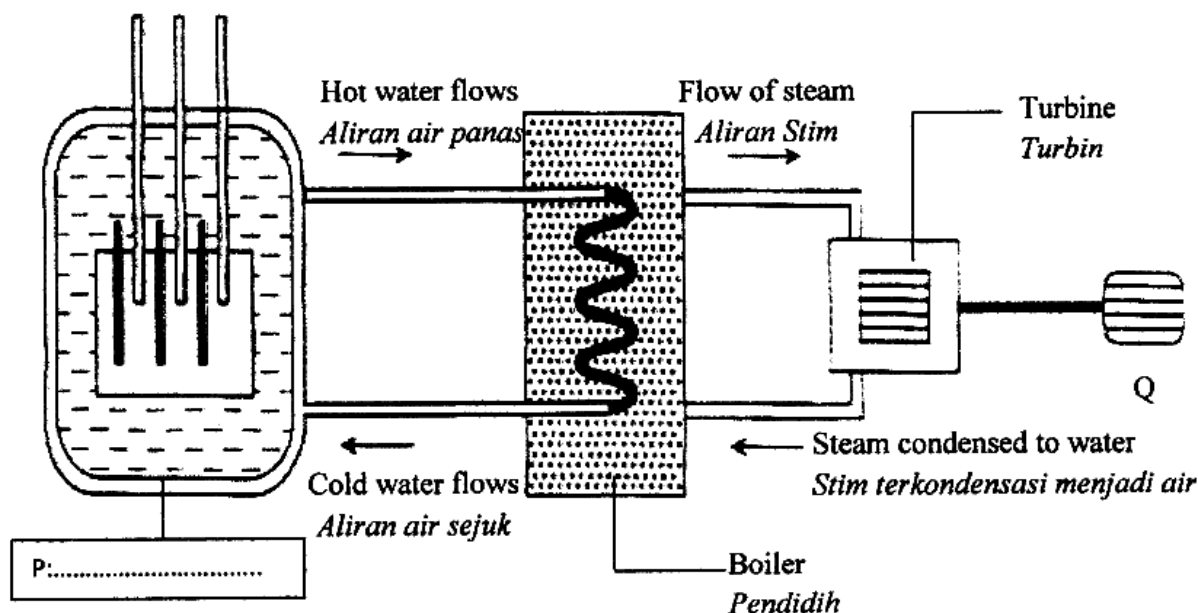
12. Diagram shows a process that occurs in nuclear reactor.
Rajah menunjukkan suatu proses yang berlaku di dalam reactor nuclear.



- (a) Name the type of nuclear reaction in Diagram?
Namakan jenis tindak balas nuclear yang ditunjukkan pada Rajah.
 [1 mark]
- (b) What is the function of control rods?
Apakah fungsi rod pengawal?
 [1 mark]
- (c) What is the radioactive element used in Diagram to produce nuclear energy.
Apakah bahan radioaktif yang digunakan dalam Rajah untuk menghasilkan tenaga nuclear.
 [1 mark]
- (d) Name the part that controls the temperature of the reactor in Diagram?
Namakan bahagian yang mengawal suhu reactor dalam Rajah?
 [1 mark]
- (e) State two advantages of using nuclear energy.
Berikan dua kebaikan penggunaan tenaga nuclear.
 1.
 2. [2 marks]

TRIAL KELANTAN 2010

13. Diagram shows a model of nuclear power station.
Rajah menunjukkan model stesen kuasa nuclear.



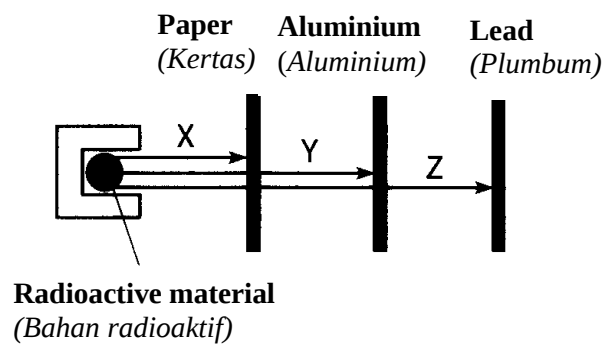
- (a) Name P in the box provided in Diagram.
Namakan P dalam petak yang disediakan dalam Rajah. [1 mark]
- (b) What is the process that produces the nuclear energy at P?
Apakah proses yang menghasilkan tenaga nuclear di P?
..... [1 mark]
- (c) What is Q?
Apakah Q?
..... [1 mark]
- (d) What is the use of steam dalam Rajah?
Apakah kegunaan stim dalam Rajah?
..... [1 mark]
- (e) Rearrange the energy involves in the process of generating of electricity in correct sequence.
Susunkan semula tenaga yang terlibat di dalam penjanaan tenaga elektrik mengikut urutan yang betul. [2 marks]

Electrical energy, Kinetic energy, Heat energy, Nuclear energy
Tenaga elektrik, Tenaga kinetik, Tenaga haba, Tenaga nuklear



TERENGGANU

14. Diagram shows how radioactive rays penetrate through different materials.
Rajah menunjukkan penembusan sinar radioaktif melalui bahan yang berbeza.



- (a) What are radiations X, Y and Z?

Apakah sinaran X, Y dan Z?

X :

Y :

Z : [3 marks]

- (b) What is the best way to store radioactive substances?

Apakah cara terbaik bagi menyimpan bahan radioaktif?

.....[1 mark]

- (c) (i) Which ray is the most dangerous?

Sinar manakah yang paling merbahaya?

..... [1 mark]

- (ii) Explain your answer

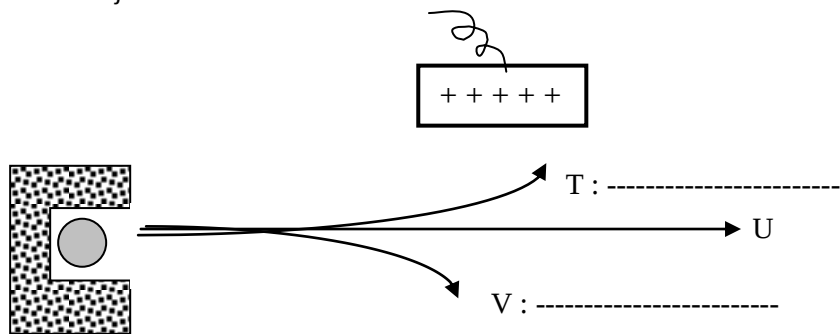
Terangkan jawapan anda

..... [1 mark]

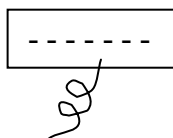
TERENGGANU

15. Diagram shows radioactive radiation in electrical field.

Rajah menunjukkan sinar radioaktif dalam medan elektrik.



Radioactive source /
Sumber radioaktif



- (a) Name radioactive rays T and V in Diagram.
Namakan sinar radioaktif T dan V pada Rajah. [2 marks]
- (b) (i) Which ray is positively charged?
Sinar manakah yang bercas positif?
 [1 mark]
- (ii) Explain your answer in b(i)
Jelaskan jawapan anda di b(i).
 [1 mark]
- (c) Which ray is used to sterile food before packaging?
Sinar manakah yang digunakan untuk mensterilkan makanan sebelum dibungkus?
 [1 mark]
- (d) State the method that can be used to stop ray U from emit to the environment?
Nyatakan kaedah yang boleh digunakan untuk menghalang sinar U terpancar ke persekitaran ?
 [1 mark]

SECTION C

16. (a) State four differences between alpha ray and gamma ray.
Nyatakan empat perbezaan antara sinar alfa dan sinar gama. [4 marks]
- (b) Improper handling of radioactive substances can cause harm to humans.
 Explain the correct ways of handling radioactive substances.
Pengendalian bahan-bahan radioaktif yang tidak betul akan menyebabkan ancaman kepada manusia. Huraikan kaedah-kaedah yang betul bagi pengendalian bahan-bahan radioaktif.
- Identify the problem
Kenalpasti masalah

- Clarification of the problem
Penjelasan masalah
- Suggest four methods to solve the problem
Cadangkan empat kaedah untuk menyelesaikan masalah

[6 marks]

CHAPTER 7: LIGHT, COLOUR AND SIGHT

PAPER 1

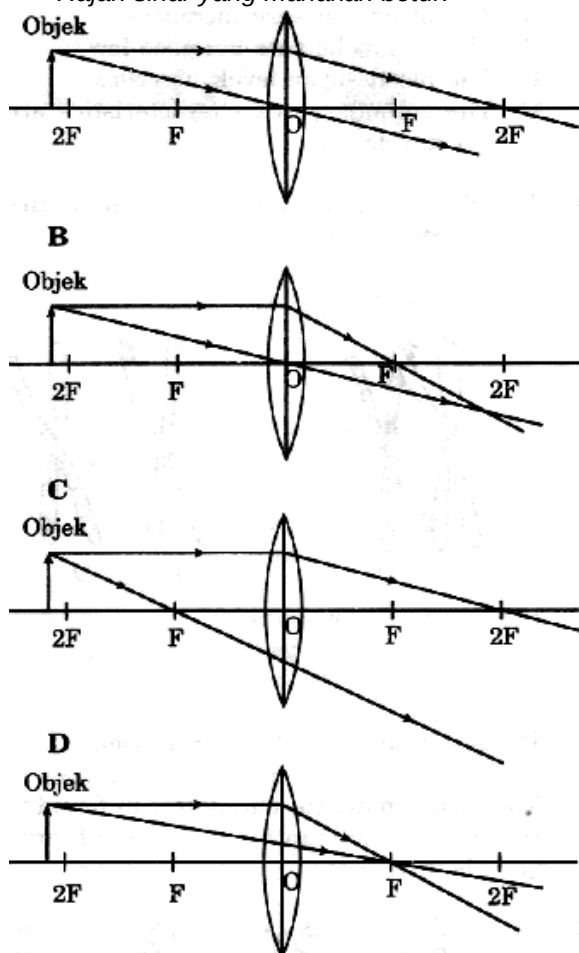
7.1

FORMATION OF IMAGE

SPM 2003

1. What ray diagram is correct?

Rajah sinar yang manakah betul?



SPM 2004

2. Which of the following is a characteristic of the image of an object formed by a plane mirror?

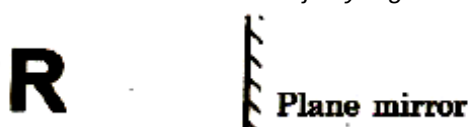
Antara sifat berikut, yang manakah ciri imej bagi suatu objek yang dibentuk oleh cermin satah?

- | | |
|-------------------------|---|
| A. Real
Nyata | C. Laterally inverted
Songsang sisi |
| B. Inverted
Terbalik | D. Bigger than the object
Lebih besar daripada objek |

SPM 2005

3. The diagram shows an object which is placed in front of a plane mirror.

Gambar rajah menunjukkan kedudukan satu objek yang diletakkan di hadapan cermin satah



Which image appears in the plane mirror?

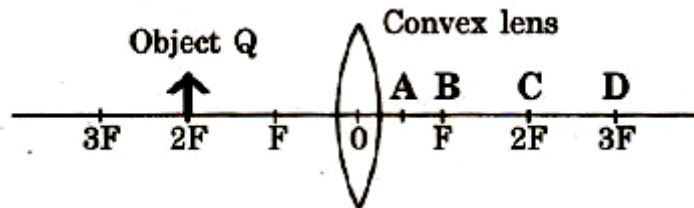
Imej yang manakah kelihatan di atas cermin satah itu?



SPM 2005

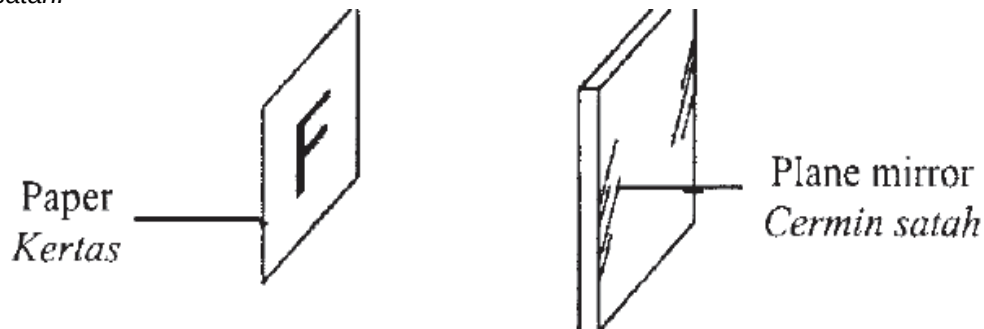
4. The diagram shows the position of an object Q in front of a convex lens. At which of the following positions A, B, C and D is the image of object Q formed?

Gambar rajah menunjukkan kedudukan objek Q di hadapan kanta cembung. Antara kedudukan A, B, C dan D di manakah imej bagi objek Q terbentuk?



TRIAL PERAK 2008

5. Diagram shows a piece of paper with letter F is placed in front of a plane mirror.
Rajah menunjukkan sehelai kertas yang mempunyai huruf F diletakkan di hadapan sebuah cermin satah.



Which image seen in the plane mirror?

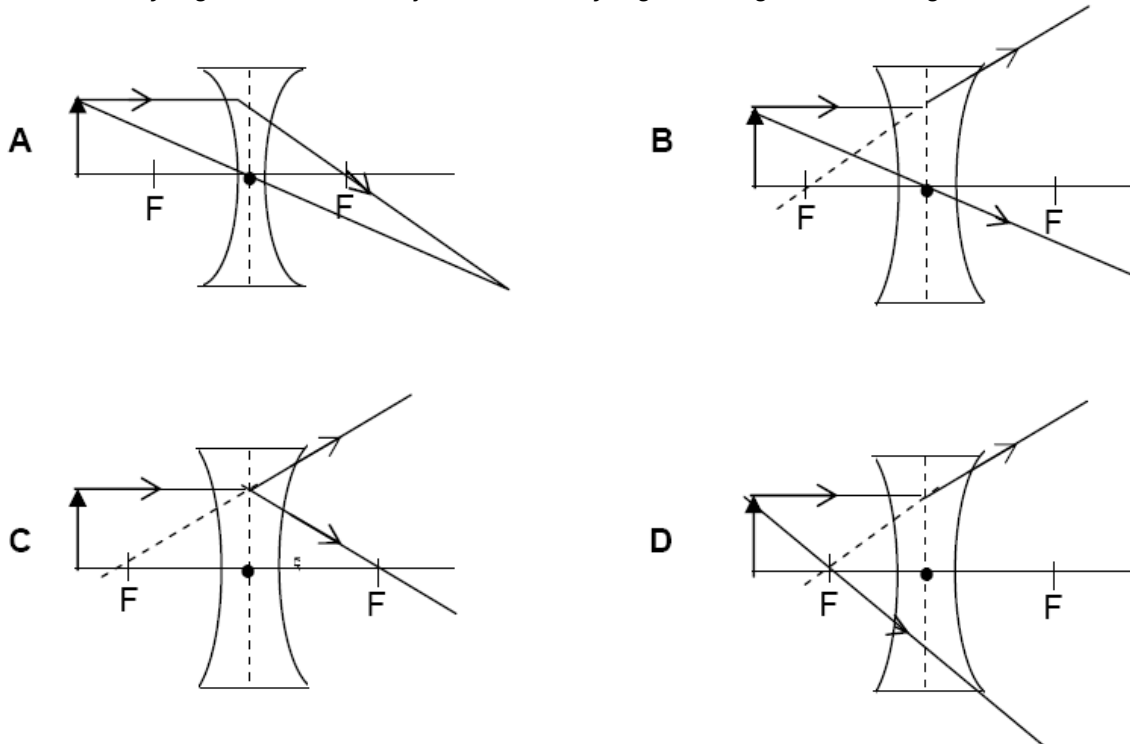
Imej yang manakah kelihatan di atas cermin satah itu?



TRIAL PERLIS 2008

6. Which of the diagram shows the correct ray for a concave lens?

Antara berikut yang manakah menunjukkan sinaran yang betul bagi kanta cekung?



TRIAL SABAH 2008

7. What is the term used for the image which cannot be seen on the screen?

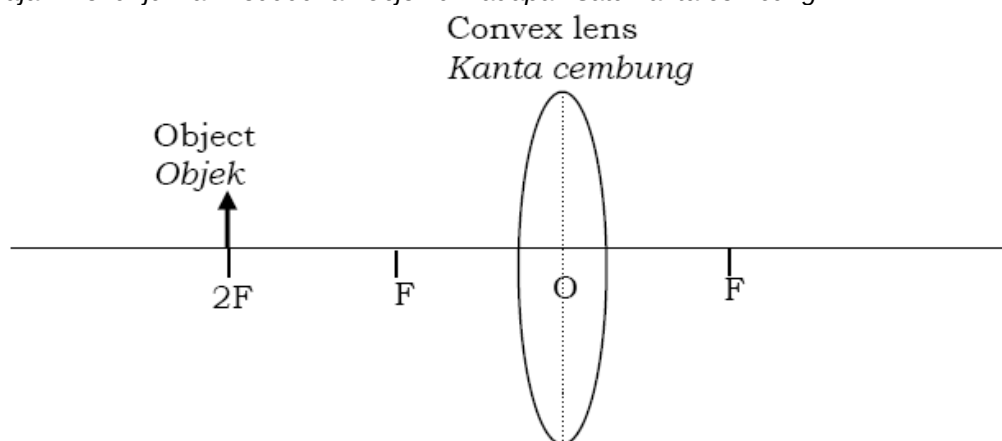
Apakah istilah untuk imej yang tidak dapat dilihat di skrin?

- | | |
|---|---|
| A. Diminished images.
<i>Imej mengecil</i> | C. Real images.
<i>Imej nyata</i> |
| B. Virtual images
<i>Imej maya.</i> | D. Inverted images.
<i>Imej songsang</i> |

TRIAL KEDAH 2009

8. Diagram shows the position of an object in front of a convex lens.

Rajah menunjukkan kedudukan objek di hadapan satu kanta cembung.



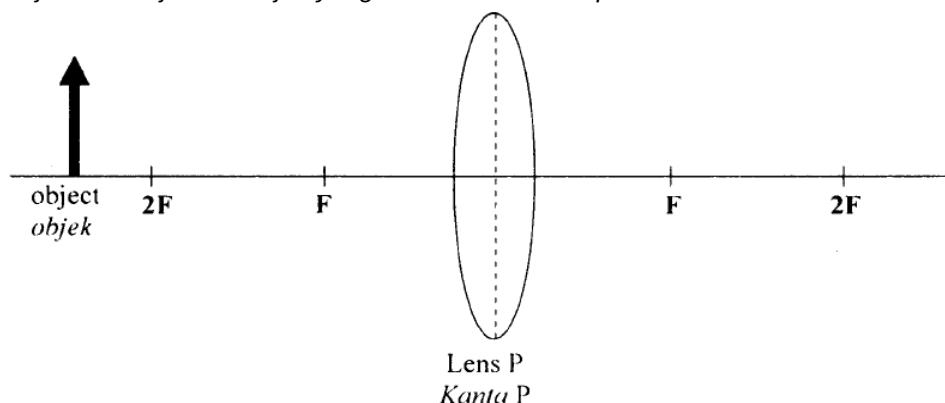
What is the characteristics of the image formed?

Apakah ciri imej yang terbentuk?

- | | |
|----------------------------|---|
| A. Upright
<i>Tegak</i> | C. Larger than the object
<i>Lebih besar dari objek</i> |
| B. Virtual
<i>Maya.</i> | D. Same size as the object
<i>Sama saiz dengan objek</i> |

TRIAL PERLIS 2009

9. Diagram shows an object which is placed in front of lens P. A focal length of lens P is 2 cm.
Rajah menunjukkan objek yang diletakkan di hadapan kanta P. Jarak fokus kanta ialah P.

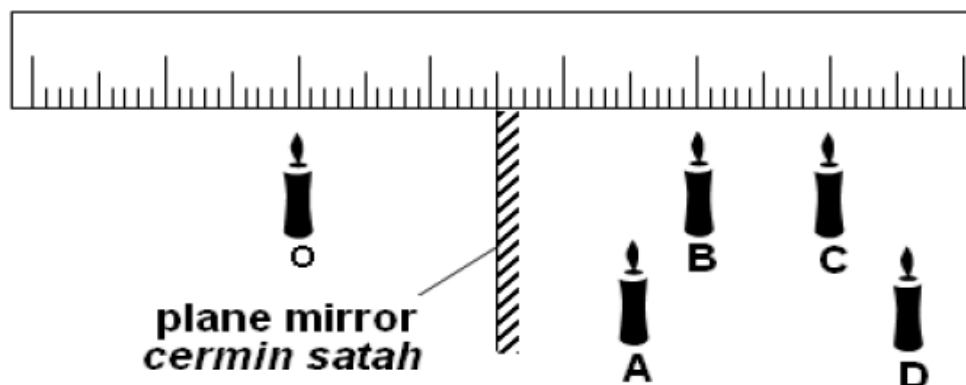


Which of the following answer is correct about the image of object formed?
Manakah antara jawapan berikut adalah benar tentang imej objek yang terbentuk?

- A. Real, inverted and smaller than object
Nyata, terbalik dan lebih kecil daripada objek
- B. Real, inverted and same size as object
Nyata, terbalik dan sama saiz dengan objek
- C. Real, inverted and larger than object
Nyata, terbalik dan lebih besar daripada objek
- D. Virtual, inverted and larger than object
Maya, terbalik dan lebih besar daripada

TRIAL SABAH 2009

10. Diagram shows a candle O in front of a plane mirror.
 Which of the points A, B, C or D will the image be formed?
Rajah menunjukkan lilin O di hadapan sebuah cermin satah.
Manakah antara kedudukan A, B, C atau D imej akan terbentuk?

**TRIAL SABAH 2010**

11. Which of the following are the characteristics of image formed by concave lens?
Antara berikut, yang manakah merupakan ciri-ciri imej yang dibentuk oleh kanta cekung?

- | | |
|---|---|
| A. Virtual, inverted, enlarged
<i>Maya, songsang, membesar</i> | C. Real, upright, enlarged
<i>Nyata, menegak, membesar</i> |
| B. Real, inverted, diminished
<i>Nyata, songsang, mengecil</i> | D. Virtual, upright, diminished
<i>Maya, menegak, mengecil</i> |

TRIAL KEDAH 2010

12. An object is placed 40 cm from a convex lens. If the image formed is the same size as the object, what is the focal length of the convex lens?

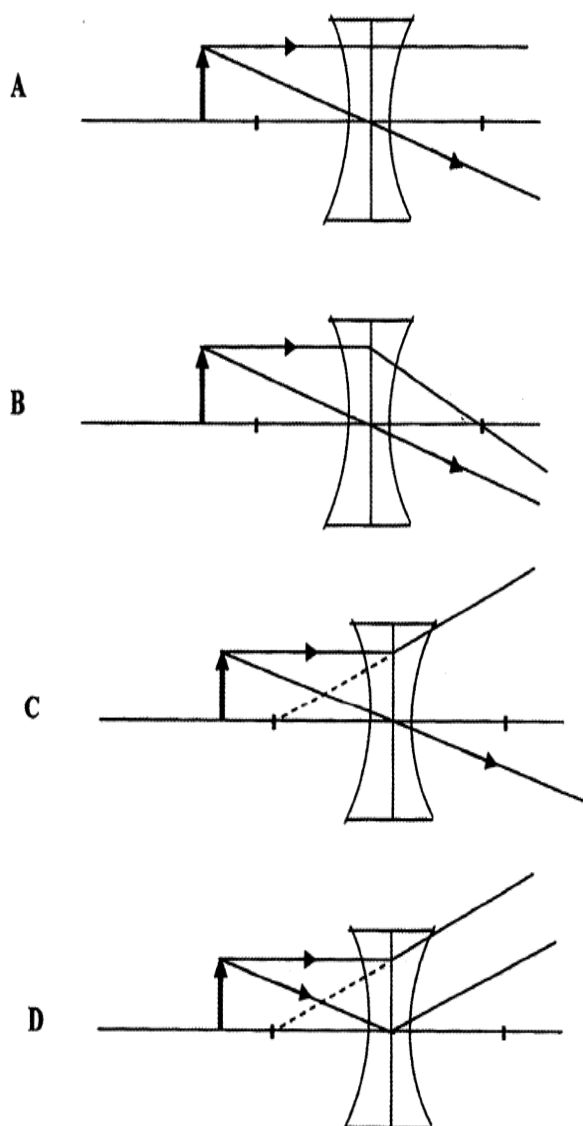
Satu objek diletakkan 40 cm dari kanta cembung. Jika imej yang terbentuk mempunyai saiz yang sama dengan objek, berapakah jarak fokus kanta itu?

- | | |
|----------|----------|
| A. 10 cm | C. 40 cm |
| B. 20 cm | D. 80 cm |

TRIAL TERENGGANU 2010

13. Which of the following ray diagrams is correct?

Antara rajah sinar berikut, yang manakah betul?

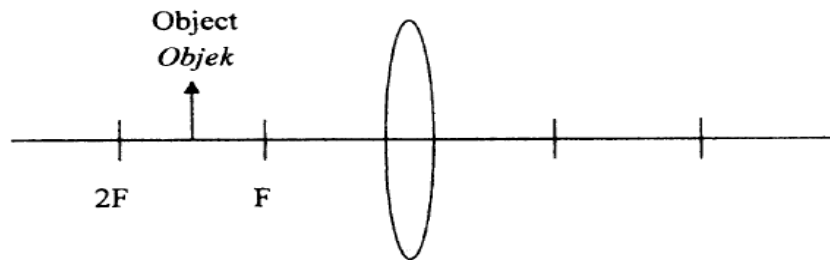


TRIAL KELANTAN 2010

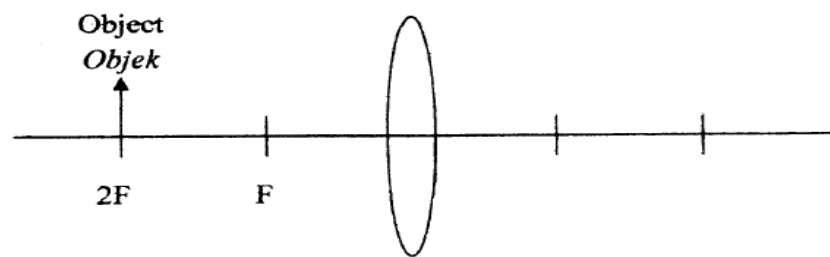
14. Which ray diagram will forms image same size as the objects?

Rajah sinar yang manakah akan membentuk imej yang sama saiz dengan objek?

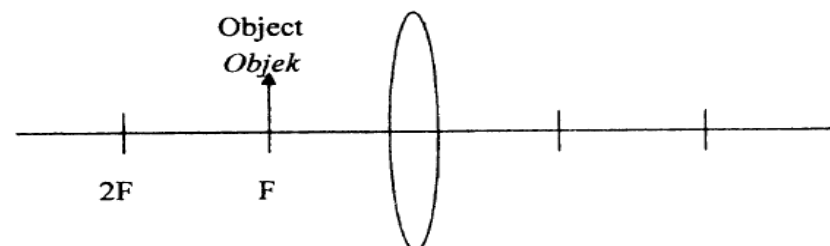
A



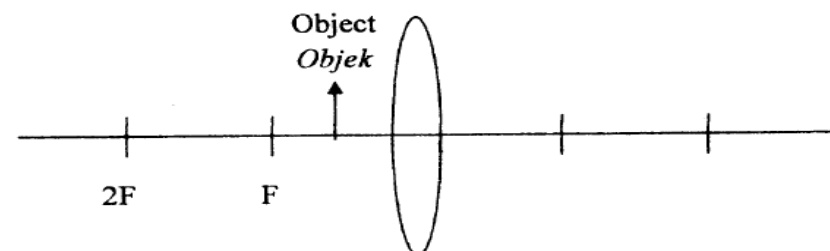
B



C



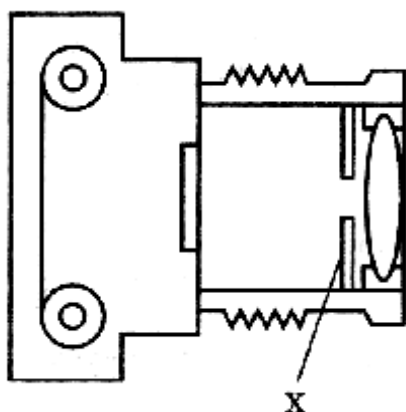
D



SPM 2003

15. The figure shows the structure of a camera.

Rajah menunjukkan struktur sebuah kamera



The function of X is to

Fungsi X ialah

- | | |
|---|---|
| A. allow the light through
<i>membenarkan cahaya masuk</i> | C. adjust the position of the image
<i>melaraskan kedudukan imej</i> |
| B. control the amount of light
<i>mengawal kuantiti cahaya</i> | D. control the duration of light exposure
<i>mengawal tempoh pendedahan cahaya</i> |

SPM 2004

16. A student uses a convex lens to check the internal components of a wrist watch. What is the distance between the lens and the watch in order to see a larger image?

Seorang pelajar menggunakan kanta cembung untuk memeriksa bahagian dalam jam tangan.

Apakah jarak antara kanta dengan jam itu untuk melihat imej yang lebih besar?

- | | |
|---|---|
| A. Twice the focal length
<i>Dua kali jarak fokus</i> | C. Less than the focal length
<i>Kurang daripada jarak fokus</i> |
| B. The same as the focal length
<i>Sama dengan jarak fokus</i> | D. More than twice the focal length
<i>Lebih besar daripada dua kali jarak fokus</i> |

SPM 2006

17. Which of the following optical instruments uses plane mirror?

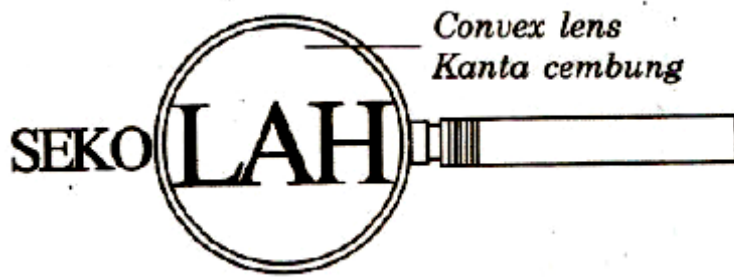
Antara alatan optik berikut, yang manakah menggunakan cermin satah?

- | | |
|--------------|---------------|
| A. Camera | C. Telescope |
| B. Periscope | D. Microscope |

SPM 2007

18. Diagram shows an image formed by a convex lens.

Rajah menunjukkan imej yang dihasilkan oleh sebuah kanta cembung



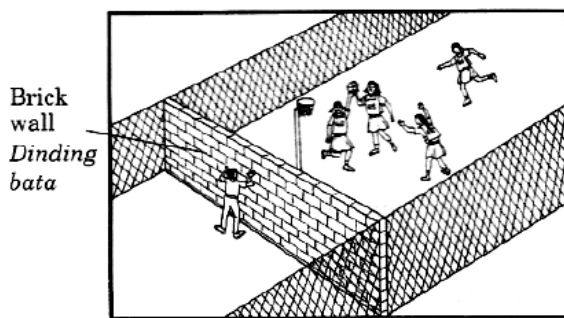
Where is the position of the object?
Di manakah kedudukan objek?

- | | |
|---|---|
| A. Twice the focal length
<i>Dua kali jarak fokus</i> | C. Less than the focal length
<i>Kurang daripada jarak fokus</i> |
| B. The same as the focal length
<i>Sama dengan jarak fokus</i> | D. More than twice the focal length
<i>Lebih besar daripada dua kali jarak fokus</i> |

SPM 2008

19. Diagram shows a boy who wants to watch a netball match.

Rajah menunjukkan seorang budak lelaki yang ingin menyaksikan perlawanan bola



Which optical instrument can be used to enable him to watch the match?

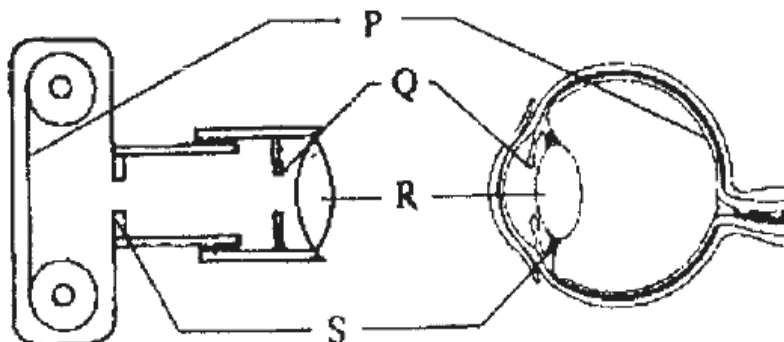
Alatan optik yang manakah membolehkan dia menyaksikan perlawanan itu?

- | | |
|---------------------------------|--|
| A. Camera
<i>Kamera</i> | C. Telescope
<i>Teleskop</i> |
| B. Periscope
<i>Periskop</i> | D. Pin-hole camera
<i>Kamera lubang jarum</i> |

TRIAL PERAK 2008

20. Diagram shows the structure of a camera and human eye.

Rajah menunjukkan struktur sebuah kamera dan mata manusia.



Which of the following parts of the camera and eye have different function?

Manakah antara bahagian-bahagian kamera dan mata berikut mempunyai fungsi yang berbeza?

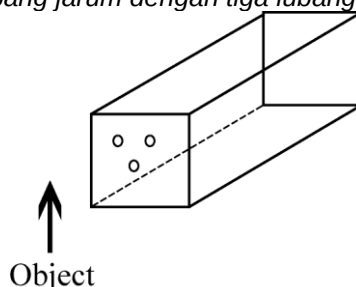
- A. P
- B. R

- C. Q
- D. S

TRIAL SABAH 2008

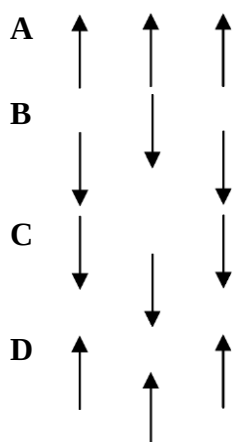
21. Diagram shows a pinhole camera with three holes.

Rajah menunjukkan kamera lubang jarum dengan tiga lubang.



Which of the following images formed on the screen is correct?

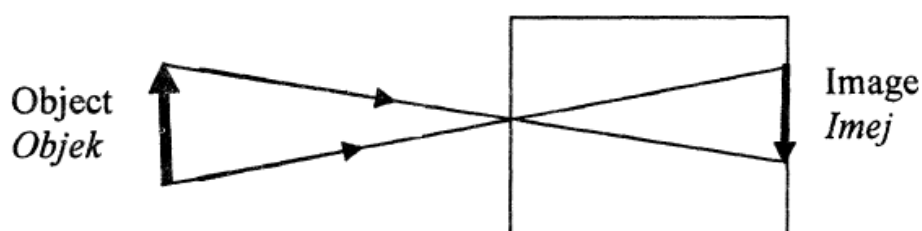
Antara berikut imej yang manakah terbentuk di atas skrin?



TRIAL TERENGGANU 2008

22. Diagram shows a pinhole camera.

Rajah menunjukkan sebuah kamera lubang jarum.



What happens to the image if the distance of the object is decreased?

Apakah yang berlaku pada imej jika jarak objek dikurangkan?

- A. Become smaller
Semakin kecil
- B. Become bigger
Semakin besar

- C. Nothing happens
Tiada perubahan
- D. Upright
Menegak

TRIAL JOHOR 2009

23. which optical instrument uses only one convex lens?

Alatan optik yang manakah menggunakan hanya satu kanta cembung?

- A. Binocular
Binokular
- B. Telescope
Teleskop

- C. Microscope
Mikroskop
- D. Magnifying glass
Kanta pembesar

TRIAL JOHOR 2009

24. Which part of the eye control the amount of light that enters the eye?

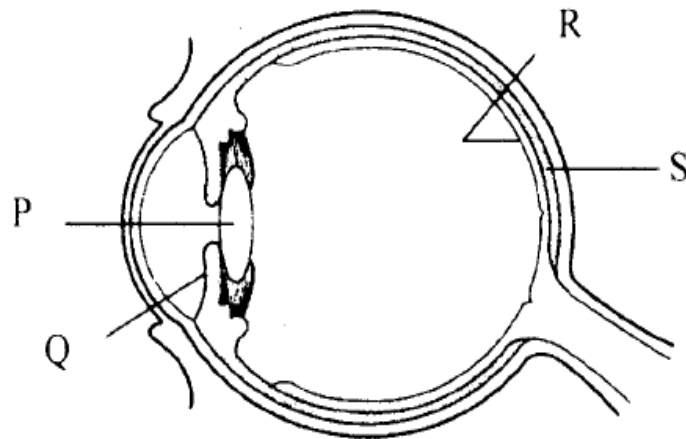
Apakah bahagian mata yang mengawal jumlah cahaya yang masuk ke dalam mata?

- | | |
|-------------------|---------------------|
| A. Lens
Kanta | C. Retina
Retina |
| B. Pupil
Pupil | D. Cornea
Kornea |

TRIAL PERLIS 2009

25. Diagram shows the structure of the eye.

Rajah menunjukkan struktur mata.



Which part controls the amount of light entering the eye?

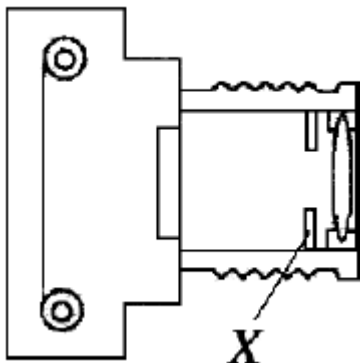
Bahagian manakah mengawal jumlah cahaya yang memasuki mata?

- | | |
|------|------|
| A. P | C. Q |
| B. R | D. S |

TRIAL SABAH 2009

26. Diagram shows the structure of a camera.

Rajah menunjukkan struktur kamera.



Which part of the eyes has a similar function to the part of camera labelled X?

Bahagian manakah pada mata mempunyai fungsi yang sama seperti bahagian berlabel X?

- | | |
|---------------------------------|---------------------|
| A. Ciliary muscle
Otot silia | C. Retina
Retina |
| B. Pupil
Anak mata | D. Iris
Iris |

TRIAL SABAH 2010

27. Diagram shows a magnifying glass .
Rajah menunjukkan sebuah kanta pembesar.



What is the distance between the 'HELLO' and the magnifying glass to produce image as seen in Diagram?

Apakah jarak di antara perkataan 'HELLO' dengan kanta pembesar untuk menghasilkan imej seperti dalam Rajah?

- | | |
|---|---|
| A. Same as the lens focal length
<i>Sama dengan jarak fokus kanta</i> | C. Longer than the lens focal length
<i>Lebih panjang daripada jarak fokus kanta</i> |
| B. Shorter than the lens focal length
<i>Lebih pendek daripada jarak fokus kanta</i> | D. Twice the lens focal length
<i>Dua kali jarak fokus kanta</i> |

TRIAL KEDAH 2010

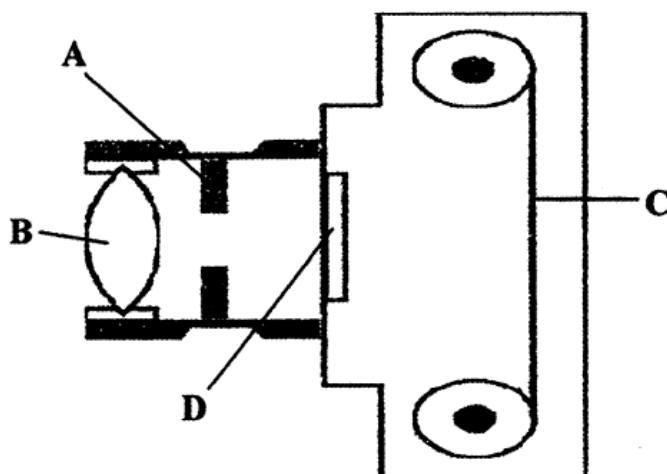
28. What is the characteristic of an image formed on the retina of an eye?

Apakah ciri imej yang terbentuk pada retina mata?

- | | |
|----------------------------|--|
| A. Real
<i>Nyata</i> | C. Laterally inverted
<i>Songsang sisi</i> |
| B. Upright
<i>Tegak</i> | D. Larger than the object
<i>Lebih besar dari objek</i> |

TRIAL TERENGGANU 2010

29. The diagram shows the structure of a camera.
Rajah menunjukkan struktur sebuah kamera.



Which part of the camera A, B, C or D has the same function as the iris in the human eye?
Antara bahagian kamera berlabel A, B, C atau D mempunyai fungsi sama dengan iris mata manusia?

TRIAL TERENGGANU 2010

30. What happens to the lens of our eyes when we look at a distant object?
Apakah yang berlaku kepada kanta mata apabila kita melihat objek yang jauh?

- | | |
|--|--|
| A. Becomes thinner
<i>Semakin menipis</i> | C. Becomes shorter
<i>Semakin dekat</i> |
|--|--|

B. Becomes thicker
Semakin menebal

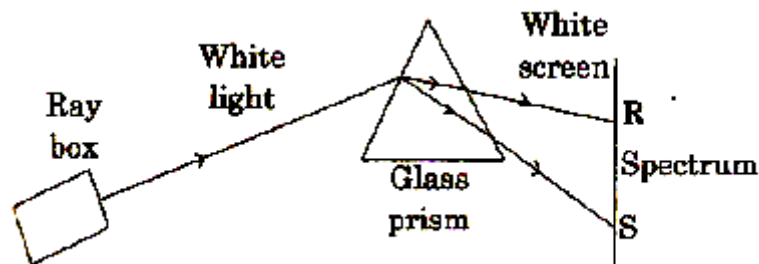
D. Does not change
Tiada perubahan

7.3 LIGHT DISPERSION

SPM 2005

31. The diagram shows the dispersion of white light using a glass prism.

Gambar rajah menunjukkan proses penyebaran cahaya putih menggunakan prisma kaca.



What are the colours at R and S?
Apakah warna pada R dan S?

	<u>R</u>	<u>S</u>
A	Violet	Red
B	Red	Violet
C	Red	Blue
D	Orange	Violet

SPM 2007

32. Which of the following is an effect of light dispersion?

Antara yang berikut, yang manakah kesan penyebaran cahaya?

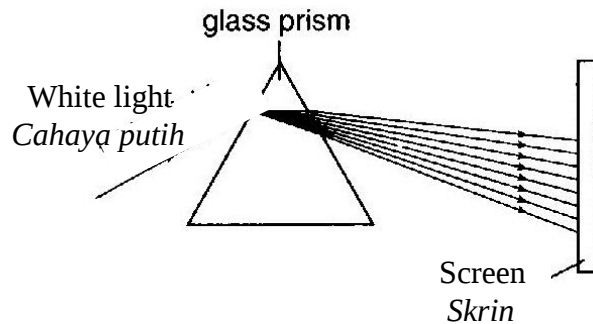
- | | |
|---|---|
| A. The red sky
<i>Kemerahan langit</i> | C. The formation of white colour
<i>Pembentukan cahaya putih</i> |
| B. The blue sky
<i>Kebiruan langit</i> | D. The formation of rainbow
<i>Pembentukan pelangi</i> |

TRIAL JOHOR 2008

33. Diagram shows dispersion of light by glass prism.

Rajah menunjukkan penyebaran cahaya oleh prisma kaca.

Glass prism
Prisma kaca



Which of the following causes this phenomenon?

Antara berikut manakah yang menyebabkan fenomena ini?

- A Different colours of light travel at different speeds.
Warna cahaya yang berbeza bergerak pada kelajuan yang berlainan.
- B White light disperses easily through obstacle.
Cahaya putih mudah disebar oleh penghalang.
- C Glass prism consists of seven colours.
Prisma kaca mengandungi 7 warna.
- D Light is reflected by glass prism.
Cahaya dipantulkan oleh prisma kaca.

TRIAL KEDAH 2010

34. Which process is involved in the formation of a rainbow?

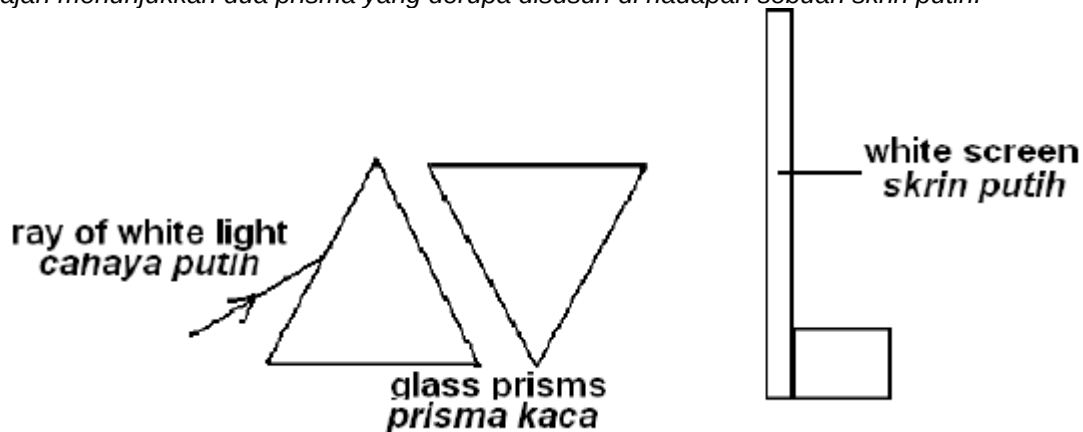
Proses yang manakah terlibat dalam pembentukan pelangi?

- | | |
|--|---|
| <ul style="list-style-type: none"> A. Splitting of light
<i>Pemisahan cahaya</i> B. Scattering of light
<i>Penyerakan cahaya</i> | <ul style="list-style-type: none"> C. Dispersion of light
<i>Penyebaran cahaya</i> D. Substraction of light
<i>Penolakan cahaya</i> |
|--|---|

TRIAL SABAH 2009

35. Diagram shows two identical prisms placed in front of a white screen.

Rajah menunjukkan dua prisma yang serupa disusun di hadapan sebuah skrin putih.



What can be seen on the white screen?

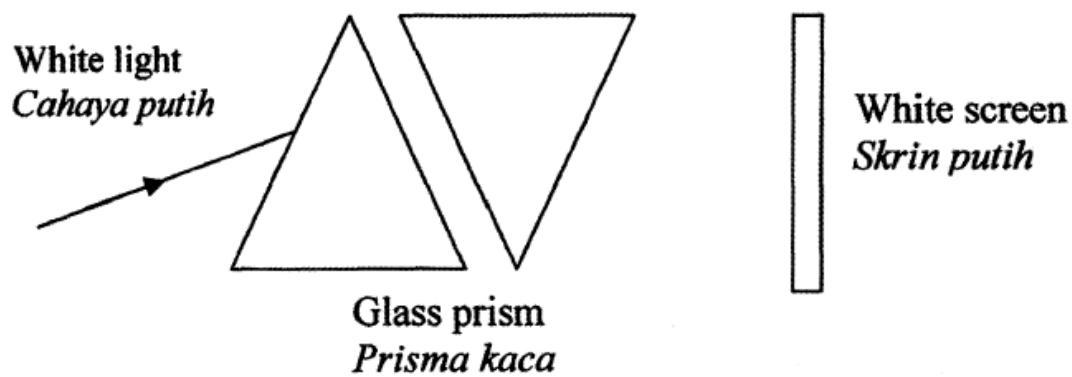
Apakah yang boleh dilihat di atas skrin putih?

- | | |
|---|--|
| <ul style="list-style-type: none"> A. A spectrum with red colour on top
<i>Spektrum dengan cahaya merah di atas</i> B. A spectrum with violet colour on top
<i>Spektrum dengan cahaya merah di atas</i> | <ul style="list-style-type: none"> C. A patch of white light
<i>Tompok cahaya putih</i> D. A patch of red light
<i>Tompok cahaya merah</i> |
|---|--|

TRIAL TERENGGANU 2010

36. The diagram shows a narrow beam of white light passing through two identical glass prism.

Rajah menunjukkan alur sinar cahaya putih melalui dua prisma kaca yang serupa.

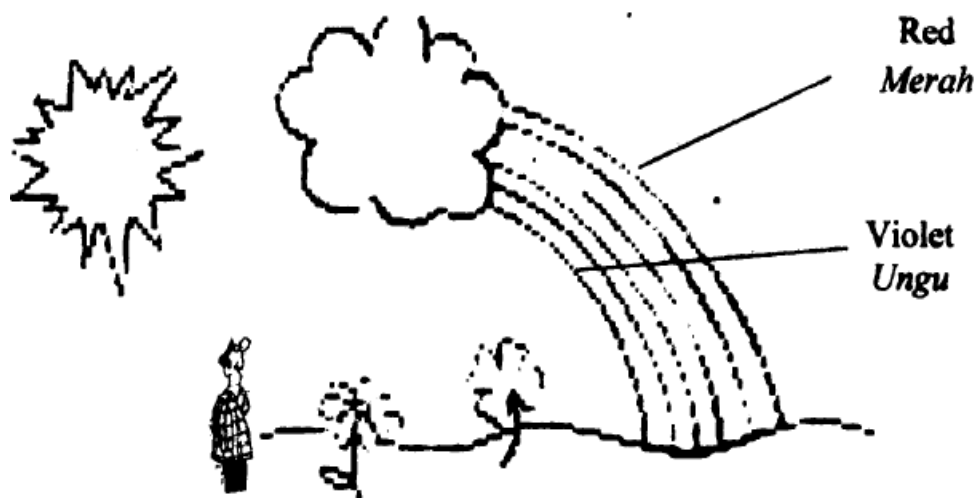


What coloured light can be seen on the white screen?
Apakah warna cahaya yang dilihat pada skrin putih?

- | | |
|--------------------------|--------------------------|
| A. White
<i>Putih</i> | C. Black
<i>Hitam</i> |
| B. Red
<i>Merah</i> | D. Violet
<i>Ungu</i> |

TRIAL KELANTAN 2010

37. Diagram shows the phenomena after rain.
Rajah menunjukkan satu fenomena selepas hujan.



Which process is involved?
Manakah proses yang terlibat?

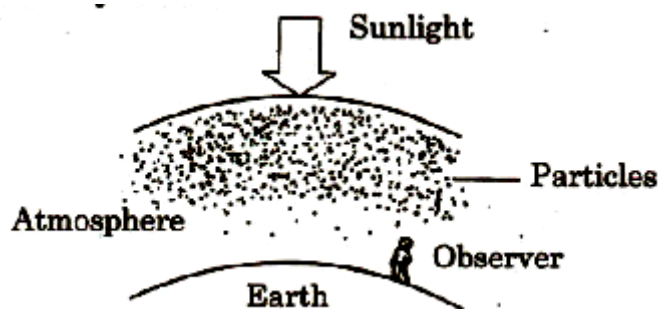
- | | |
|---|--|
| A. Light scattering
<i>Penyerakan cahaya</i> | C. Addition of coloured light
<i>Penambahan cahaya berwarna</i> |
| B. Light dispersion
<i>Penyebaran cahaya</i> | D. Subtraction of coloured light
<i>Penolakan cahaya berwarna</i> |

7.4

LIGHT SCATTERING

SPM 2005

38. The diagram shows an observer looking at the sky at noon.
Gambar rajah menunjukkan seorang pemerhati memerhati langit pada waktu tengahari



Which colour of the sunlight dispersed the most?

Apakah warna cahaya matahari yang paling banyak diserakkan?

- | | |
|----------|-----------|
| A. Blue | C. Green |
| B. White | D. Yellow |

TRIAL JOHOR 2009

39. Which natural phenomenon is caused by scattering of light?

Fenomena semulajadi manakah yang disebabkan oleh penyerakan cahaya?

- | | |
|---|---|
| A. Lightning
Kilat | C. Formation of rainbow
Pembentukan pelangi |
| B. Eclipse of the sun
Gerhana matahari | D. Red sky during sunset
Langit jingga sewaktu matahari terbenam |

TRIAL KELANTAN 2009

40. Why does the blue light is scattered more compared to red light?

Mengapakah cahaya biru lebih terserak berbanding dengan cahaya merah?

- | |
|--|
| A. The red light has a lower velocity
Cahaya merah mempunyai halaju yang lebih rendah |
| B. The blue light has higher velocity
Cahaya biru mempunyai halaju yang lebih tinggi |
| C. The red light has a lower frequency
Cahaya merah mempunyai frekuensi yang lebih rendah |
| D. The blue light has a shorter wavelength
Cahaya biru mempunyai jarak gelombang yang pendek. |

TRIAL SABAH 2010

41. What causes the natural phenomena of blue sky and red sunset?

Apakah yang menyebabkan fenomena semulajadi kebiruan langit dan kemerahan senja?

- | | |
|---|---|
| A. dispersion of light
penyebaran cahaya | C. refraction of light
pembiasan cahaya |
| B. reflection of light
pantulan cahaya | D. scattering of light
penyerakan cahaya |

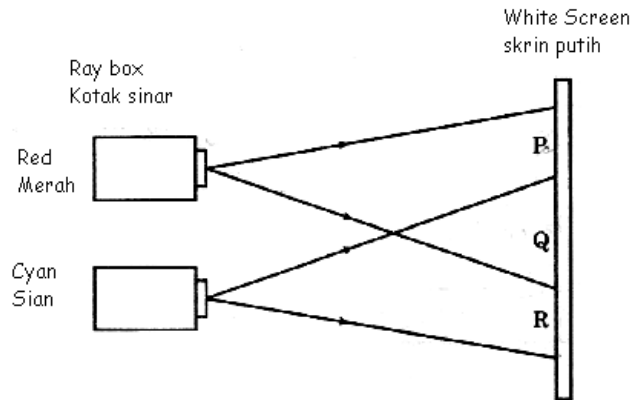
7.5

ADDITION AND SUBTRACTION OF COLOURED LIGHTS

SPM 2003

42. The figure shows a red light and a cyan light which are projected onto a white screen.

Rajah menunjukkan cahaya merah dan cahaya sian yang dipancarkan ke atas skrin putih.

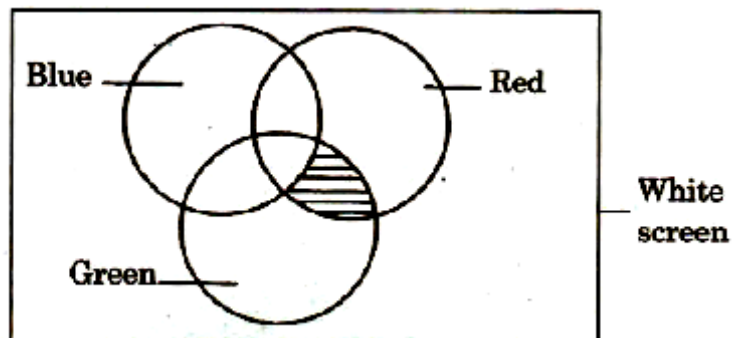


What colours can be seen at P,Q and R?
 Apakah warna yang kelihatan pada P, Q dan R?

	P	Q	R
A	Red Merah	Magenta	Blue Biru
B	Blue Biru	White Putih	Cyan Sian
C	Red Merah	White Putih	Cyan Sian
D.	White Putih	Black Hitam	Magenta

SPM 2005

43. The diagram shows overlapping coloured lights.
 Gambar rajah menunjukkan pertindihan cahaya berwarna

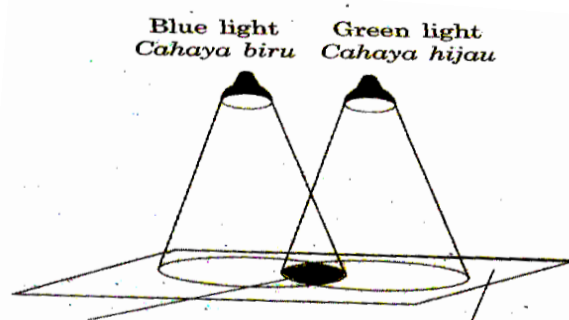


The colour of light in the shaded area is
 Warna cahaya di kawasan berlorek ialah

- | | |
|----------|-----------|
| A. White | C. Red |
| B. Green | D. Yellow |

SPM 2007

44. Diagram shows the overlapping of two primary colours of light.
 Rajah menunjukkan pertindihan dua cahaya berwarna primer.

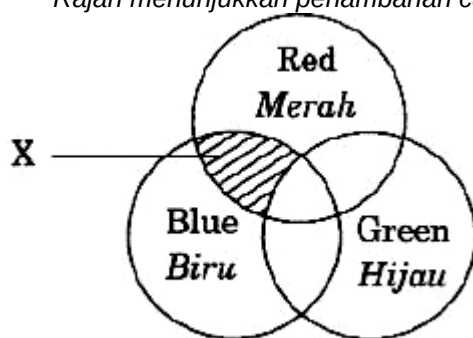


What is the colour of the light seen at the shaded area?
 Apakah warna cahaya yang kelihatan di kawasan berlorek?

- | | |
|----------|-----------|
| A. Black | C. Red |
| B. Cyan | D. Yellow |

SPM 2008

45. Diagram shows the addition of coloured lights.
 Rajah menunjukkan penambahan cahaya berwarna.

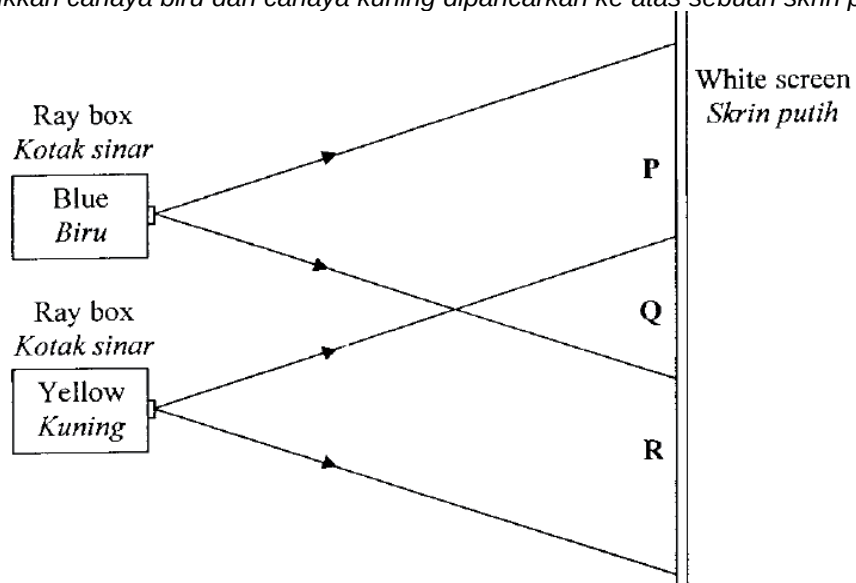


What is the colour seen at X?
 Apakah warna yang kelihatan pada X?

- | | |
|-------------------|-----------------------|
| A. Cyan
Sian | C. Yellow
Kuning |
| B. White
Putih | D. Magenta
Magenta |

TRIAL PERAK 2008

46. Diagram shows a blue light and a yellow light projected onto a white screen.
 Rajah menunjukkan cahaya biru dan cahaya kuning dipancarkan ke atas sebuah skrin putih.



What colour appears at P, Q and R?

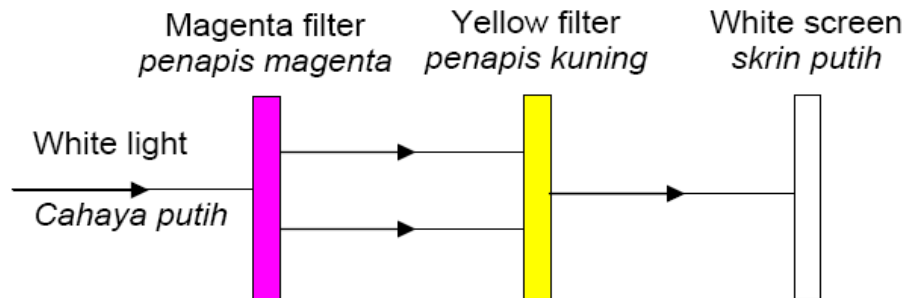
Apakah warna yang kelihatan di P, Q dan R?

	P	Q	R
A	Blue <i>Biru</i>	Black <i>Hitam</i>	Yellow <i>Kuning</i>
B	Blue <i>Biru</i>	White <i>Putih</i>	Yellow <i>Kuning</i>
C	Cyan <i>Sian</i>	Red <i>Merah</i>	Yellow <i>Kuning</i>
D	Magenta <i>Magenta</i>	Red <i>Merah</i>	Green <i>Hijau</i>

TRIAL PERLIS 2008

47. Diagram shows the subtraction of white light using two coloured filters.

Rajah menunjukkan proses penolakan cahaya putih menggunakan dua penapis warna.



What colour light is formed on the white screen?

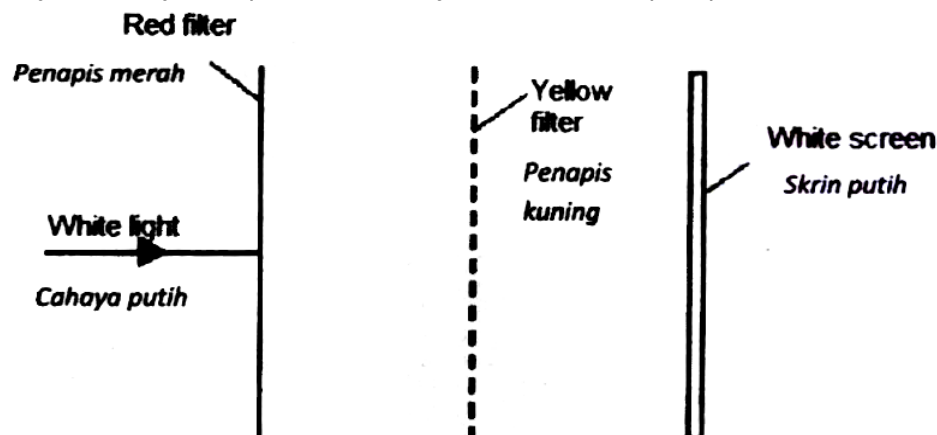
Apakah warna yang terbentuk pada skrin putih?

- | | |
|------------------------|----------------------------|
| A. Red
<i>Merah</i> | C. Black
<i>Hitam</i> |
| B. Blue
<i>Biru</i> | D. Yellow
<i>Kuning</i> |

TRIAL JOHOR 2009

48. Diagram shows a subtraction of light by colour filter.

Rajah menunjukkan penolakan cahaya berwarna oleh penapis warna.



What is the colour that will appear on white screen?

Apakah cahaya warna yang akan dilihat pada skrin putih?

- | | |
|--------------------------|----------------------------|
| A. Red
<i>Merah</i> | C. White
<i>Putih</i> |
| B. Green
<i>Hijau</i> | D. Yellow
<i>Kuning</i> |

TRIAL KEDAH 2009

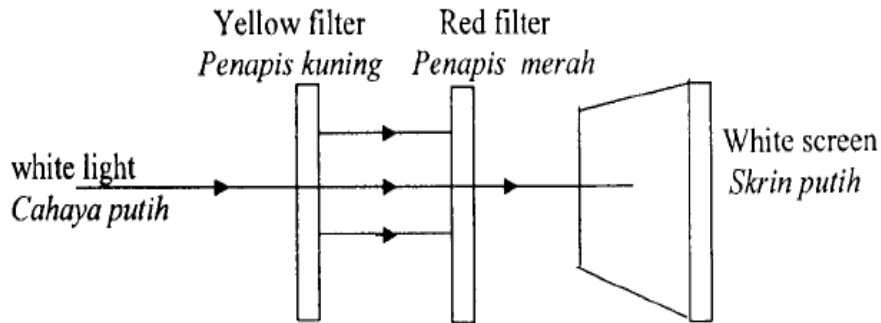
49. What are the primary colours of lights?

Apakah warna-warna primer bagi cahaya?

- | | |
|--|--|
| A. Blue, yellow and red
<i>Biru, kuning dan merah</i> | C. Red, yellow and green
<i>Merah, kuning dan hijau</i> |
| B. Red, blue and green
<i>Merah, biru dan hijau</i> | D. Blue, green and yellow
<i>Biru, hijau dan kuning</i> |

TRIAL KEDAH 2009

50. Diagram shows white light passing through two coloured filters.
Rajah menunjukkan cahaya putih menerusi dua penapis warna.



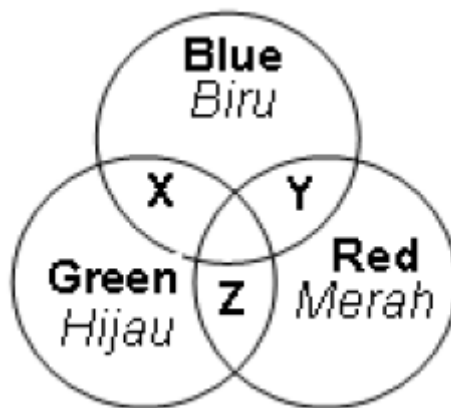
What coloured light is formed on the white screen?

Apakah warna cahaya yang terbentuk ke atas skrin putih?

- | | |
|--------------------------|----------------------------|
| A. Red
<i>Merah</i> | C. Black
<i>Hitam</i> |
| B. Green
<i>Hijau</i> | D. Yellow
<i>Kuning</i> |

TRIAL SABAH 2009

51. Diagram shows the production of colours X, Y and Z from the addition of coloured lights.
Rajah menunjukkan hasil warna X, Y dan Z dari penambahan cahaya berwarna.



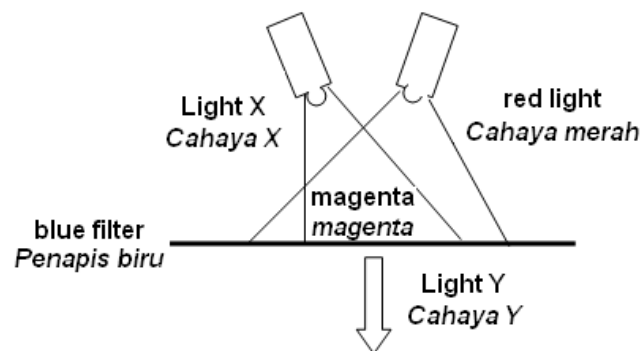
What colours are represented by X, Y and Z?

Apakah warna yang diwakili oleh X, Y dan Z?

	<u>X</u>	<u>Y</u>	<u>Z</u>
A	Cyan <i>Sian</i>	Magenta	Yellow <i>Kuning</i>
B	Yellow <i>Kuning</i>	Magenta	Cyan <i>Sian</i>
C	Magenta <i>Magenta</i>	Cyan	Yellow <i>Kuning</i>
D	Cyan <i>Sian</i>	Yellow <i>Kuning</i>	Magenta <i>Magenta</i>

TRIAL SABAH 2010

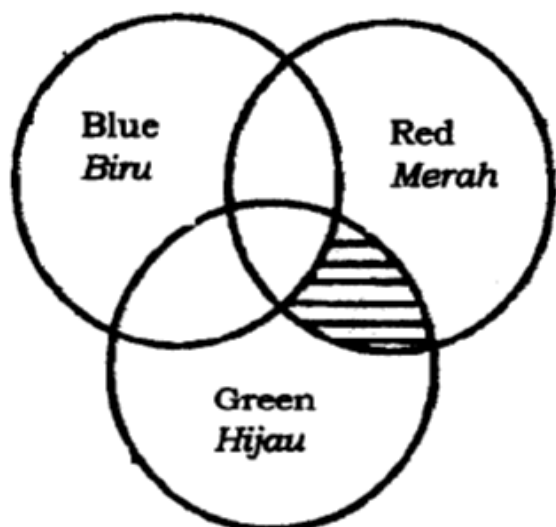
52. Diagram shows two spot light which produce red light and light X. Y is the light color that passed through the blue filter. Which pair is **correct** about light Y and light X
*Rajah menunjukkan dua buah lampu yang memancarkan sinar merah dan sinar X. Y adalah warna cahaya yang melalui penapis biru. Manakah pasangan **benar** tentang warna-warna cahaya X dan Y?*



	<u>X</u>	<u>Y</u>
A	Green <i>Hijau</i>	Red <i>Merah</i>
B	Yellow <i>Kuning</i>	Green <i>Hijau</i>
C	Cyan <i>Sian</i>	Blue <i>Biru</i>
D	Blue <i>Biru</i>	Blue <i>Biru</i>

TRIAL KEDAH

53. Diagram shows the addition of coloured lights.
Rajah menunjukkan penambahan cahaya berwarna.

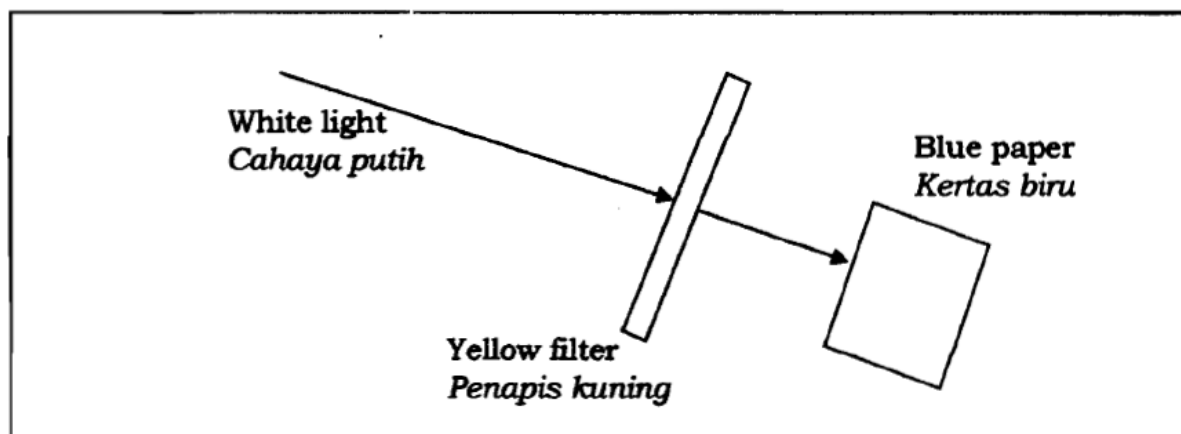


What is the colour of light in the shaded area?
 Apakah warna cahaya di kawasan berlorek?

- | | |
|-------------------|-----------------------|
| A. Cyan
Sian | C. Yellow
Kuning |
| B. White
Putih | D. Magenta
Magenta |

TRIAL KEDAH 2010

54. Diagram shows a white light passing through a yellow filter.
 Rajah menunjukkan cahaya putih melalui satu penapis kuning.

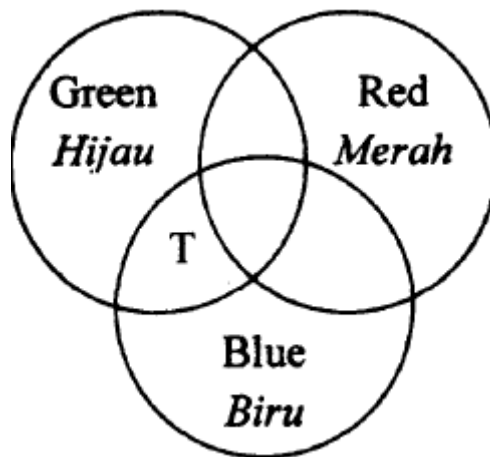


What colour is observed on the blue paper?
 Apakah warna yang kelihatan di atas kertas biru?

- | | |
|-------------------|---------------------|
| A. Blue
Biru | C. Cyan
Sian |
| B. Black
Hitam | D. Yellow
Kuning |

TRIAL KELANTAN 2010

55. Diagram shows an addition of primary colour.
 Rajah menunjukkan penambahan warna primer



What is colour at T?
Apakah warna T?

- | | |
|-------------------|-----------------------|
| A. Cyan
Sian | C. Yellow
Kuning |
| B. White
Putih | D. Magenta
Magenta |

7.6

APPLYING THE PRINCIPLE OF SUBTRACTION OF COLOURED LIGHTS

SPM 2004

56. When a certain coloured light is shined onto a red object, the object appears black. The colour of light is

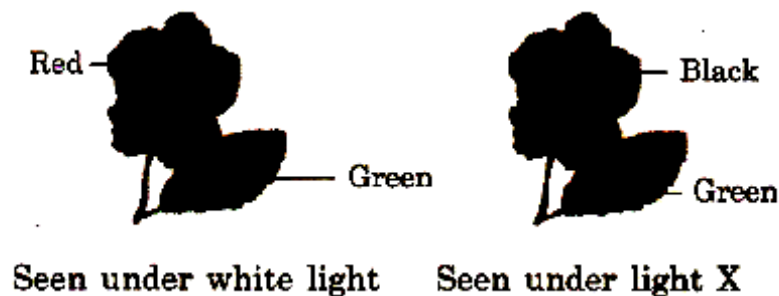
Apabila satu cahaya berwarna dipancarkan ke atas satu objek berwarna merah, objek itu kelihatan hitam. Warna cahaya itu ialah

- | | |
|----------|------------|
| A. White | C. Yellow |
| B. Green | D. Magenta |

SPM 2006

57. Diagram shows the colours of a flower and a leaf under different colours of light.

Rajah menunjukkan warna bunga dan warna daun dilihat di bawah warna cahaya yang berbeza



What is the colour of light X?
Apakah warna cahaya X?

- | | |
|----------|-----------|
| A. Blue | C. Red |
| B. Green | D. Yellow |

TRIAL JOHOR 2008

58. A singer who wears a magenta shirt and white trousers is singing under green light on the stage. What are the colours of the shirt and trousers of the singer?

Seorang penyanyi yang memakai baju berwarna magenta dan berseluar putih sedang menyanyi di bawah cahaya hijau di atas pentas. Apakah warna baju dan seluar penyanyi itu?

	Shirt <i>Baju</i>	Trousers <i>Seluar</i>
A	Black <i>Hitam</i>	Green <i>Hijau</i>
B	Red <i>Merah</i>	Black <i>Hitam</i>
C	Green <i>Hijau</i>	White <i>Putih</i>
D	Blue <i>Biru</i>	Black <i>Hitam</i>

TRIAL SABAH 2008

59. A yellow flower will look green when it is shone at by green light. How does it happen?

Bunga kuning kelihatan hijau apabila disinari cahaya hijau. Bagaimanakah ia berlaku?

- | | |
|--|---|
| A. Only green light is being reflected
<i>Hanya cahaya hijau yang dipantulkan</i> | C. Yellow and green lights are being reflected
<i>Cahaya kuning dan hijau yang dipantulkan</i> |
| B. Only green light is being absorbed
<i>Hanya cahaya hijau yang diserap</i> | D. Red and green lights are being reflected.
<i>Cahaya merah dan hijau yang dipantulkan</i> |

TRIAL TERENGGANU 2008

60. Fatimah wears a yellow blouse and green trosers walks under a red light. What are colours of her blouse and trousers?

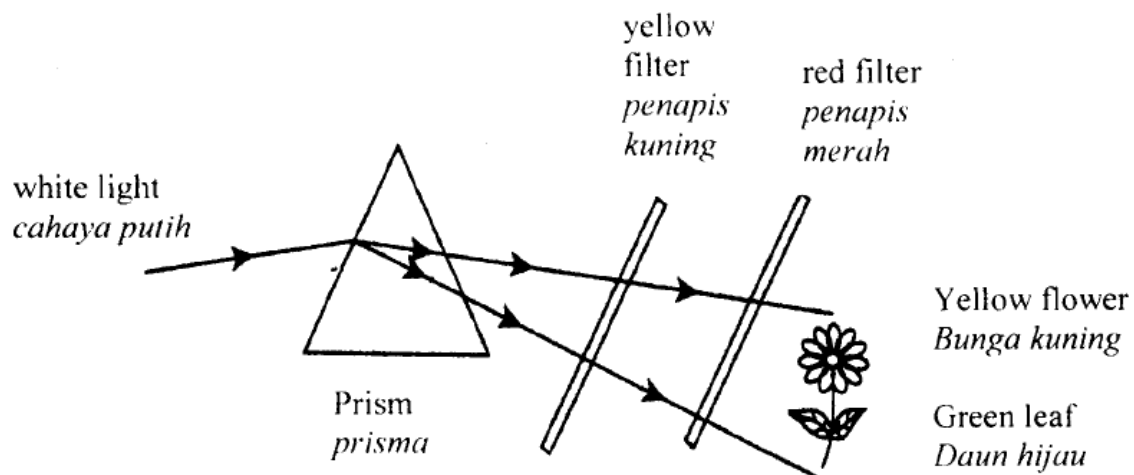
Fatimah memakai baju kuning dan seluar hijau sedang berjalan di bawah cahaya merah. Apakah warna baju dan seluarnya?

	Blouse (<i>Baju</i>)	Trousers (<i>Seluar</i>)
A	Yellow (<i>Kuning</i>)	Green (<i>Hijau</i>)
B	Yellow (<i>Kuning</i>)	Black (<i>Hitam</i>)
C	Red (<i>Merah</i>)	Green (<i>Hijau</i>)
D	Red (<i>Merah</i>)	Black (<i>Hitam</i>)

TRIAL PERLIS 2009

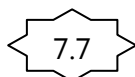
61. Diagram shows a white light passing through a prism and two colour filters.

Rajah menunjukkan cahaya putih melaui prisma dan dua penapis warna.



What colour appears to the flower and leaf?
 Apakah warna yang terhasil pada bunga dan daun?

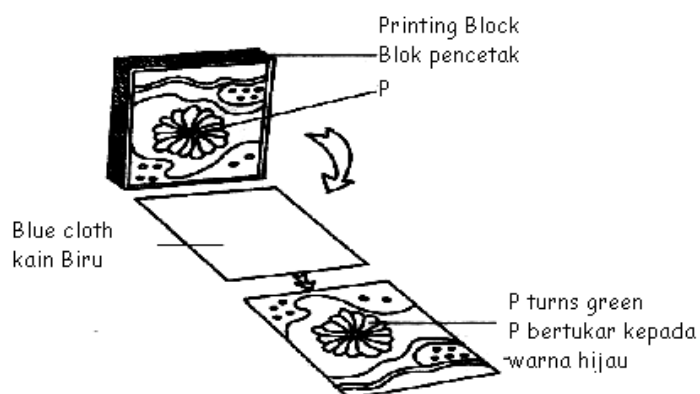
	Flower <i>Bunga</i>	Leaf <i>Daun</i>
A	Yellow <i>Kuning</i>	Green <i>Hijau</i>
B	Yellow <i>Kuning</i>	Black <i>Hitam</i>
C	Red <i>Merah</i>	Black <i>Hitam</i>
D	Red <i>Merah</i>	Yellow <i>Kuning</i>



MIXING OF PIGMENTS

SPM 2003

62. The figure shows a batik-printing process.
 Rajah menunjukkan proses mencetak kain batik.



What is the original colour of P?
 Apakah warna asal P?

- | | |
|---------|-----------|
| A. Red | C. Green |
| B. Cyan | D. Yellow |

SPM 2007

63. Which of the following mixture of pigments will produce green colour?

Antara campuran pigmen berikut, yang manakah akan menghasilkan warna hijau?

- | | |
|--------------------|-----------------------|
| A. Red and cyan | C. Red and magenta |
| B. Yellow and cyan | D. Yellow and magenta |

SPM 2008

64. A boy wants to paint a picture of a tree, but he does not have green paint.

Which paint colours can be mixed to get the green colour?

Seorang budak lelaki ingin mewarnakan gambar ebatang pokok, tetapi dia tidak mempunyai cat hijau. Apakah warna cat yang boleh dicampurkan untuk mendapatkan cat warna hijau?

- | | |
|--|--|
| A. Blue and red
<i>Biru dan merah</i> | C. Red and magenta
<i>Merah dan magenta</i> |
| B. Cyan and yellow
<i>Sian dan kuning</i> | D. Magenta and yellow
<i>Magenta dan kuning</i> |

TRIAL KEDAH 2009

65. Which mixture of pigments will produce black colour?

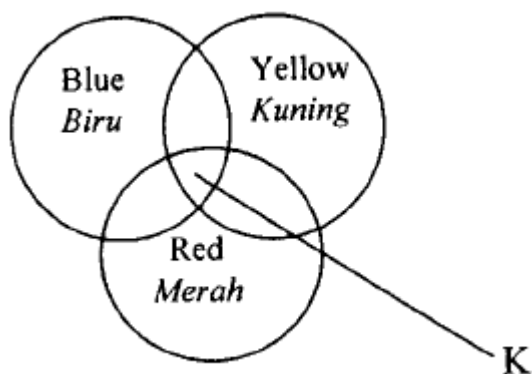
Campuran pigmen yang manakah akan menghasilkan warna hitam?

- | | |
|--|--|
| A. Blue and red
<i>Biru dan merah</i> | C. Red and green
<i>Merah dan hijau</i> |
| B. Blue and yellow
<i>Biru dan kuning</i> | D. Magenta and yellow
<i>Magenta dan kuning</i> |

TRIAL KELANTAN 2009

66. Diagram shows the overlapping of three coloured pigments.

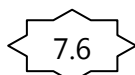
Rajah menunjukkan pertindihan tiga pigmen warna.



What is the colour of K?

Apakah warna K?

- | | |
|--------------------------|----------------------------|
| A. White
<i>Putih</i> | C. Black
<i>Hitam</i> |
| B. Cyan
<i>Sian</i> | D. Yellow
<i>Kuning</i> |



THE IMPORATANCE OF COLOUR IN DAILY LIFE

SPM 2007

67. Why does a male peacock have colourful and attractive feathers?

Mengapakah burung merak jantan mempunyai bulu yang berwarna-warni dan menarik?

- | | | | |
|----|--|----|--|
| A. | As protection
<i>Sebagai perlindungan</i> | C. | To attract a mate
<i>Untuk menarik pasangan</i> |
| B. | For camouflage
<i>Untuk penyamaran</i> | D. | As a warning sign
<i>Sebagai tanda amaran</i> |

TRIAL KELANTAN 2010

68. Diagram shows an animal with coloured skin.

Rajah menunjukkan seekor haiwan dengan kulit berwarna.



What is the important of colour for this animal?

Apakah kepentingan warna pada haiwan ini?

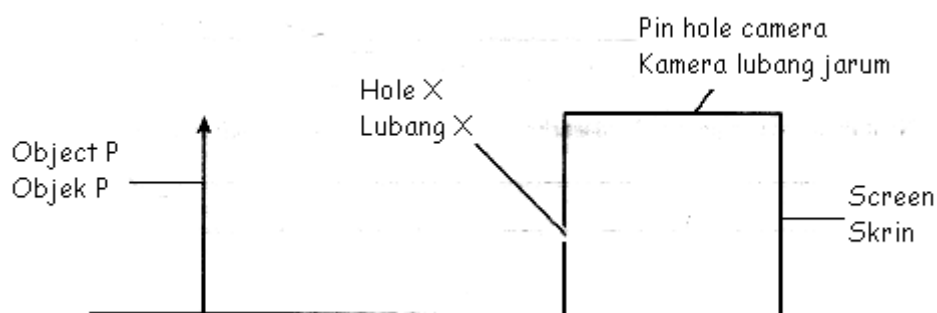
- | | | | |
|----|-----------------------------------|----|-------------------------------|
| A. | Protection
<i>perlindungan</i> | C. | attraction
<i>peragaan</i> |
| B. | Camouflage
<i>penyamaran</i> | D. | warning
<i>amaran</i> |

PAPER 2

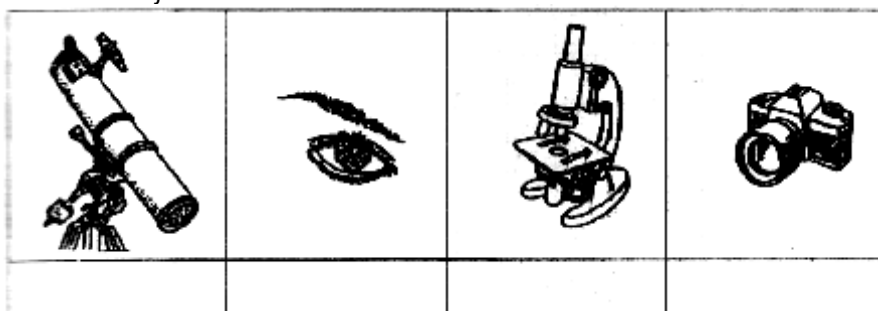
SECTION A

SPM 2003

1. Figure shows an object P in front of a pin-hole camera.
Rajah menunjukkan objek P berada di hadapan sebuah kamera lubang jarum.



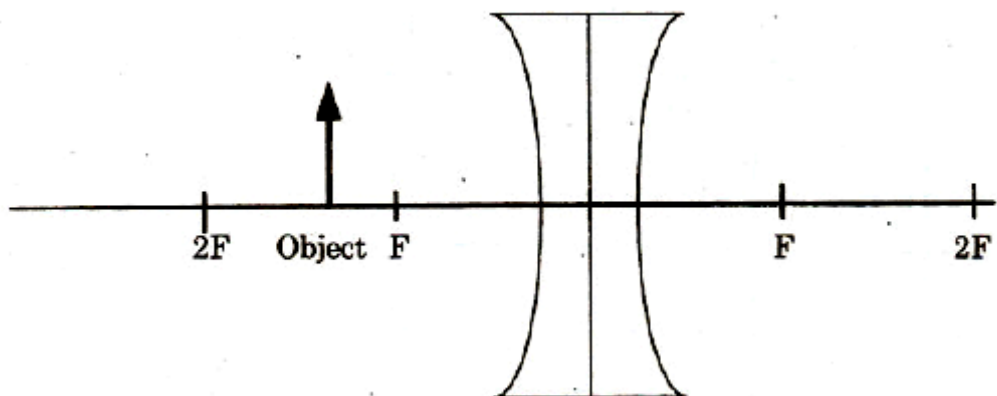
- (a) Draw a ray diagram of the image formed by object P in Figure.
Lukiskan rajah sinar pembentukan imej oleh objek P pada Rajah. [2 marks]
- (b) Measure and write down the size of the image.
Ukur dan tuliskan saiz imej itu
 _____ cm [1 mark]
- (c) Predict the characteristic of image if hole X is enlarge.
Ramalkan sifat imej jika lubang X dibesarkan.
 [1 mark]
- (d) Tick (✓) the objects which form an image with the same characteristics as the image formed Figure.
Tandakan(✓) bagi objek yang mempunyai ciri imej yang sama seperti imej yang terbentuk dalam Rajah..



[1 mark]

SPM 2006

2. Diagram shows an experiment to study the formation of an image by a concave lens.
Rajah menunjukkan satu eksperimen untuk mengkaji pembentukan imej bagi kanta cekung.



(a) Complete diagram to show the formation of the image by a concave lens.
Lengkapkan rajah untuk menunjukkan pembentukan imej bagi kanta cekung. [2 marks]

(b) Measure and write down the distance of the image.
Ukur dan tuliskan jarak imej

_____ cm

[1 mark]

(c) State two characteristics of the image formed in 3 (a)
Nyatakan dua ciri imej yang terbentuk dalam 3 (a)

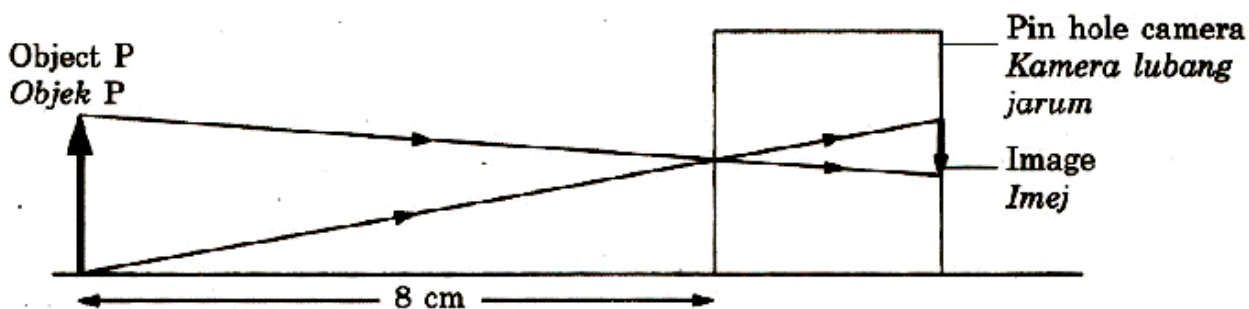
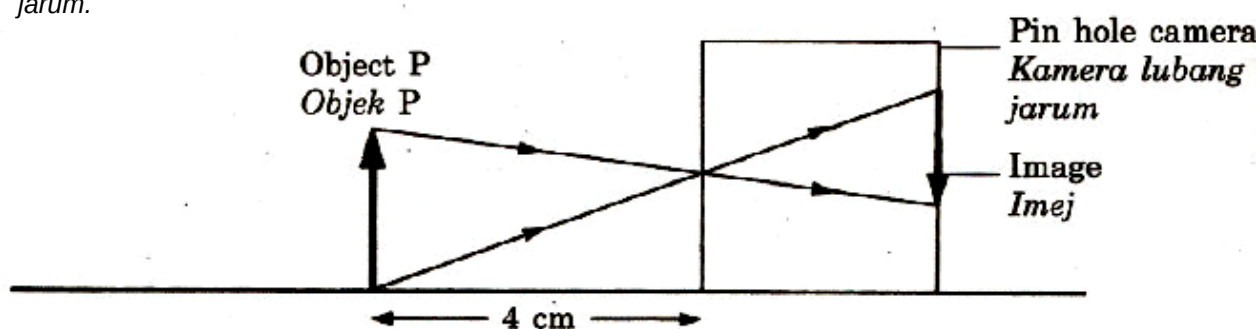
1. _____

2. _____ [2 marks]

SPM 2007

3. Diagram show an experiment to study the characteristics of an image formed by a pin hole camera.

Rajah menunjukkan satu eksperimen untuk mengkaji ciri imej yang terbentuk oleh kamera lubang jarum.



(a) Measure and write down the size of the image formed in Diagram 4.1
Ukur dan tuliskan saiz imej yang terbentuk dalam Rajah 4.1

Size: _____ cm

[1 mark]

- (b) State the hypothesis based on this experiment.
Nyatakan hipotesis berdasarkan eksperimen ini.

_____ [1 mark]

- (c) Predict the size of the image if object P is placed at 10 cm from the pin hole camera.
Ramalkan saiz imej sekiranya objek P diletakkan 10 cm daripada kamera lubang jarum.

_____ [1 mark]

- (d) Give two characteristics of the image formed in Diagram 4.2
Berikan dua ciri imej yang terbentuk dalam Rajah 4.2

1. _____

2. _____ [2 marks]

SPM 2008

4. Diagram 2.1 and Diagram 2.2 show an experiment to measure the focallength of two convex lenses.
Rajah 2.1 dan Rajah 2.2 menunjukkan satu eksperimen untuk mengukur jarak fokus bagi dua kanta cembung.

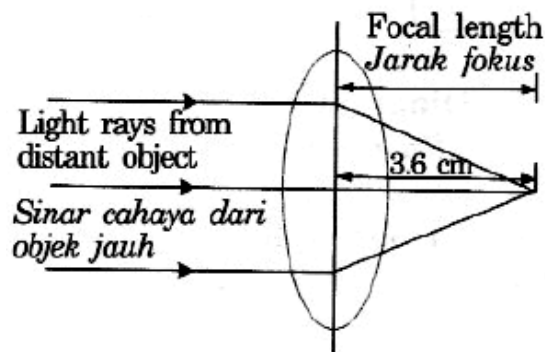


Diagram 2.1
Rajah 2.1

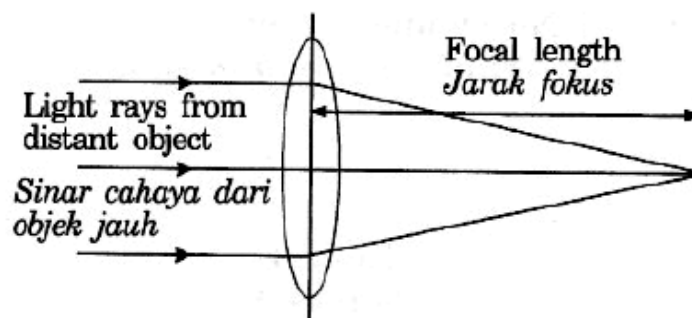


Diagram 2.2
Rajah 2.2

- (a) Measure and write down the focal length in Diagram 2.2.
Ukur dan catatkan jarak fokus pada Rajah 2.2.

_____ cm

(1 mark)

- (b) Observe Diagram 2.1 and Diagram 2.2.
What is the difference between the focal lengths of two convex lenses?
Perhatikan Rajah 2.1 dan Rajah 2.2.

Apakah perbezaan antara jarak fokus kedua-dua kanta cembung itu?

.....
 (1 mark)

- (c) State **one** inference for this experiment.
 Nyatakan **satu** inferens bagi eksperimen ini.

..... (1 mark)

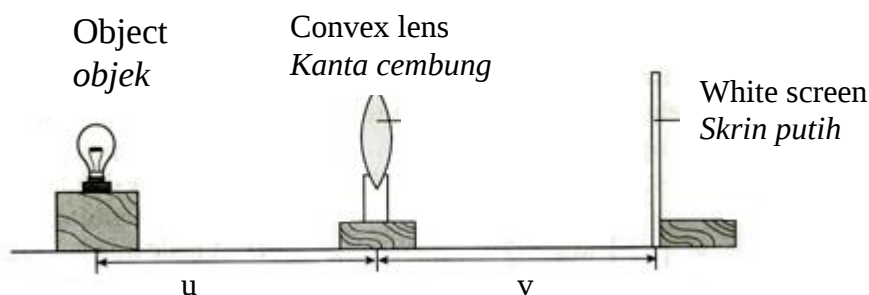
- (d) State the variables in this experiment.
 Nyatakan pembolehubah dalam eksperimen ini.

(i) Constant variable
 Pembolehubah dimalarkan [1 mark]

(ii) Manipulated variable
 Pembolehubah dimanipulasikan..... [1 mark]

TRIAL JOHOR 2008

5. Figure shows the apparatus set up of an experiment. The white screen is adjusted so that a sharp image is formed on the screen.
 Rajah menunjukkan radas untuk suatu eksperimen. Skrin putih dilaraskan supaya satu imej yang tajam terbentuk pada skrin.



Object distance, u (cm) Jarak objek, u (cm)	10	20	30	40
Image distance, v (cm) Jarak imej, v (cm)	34	31	28	25

- (a) Suggest a hypothesis for this experiment.
 Cadangkan hipotesis bagi eksperimen ini

..... [1 mark]

- (b) State the variable in this experiment.
 Nyatakan pembolehubah bagi eksperimen ini.

i. Manipulated variable :
 Pembolehubah manipulasi: [1 mark]

ii. Responding variable :
 Pembolehubah bergerakbalas [1 mark]

- (c) State **two** characteristics of the image formed if the object is placed in between the focal point and convex lens.

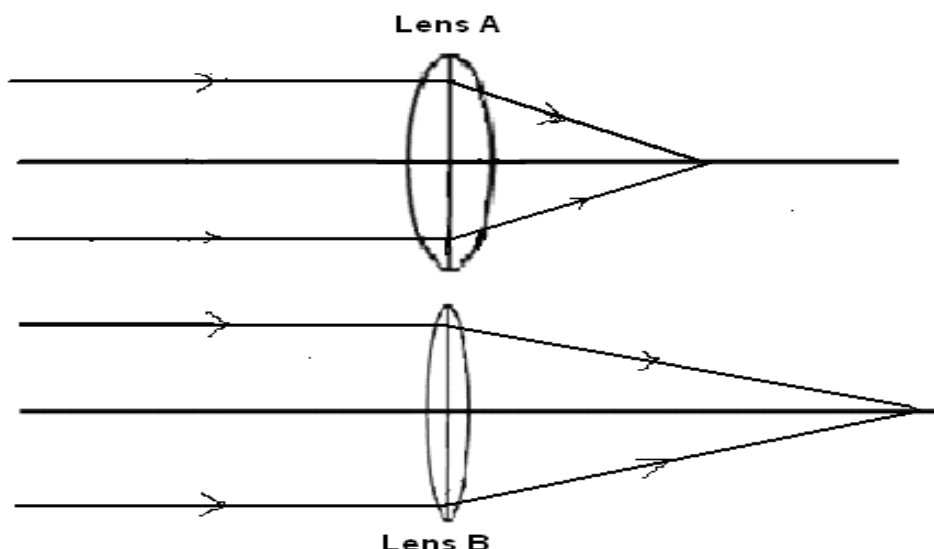
Nyatakan **dua** ciri imej yang terbentuk jika objek diletakkan di antara titik fokus dan kanta cembung.

..... [2 marks]

TRIAL PAHANG 2008

6. Diagram shows the experiment to study the relationship between the thickness of the lens and its focal distance.

Rajah menunjukkan satu eksperimen untuk mengkaji hubungan antara ketebalan kanta dengan jarak fokusnya..



- a) Measure and write down the focal distance of lens B

Ukur dan tulis jarak focus bagi kanta B

..... cm

[1mark]

- b) Predict the focal distance of a convex lens which is thinner than lens B

Ramalkan jarak focus bagi satu kanta cembung yang lebih nipis dari kanta B

..... [1mark]

- c) State the following variables:

Nyatakan pemboleh ubah berikut:

- (i) Manipulated variable

Pemboleh ubah dimanipulasi:..... [1 mark]

- (ii) Responding variable:

Pemboleh ubah bergerakbalas:..... [1 mark]

- d) State the hypothesis for the above experiment.

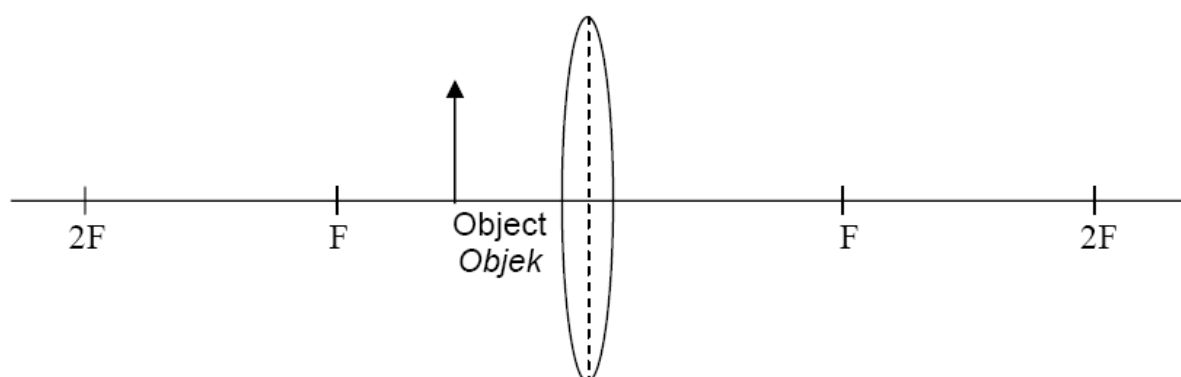
Nyatakan hipotesis bagi eksperimen di atas.

..... [1 mark]

TRIAL PERLIS 2008

7. Diagram shows an experiment to study the formation of an image by a convex lens.

Rajah menunjukkan eksperimen untuk mengkaji pembentukan satu imej oleh kanta cembung.



- (a) Complete Diagram to show the formation of the image by the convex lens.
 Lengkapkan Rajah untuk menunjukkan pembentukan imej oleh kanta cembung. [3 marks]

- (b) Measure and write down the height of the image.
 Ukur dan tuliskan tinggi imej itu.

..... cm [1 mark]

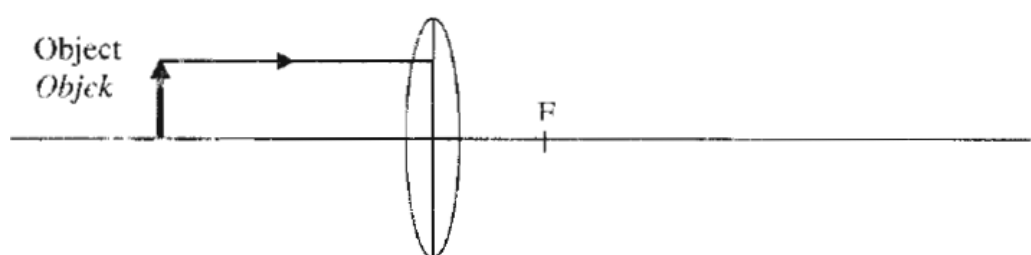
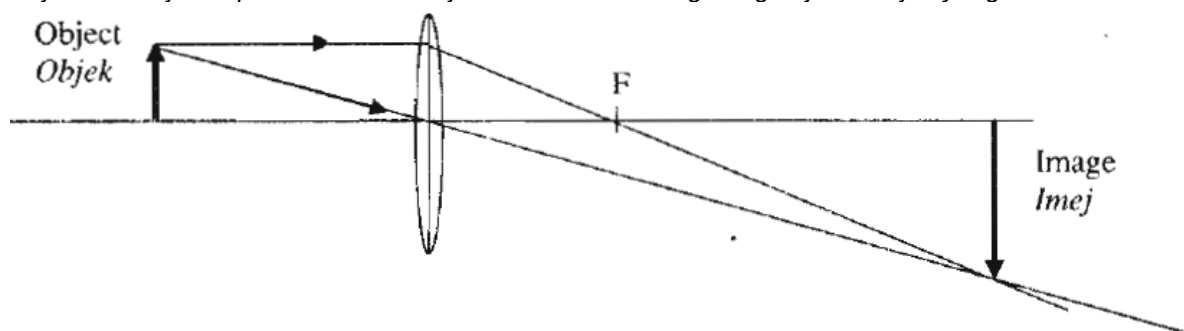
- (c) Tandakan (✓) for the object that has the same characteristics as the image form in Diagram.
 Tandakan (✓) bagi objek yang mempunyai ciri imej yang sama seperti imej yang terbentuk dalam Rajah. [1 mark]

TRIAL TERENGGANU 2008

8. Diagram shows the formation of image by convex lens with same object distance.

Rajah menunjukkan pembentukan imej oleh kanta cembung dengan jarak objek yang sama.



- (a) (i) Complete the ray diagram to show the formation of the image in Diagram.
 Lengkapkan rajah sinar untuk menunjukkan pembentukan imej pada Rajah. [1 mark]

- (ii) Measure the distance of image.
 Ukur dan catatkan jarak imej

..... cm [1 mark]

- (b) State the following variables:
 Nyatakan pemboleh ubah berikut:

- (i) Manipulated variable
 Pemboleh ubah dimanipulasi:..... [1 mark]

- (ii) Responding variable:
 Pemboleh ubah bergerakbalas:..... [1 mark]

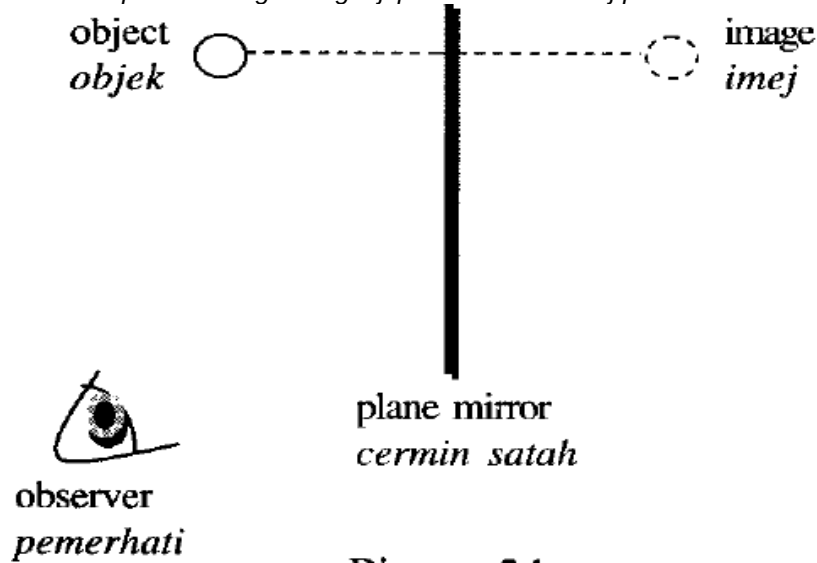
- (c) State the hypothesis for the above experiment.
 Nyatakan hipotesis bagi eksperimen di atas.

..... [1 mark]

TRIAL PERAK 2009

9. Diagram shows an experiment to study the formation of an image by a plane mirror.

Rajah menunjukkan eksperimen bagi mengkaji pembentukan imej pada cermin satah.

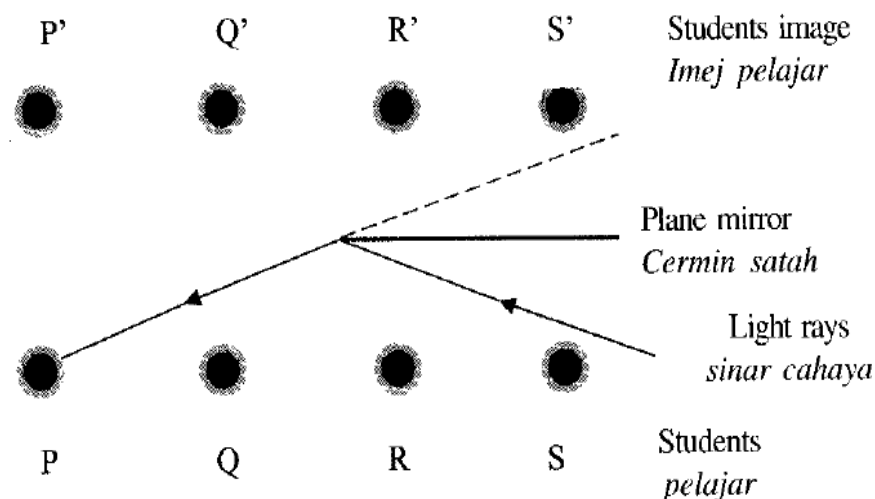


- (a) Complete Diagram by drawing the ray diagram to show light rays on the plane mirror.
 Lengkapkan Rajah dengan melukis gambar rajah sinar bagi menunjukkan sinar cahaya melalui cermin satah. [2 marks]

- (b) What light principle is applied in the plane mirror?
 Apakah prinsip cahaya yang diaplikasikan dalam cermin satah?

..... [1 mark]

- (c) Four students: P, Q, R, S are arranged in front of a plane mirror. Their positions are shown by Diagram. The image of each student is also drawn on the diagram. The ray diagram shows that, P cannot observe of the image of S.
 Empat orang pelajar: P, Q, R, S disusun dihadapan cermin satah. Kedudukan mereka ditunjukkan dalam Rajah. Imej setiap pelajar juga ditunjukkan di dalam Rajah. Rajah sinar menunjukkan bahawa, P tidak dapat melihat imej S.



- (i) Based on the Diagram, predict two images of students that can be seen by S?
 Berdasarkan Rajah, ramalkan imej dua orang pelajar yang dapat diperhatikan oleh S?

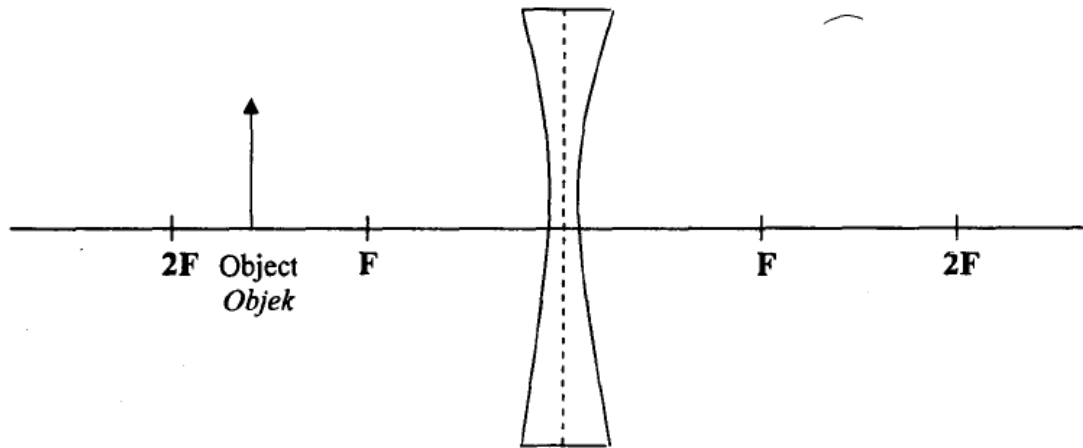
..... [1 mark]

- (ii) Name one characteristics of image formed by the plane mirror.
 Nyatakan satu imej bagi cermin satah.

..... [1 mark]

TRIAL PERLIS 2009

10. Diagram shows an experiment to study the formation of an image by a concave lens.
Rajah menunjukkan eksperimen untuk megkaji pembentukan imej oleh kanta cekung.

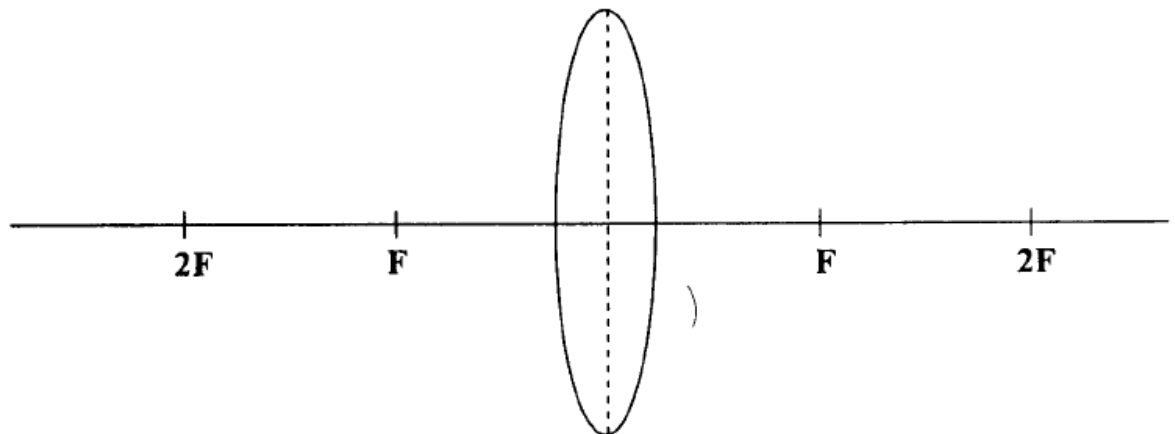


- (a) Complete Diagram to show the formation of the image by a concave lens.
Lengkapkan Rajah untuk menunjukkan pembentukan imej oleh kanta cekung. [2 marks]

- (b) Measure and write down the height of the image.
Ukur dan tuliskan tinggi imej itu.

..... cm [1 mark]

- (c) Concave lens in Diagram is replaced by convex lens in Diagram.
Kanta cekung pada Rajah digantikan dengan kanta cembung pada Rajah.

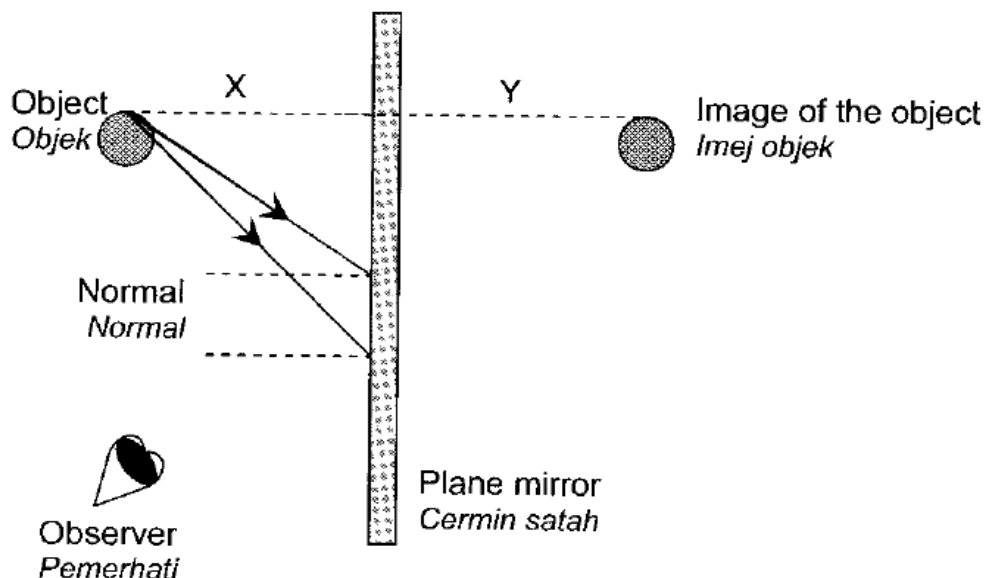


The student wants to get a virtual, upright and magjified image.
 Draw the position of the object and complete Diagram to show the formation of the image.
Seorang pelajar ingin mendapatkan imej yang mempunyai ciri maya, tegak dan lebih besar daripada objek. Lukiskan kedudukan objek dan lengkapkan Rajah untuk menunjukkan pembentukan imej [2 marks]

TRIAL SELANGOR 2009

11. Diagram shows a part of the light ray on a plane mirror.

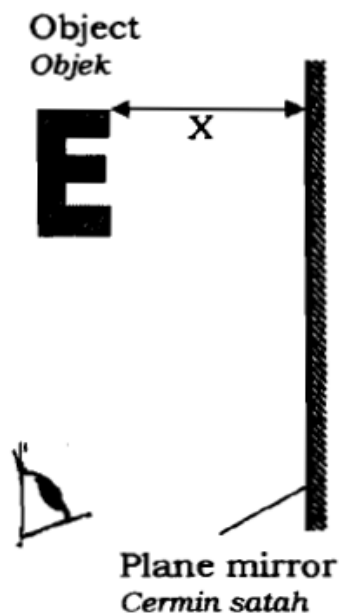
Rajah menunjukkan sebahagian daripada sinar cahaya pada cermin satah.



- (a) Complete Diagram by drawing the light ray reaching the observer's eye.
 Lengkapkan Rajah dengan melukis sinar cahaya yang sampai ke mata pemerhati. [2 marks]
- (b) What is the relationship between distances X and Y?
 Apakah hubungan antara jarak X dengan Y?
 [1 mark]
- (c) State two characteristics of the image formed.
 Nyatakan dua ciri imej yang terbentuk.
1.
 2. [2 marks]

12. Diagram shows an experiment to study the formation of an image by a plane mirror. An object is placed in front of the plane mirror.

Rajah menunjukkan satu eksperimen bagi mengkaji pembentukan imej pada cermin satah. Satu objek diletakkan di hadapan cermin satah.



- (a) Measure the distance of X.
Ukur jarak X.

..... cm

[1 mark]

- (b) Draw an image of the object E formed in Diagram.
Lukis imej bagi objek E yang terbentuk pada Rajah.

[2 marks]

- (c) State one characteristics of the image formed by the plane mirror.
Nyatakan satu ciri imej yang terbentuk oleh cermin satah

..... [1 mark]

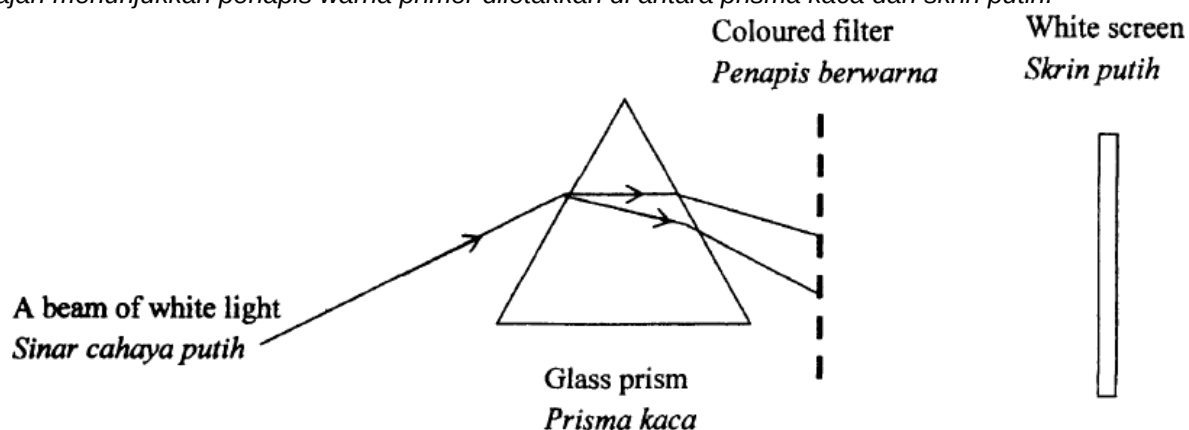
- (d) Diagram shows the image of a clock formed on a plane mirror.
Rajah menunjukkan imej jam yang terbentuk oleh satu cermin satah.



State the time shown by the clock.
Nyatakan masa yang ditunjukkan oleh jam.

..... [1 mark]

13. Diagram shows a primary coloured filter placed between a prism and white screen.
Rajah menunjukkan penapis warna primer diletakkan di antara prisma kaca dan skrin putih.

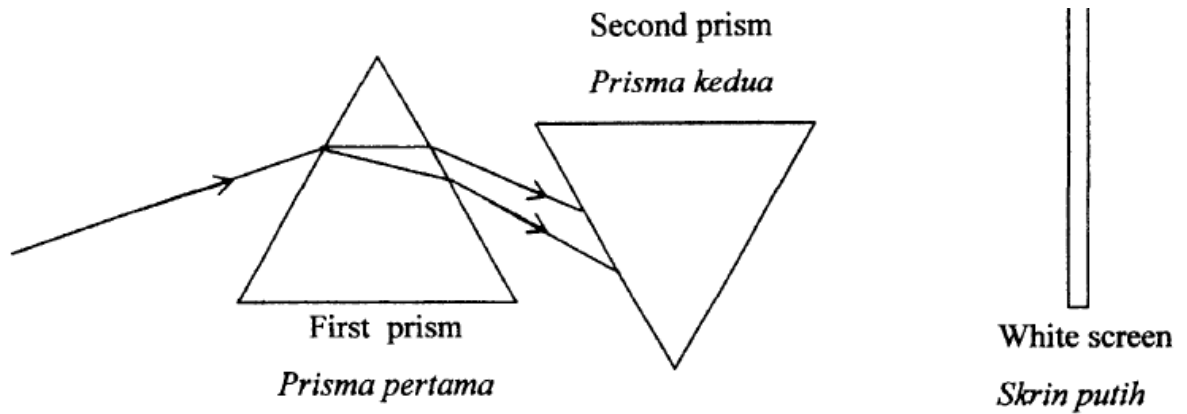


Result of the experiment ditunjukkan dalam Jadual.
Keputusan eksperimen ditunjukkan dalam Jadual.

Type of filter <i>Jenis penapis</i>	Green <i>Hijau</i>	Blue <i>Biru</i>	Red <i>Merah</i>
Colour of light formed on the screen <i>Cahaya berwarna terbentuk di atas skrin</i>	Green <i>Hijau</i>	Blue <i>Biru</i>	Red <i>Merah</i>

- (a) State one responding variables in this experiment.
Nyatakan satu pembolehubah yang bergerakbalas dalam eksperimen ini.
 [1 mark]
- (b) State a hypothesis in this experiment.
Nyatakan hipotesis bagi eksperimen ini.
 [1 mark]
- (c) State the operational definition for primary filter in this experiment.
Nyatakan definisi secara operasi bagi penapis primer dalam eksperimen ini.

 [1 mark]
- (d) Complete ray diagram in Diagram to show the light colour forms on the screen.
Lengkapkan rajah sinar dalam Rajah untuk menunjukkan warna cahaya yang terbentuk atas skrin. [1 mark]



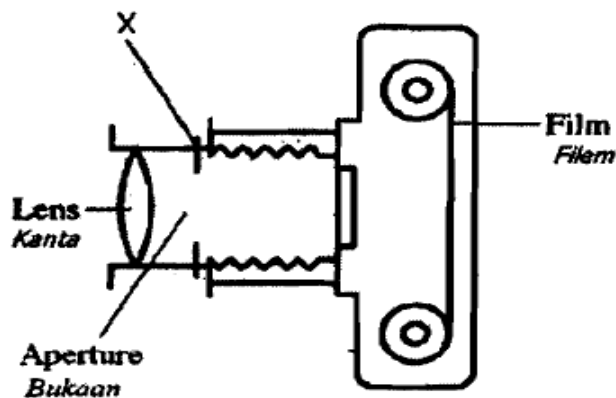
- (e) Predict the colour formed on the screen if the primary filter is replaced with yellow filter.
Ramalkan warna yang terbentuk di atas skrin jika penapis primer digantikan dengan penapis warna kuning.

..... [1 mark]

SECTION B

TRIAL KEDAH 2009

14. Diagram shows the structure of a camera.
Rajah menunjukkan struktur kamera.



- (a) (i) Name the part labelled X.
Namakan bahagian berlabel X.
- [1 mark]
- (ii) State the function of X?
Nyatakan fungsi bahagian X?
- [1 mark]
- (b) Name the part of human eye which has the same function as X.
Namakan bahagian pada mata manusia yang mempunyai fungsi yang sama dengan X.
- [1 mark]
- (c) What should be done to the lens when taking a photo of a distant object?
Apakah yang perlu dilakukan oleh kanta apabila mengambil gambar objek yang jauh?
- [1 mark]

- (d) State one characteristics of the image that formed on the film.
Nyatakan satu imej yang terbentuk pada filem.

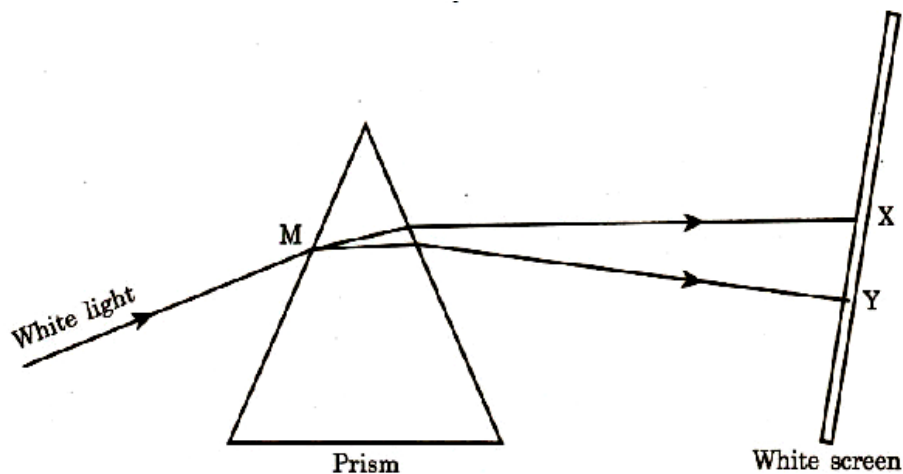
..... [1 mark]

- (e) Why are the internal parts of a camera painted black?
Mengapakah bahagian dalam sesebuah kamera dihitamkan?

..... [1 mark]

SPM 2004

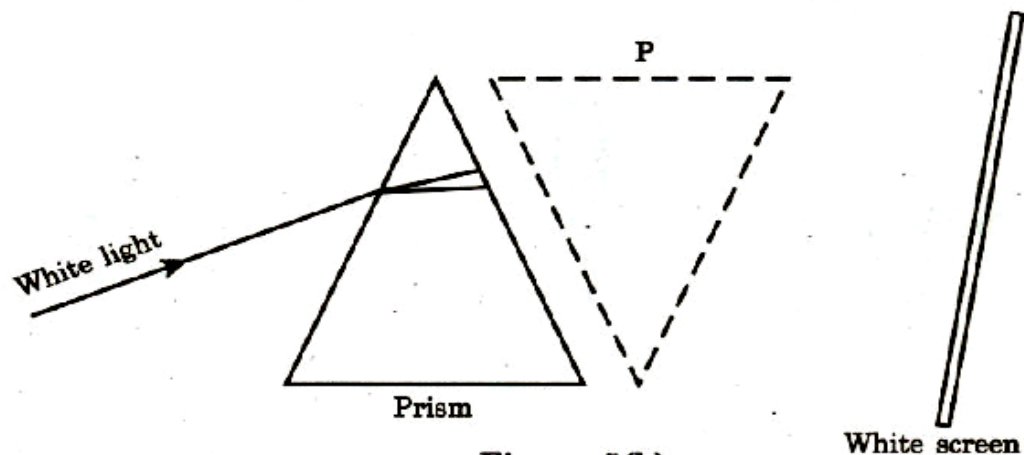
15. Figure shows an arrangement of apparatus to study the formation of a spectrum.
Rajah menunjukkan susunan radas untuk mengkaji pembentukan spektrum.



- (a) (i) What happens to the white light at M?
Apakah yang berlaku pada cahaya putih di M? [1 mark]
- (ii) Give a reason for your answer to (a) (i).
Nyatakan satu sebab bagi jawapan anda di (a) (i). [1 mark]
- (b) Fill in the boxes below to show the arrangement of the colours formed in the spectrum from X to Y.
Lengkapkan kotak-kotak di bawah untuk menunjukkan susunan warna yang terbentuk dalam spektrum dari X ke Y.

--	--	--	--	--	--	--

- (c) Name a natural phenomenon where a spectrum can be seen.
Namakan satu fenomena semula jadi di mana spektrum dapat dilihat [1 mark]
- (d) An identical prism is placed at P as shown in Figure.
Satu prisma yang serupa diletakkan pada kedudukan P seperti dalam Rajah .

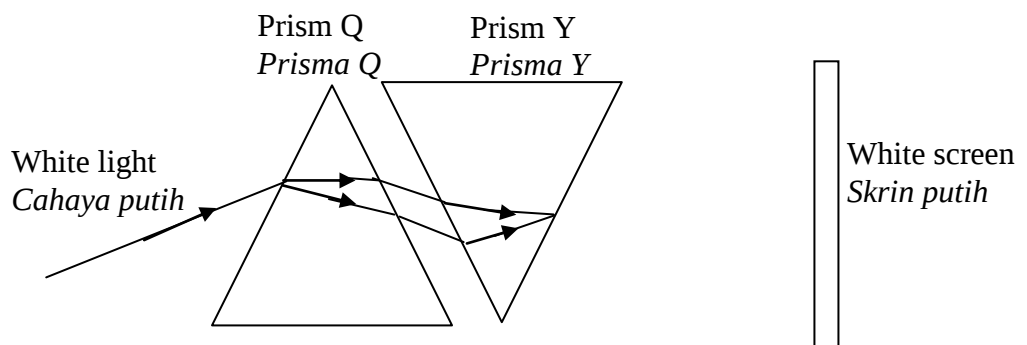


What can be observed on the white screen?
 Apakah yang dapat diperhatikan pada tabir putih?

[1 mark]

TRIAL JOHOR 2008

16. Diagram shows a white light passing through two glass prisms.
 Rajah menunjukkan satu cahaya putih melalui dua kaca prisma.



- (a) Draw a ray diagram formed on the screen.
 Lukiskan rajah cahaya yang terbentuk pada skrin.

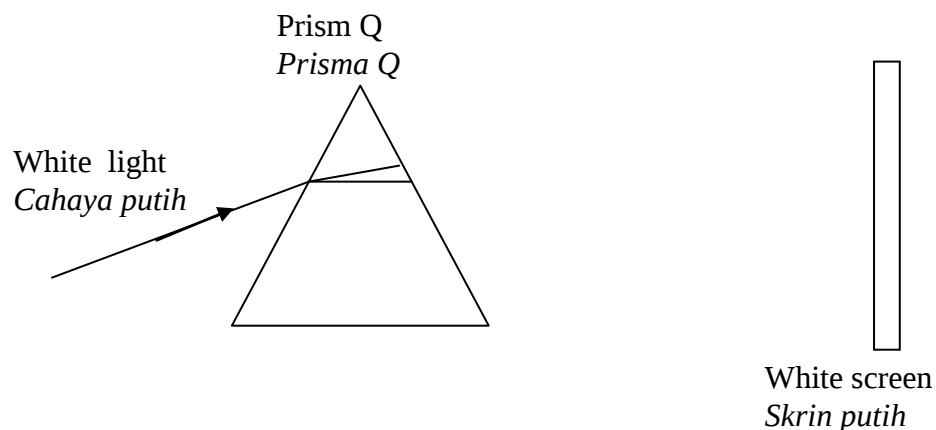
[1 mark]

- (b) State the colour observed on the screen .
 Nyatakan warna yang kelihatan pada skrin.

[1 mark]

- (c) Draw a ray diagram formed on the screen in Diagram, if prism Y is taken away.
 Lukiskan rajah cahaya yang terbentuk pada skrin dalam Rajah, jika prisma Y dikeluarkan

[1 mark]



- (d) State the arrangement of the colours formed on the screen based on your answer in (c) by using the boxes given below.
Nyatakan susunan warna yang terbentuk pada skrin berdasarkan jawapan anda di (c) dengan melengkapkan kotak-kotak di bawah.

Red <i>Merah</i>						Violet <i>Ungu</i>
---------------------	--	--	--	--	--	-----------------------

[2 marks]

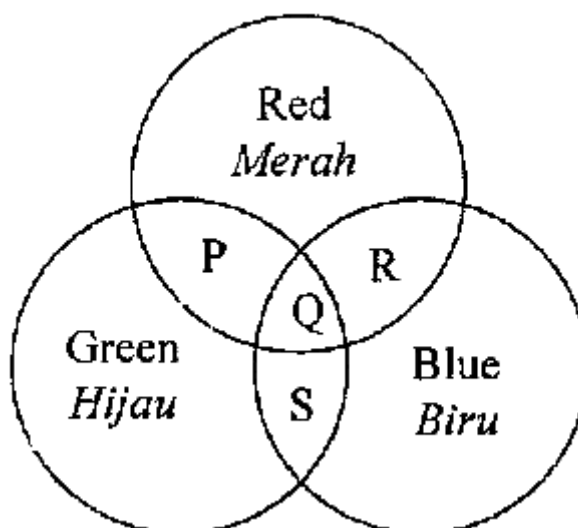
- (e) Name **one** natural phenomenon where a spectrum can be seen.
*Namakan **satu** fenomena semulajadi di mana spektrum dapat dilihat.*

..... [1 mark]

TRIAL PERAK 2008

17. Diagram shows overlapping coloured lights.

Rajah menunjukkan pertindihan cahaya berwarna.



- (a) State the colour formed on P, Q and R.
Nyatakan warna yang terbentuk pada P, Q dan R.

P :

Q :

R : [3 marks]

- (b) Why are red, blue and green known as primary colours?
Mengapakah warna merah, biru dan hijau dikenali sebagai warna primer?

..... [1 mark]

- (c) The complementary colours give white when added together.
Warna-warna pelengkap akan menghasilkan warna putih apabila dicampurkan.

State a pair of complementary colour.
Nyatakan satu pasangan warna pelengkap.

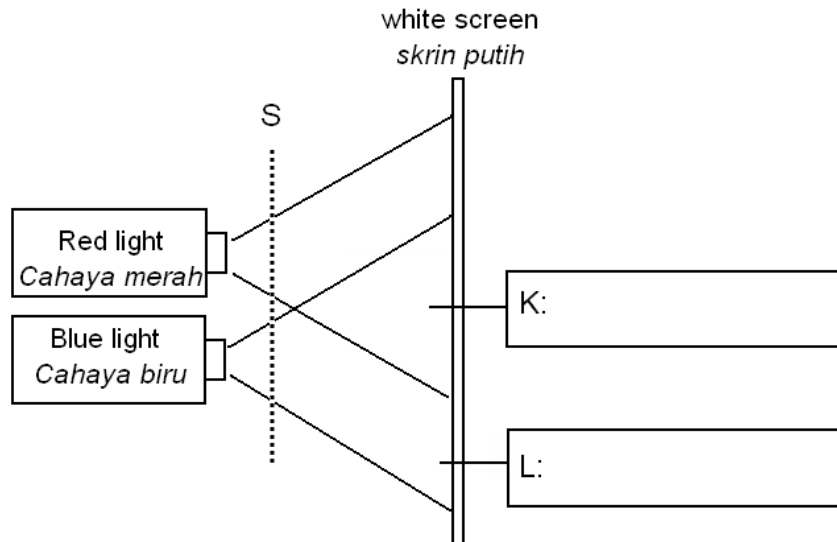
..... [1 mark]

- (d) State one importance of colour to living things.
 Nyatakan satu kepentingan warna pada benda-benda hidup.

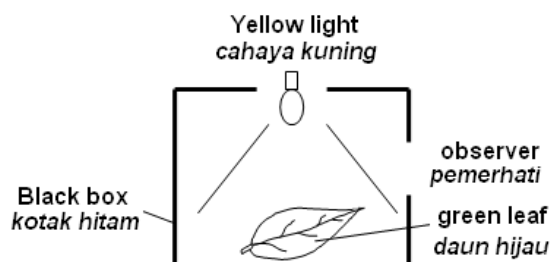
..... [1 mark]

TRIAL SABAH 2010

18. Diagram shows a red light and a blue light projected on a white screen.
 Rajah menunjukkan cahaya merah dan cahaya biru dipancarkan ke atas skrin putih.



- (a) Complete the colours of K and L in the boxes in Diagram.
 Lengkapkan warna-warna yang diperhatikan pada K dan L di dalam petak pada. [2 marks]
- (b) State the possible colour at L if a yellow filter is placed at S
 _____ [1 mark]
- (c) Diagram shows an experiment to study the appearance of coloured object under coloured lights.
 Rajah menunjukkan eksperimen untuk mengkaji penglihatan objek berwarna di bawah cahaya berwarna.



- (i) What is the colour of the leaf that is currently seen by the observer?
 Apakah warna daun yang dilihat oleh pemerhati?

_____ [1 mark]

- (ii) State the principle used in this experiment.
 Nyatakan prinsip yang digunakan dalam eksperimen ini.

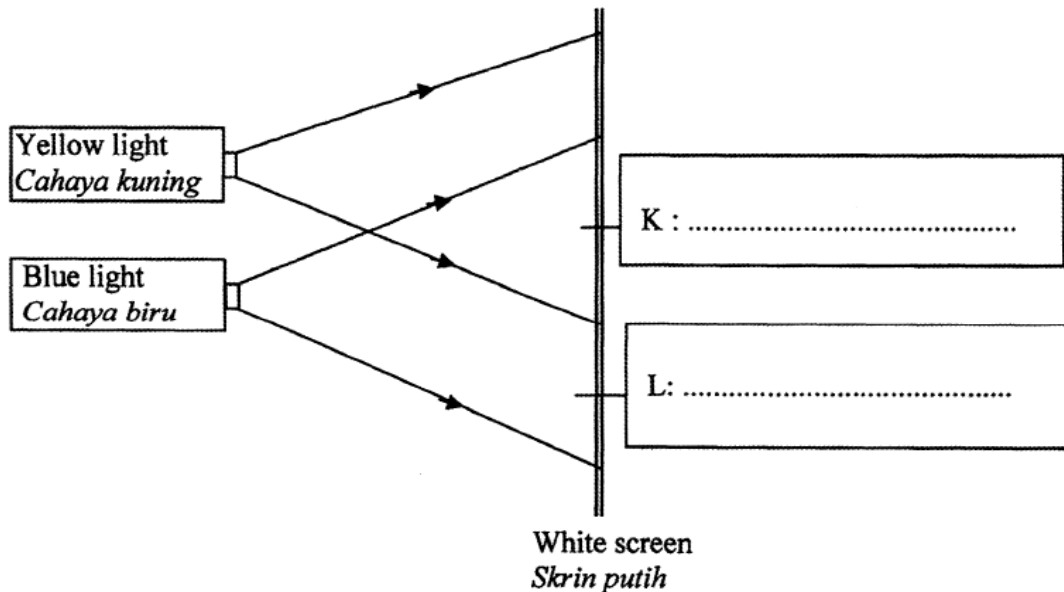
_____ [1 mark]

- (d) State one importance of colour in daily life.
 Nyatakan satu kepentingan warna dalam kehidupan harian

[1 mark]

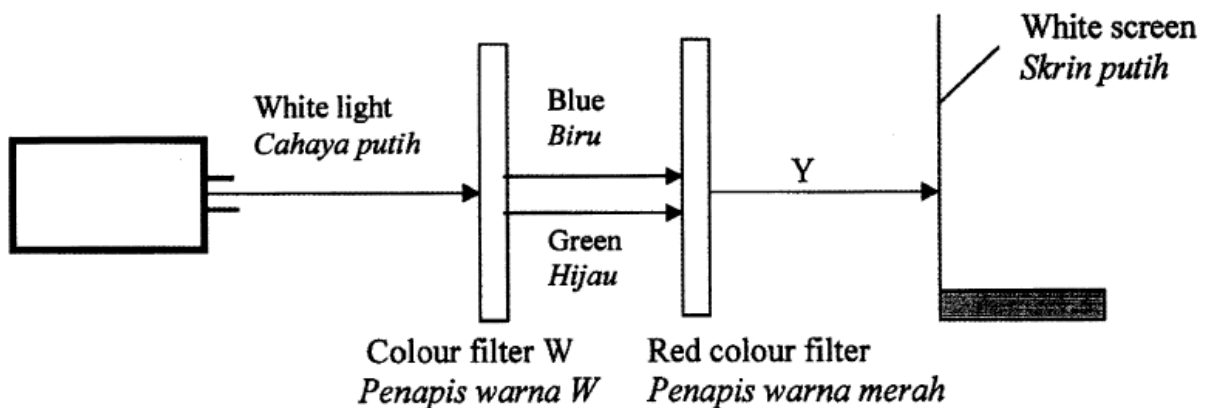
TRIAL TERENGGANU 2010

19. Diagram shows a yellow light and a blue light projected on a white screen.
 Rajah menunjukkan cahaya kuning dan cahaya biru dipancarkan ke skrin putih.



- (a) Complete the colours of K and L in the boxes in Diagram.
 Lengkapkan warna K dan L dalam kotak pada Rajah. [2 marks]
- (b) Based on Diagram, state one primary colour and one secondary colour.
 Berdasarkan Rajah, nyatakan satu warna primer dan satu warna sekunder.
- (i) Primary colour
 Warna primer : [1 mark]
- (ii) Secondary colour
 Warna sekunder : [1 mark]

Diagram shows the white light ray that is projected onto two two colour filters.
 Rajah menunjukkan sinar cahaya putih dipancarkan ke atas dua penapis warna.



(c) What is colour of filter W and light Y in Diagram?

Apakah warna penapis W dan warna cahaya Y pada Rajah?

(i) Filter W

Penapis W :..... [1 mark]

(ii) Colour of light Y

Cahaya warna Y :..... [1 mark]

SECTION C

SPM 2005

20. Study the following statement.

Kaji pernyataan berikut:

When white light is shone on a primary coloured filter, a certain coloured light passes through.

Apabila cahaya putih dipancarkan pada penapis warna primer, cahaya warna tertentu akan melalunya.

(a) Suggest a hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

[1 mark]

(b) Using a red filter, a blue filter, a green filter and other apparatus, describe an experiment to test your hypothesis in (a) based on the following criteria;

Dengan menggunakan penapis merah, penapis biru dan radas lain, terangkan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

TRIAL PERLIS 2008

21. Study the following statement:

Kaji pernyataan berikut:

The addition of any two primary coloured lights produces a secondary colour.
Penambahan mana-mana dua cahaya warna primer akan membentuk cahaya warna sekunder

You are given a red filter, green filter, blue filter and other apparatus.

Anda di beri penapis merah, penapis hijau, penapis biru dan radas lain

(a) Suggest a hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

[1 mark]

(b) describe an experiment to test your hypothesis in (a) based on the following criteria;

Huraikan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

TRIAL JOHOR 2009

22. Study the following statement:

Kaji pernyataan berikut:

Convex lenses with different thicknesses have different focal lengths.
Kanta cembung dengan berbeza ketebalan mempunyai panjang fokus yang berbeza

You are given thick convex lens, thin convex lens, white screen and a distant source of light.
Anda diberi kanta cembung yang tebal, kanta cembung yang nipis, skrin putih dan sumber cahaya jarak jauh.

(a) Suggest a hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

[1 mark]

(b) describe an experiment to test your hypothesis in (a) based on the following criteria;

Huraikan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

23. Study the following statement:

Kaji pernyataan berikut:

When a convex lens is used to form image of an object, the image distance varies with the object distance.

Apabila kanta cembung digunakan untuk membentuk imej bagi suatu objek, didapati jarak imej berbeza dengan jarak objek.

You are given a convex lens and a white screen.

Anda diberi kanta cembung dan skrin putih.

(a) Suggest a hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

[1 mark]

(b) describe an experiment to test your hypothesis in (a) based on the following criteria;

Huraikan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

24. Study the following statement;
Kaji pernyataan berikut:

When white light is shone on a primary coloured filter, a certain light passes through
Apabila cahaya putih dipancarkan ke atas penapis warna primer, terdapat cahaya tertentu melaluinya.

Using a red filter, a blue filter, a green filter and other apparatus, describe an experiment.
Dengan menggunakan penapis warna merah, penapis warna biru, penapis warna hijau dan radas-radas lain, huraikan satu eksperimen.

(a) Suggest a hypothesis to investigate the above statement. [1 mark]
Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

(b) describe an experiment to test your hypothesis in (a) based on the following criteria;
Huraikan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

25. Study the following statement:

Kaji pernyataan berikut:

Size of image formed by a pin hole camera depends on the distance of the object
Saiz imej yang terbentuk oleh kamera lubang jarum bergantung kepada jarak objek

Using a pin hole camera, candle, match and other apparatus, describe an experiment.
Dengan menggunakan kamera lubang jarum, lilin, mancis dan radas-radas lain, huraikan satu eksperimen.

(a) Suggest a hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

[1 mark]

(b) describe an experiment to test your hypothesis in (a) based on the following criteria;

Huraikan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

CHAPTER 8: CHEMICALS IN INDUSTRY

PAPER 1

8.1

PROPERTIES OF ALLOYS AND THEIR USES

SPM 2003

1. Aminah realised that her gold ring can be easily bent. How can she harden it?
Aminah mendapati cincin emasnya mudah bengkok. Apakah cara untuk menjadikan cincin emasnya bertambah keras?
- | | |
|---|--|
| A. Add more gold to it
<i>Menambah lebih banyak emas</i> | C. knock it to its original shape
<i>Diketuk semula ke bentuk asal</i> |
| B. Melt and remould it
<i>dileburkan dan diacukan semula</i> | D. Melt it and add other elements to it
<i>Dilebur dan ditambahkan unsur lain</i> |

SPM 2004

2. Which of the following are uses of an alloy?
Antara berikut yang manakah kegunaan aloi?
- | | |
|---|--------------------|
| I to make ornaments
<i>Membuat barang perhiasan</i> | |
| II to produce superconductors
<i>Menghasilkan superkonduktor</i> | |
| III to build the bodies of aircraft
<i>Membina badan pesawat terbang</i> | |
| A. I and II only | C. II and III only |
| B. I and III only | D. I, II and III |

SPM 2004

3. Which of the following processes increase the hardness of a metal?
Antara proses berikut yang manakah dapat menambahkan kekerasan logam?
- | | |
|-------------------------------------|--|
| A. Purification
<i>Penulenan</i> | C. Plating
<i>Penyaduran</i> |
| B. Alloying
<i>Pengaloiian</i> | D. Polymerization
<i>Pempolimeran</i> |

SPM 2006

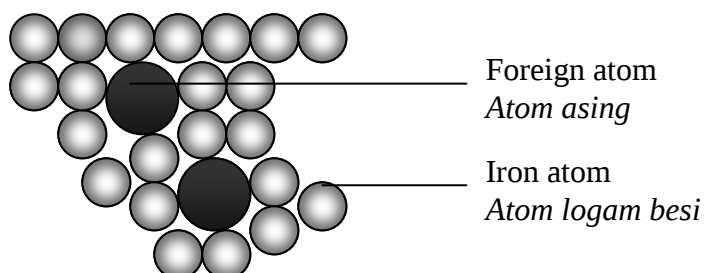
4. What is the main metal used in the formation of pewter?
Apakah logam utama yang digunakan dalam pembentukan piuter.
- | | |
|---------------------------|--------------------------------|
| A. Iron
<i>Besi</i> | C. Tin
<i>Timah</i> |
| B. Nickel
<i>Nikel</i> | D. Antimony
<i>Antimoni</i> |

SPM 2007

5. A student wants to build a model of an aeroplane which is light and strong. Which of the following substances is the most suitable to be used?
Seorang murid ingin membina model kapal terbang yang ringan dan kuat. Antara bahan berikut, yang manakah paling sesuai digunakan?
- | | |
|---------------------------|----------------------------------|
| A. Iron
<i>Besi</i> | C. Copper
<i>Kuprum</i> |
| B. Steel
<i>Keluli</i> | D. Duralumin
<i>Duralumin</i> |

TRIAL JOHOR 2008

6. Diagram shows the arrangement of alloy structure.
Rajah menunjukkan susunan struktur aloi.



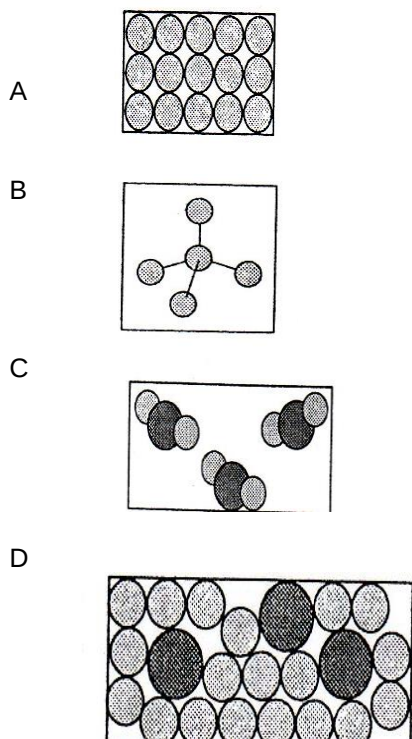
What is the characteristic of the alloy?

Apakah ciri aloi itu?

- A does not rust easily
tidak mudah berkarat
- B does not conduct electricity
tidak mengkonduksikan arus elektrik
- C has a dull surface
mempunyai permukaan yang pudar
- D has lower melting and boiling points
mempunyai takat lebur dan takat didih yang lebih rendah.

TRIAL JOHOR 2008

7. Which diagram shows the arrangement of particles in an alloy ?
Gambar rajah manakah menunjukkan susunan zarah dalam aloi ?



TRIAL PERAK 2008

8. Which of the following is not an alloy?

Manakah antara berikut bukan aloi?

- | | |
|--------------------|---------------------------|
| A. Brass
Loyang | C. Copper
Kuprum |
| B. Steel
Keluli | D. Duralumin
Duralumin |

TRIAL PERAK 2008

9. Which of the following statement is true for a superconductor?

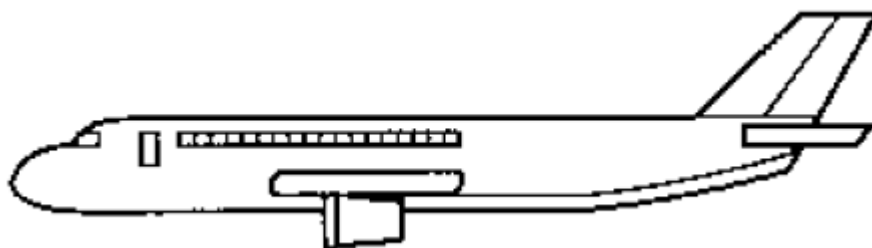
Kenyataan yang manakah betul bagi superkonduktor?

- A. Substance which is a good conductor of heat.
Bahan yang merupakan konduktor haba yang baik.
- B. Substance with zero resistance at high temperature
Substance with zero resistance at high temperature
- C. Substance which allows current to flow efficiently
Bahan yang membenarkan arus mengalir dengan sempurna
- D. Substance with an electrical resistance that is directly proportional to temperature
Bahan dengan rintangan elektrik berkadar songsang dengan suhu.

TRIAL PERLIS 2008

10. Diagram shows a model of an aeroplane.

Rajah menunjukkan sebuah model kapal terbang.



Which of the following substance is used to build a body of an aeroplane?

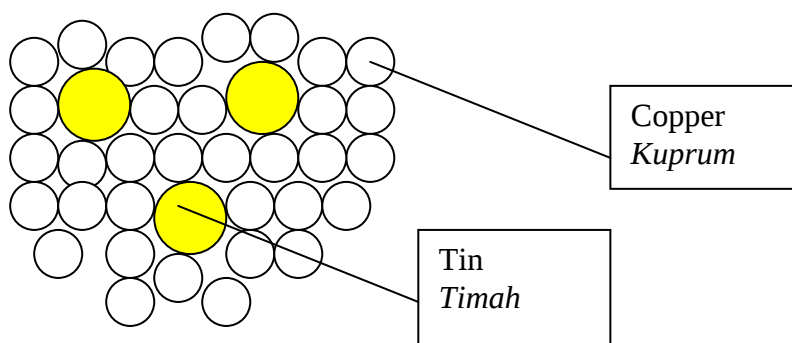
Manakah antara bahan berikut digunakan untuk membina badan kapal terbang?

- | | |
|--------------------|---------------------------|
| A. Iron
Besi | C. Copper
Kuprum |
| B. Steel
Keluli | D. Duralumin
Duralumin |

TRIAL SABAH 2008

11. Diagram shows a type of alloy.

Rajah menunjukkan sejenis aloi.



Which of the following represents this alloy?

Antara berikut yang manakah mewakili aloi tersebut?

- | | |
|-----------------------------|-----------------------------------|
| A. Brass.
<i>Loyang</i> | C. Bronze.
<i>Gangsa</i> |
| B. Pewter.
<i>Piuter</i> | D. Duralumin.
<i>Duralumin</i> |

TRIAL SABAH 2008

12. Which of the following alloys is suitable for making bridges?

Antara berikut yang manakah sesuai untuk membina jambatan?

- | | |
|-----------------------------|-----------------------------------|
| A. Steel
<i>Keluli</i> | C. Bronze.
<i>Gangsa</i> |
| B. Pewter.
<i>Piuter</i> | D. Duralumin.
<i>Duralumin</i> |

TRIAL SABAH 2008

13. How can a sheet of soft pure iron be made stronger and harder?

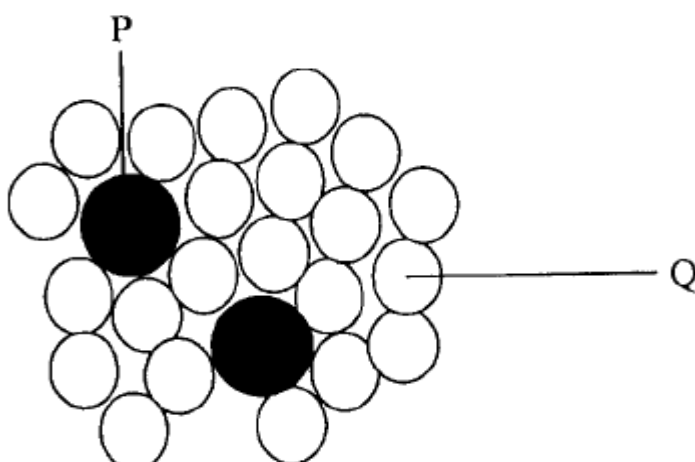
Bagaimanakah sekeping besi tulen yang lembut dapat dijadikan lebih kuat dan lebih keras?

- | |
|--|
| A. By adding acid
<i>Dengan menambah asid</i> |
| B. By knocking it hard
<i>Dengan mengetuknya secara kuat</i> |
| C. By adding more pure iron
<i>Dengan menambah lebih banyak besi tulen</i> |
| D. By melting it and adding some carbon
<i>Dengan meleburkannya dan menambah sedikit karbon</i> |

TRIAL KELANTAN 2009

14. Diagram shows the atoms structure of bronze.

Rajah menunjukkan susunan atom bagi gangsa.



What is atom P and Q?

Apakah atom P dan Q?

- | | <u>P</u> | <u>Q</u> |
|---|-------------------------|-------------------------|
| A | Copper
<i>Kuprum</i> | Zinc
<i>Zink</i> |
| B | Copper
<i>Kuprum</i> | Nickel
<i>Nikel</i> |
| C | Tin
<i>Timah</i> | Copper
<i>Kuprum</i> |
| D | Copper
<i>Kuprum</i> | Iron
<i>Besi</i> |

TRIAL PERLIS 2009

15. What is the main metal used in the formation of duralumin?

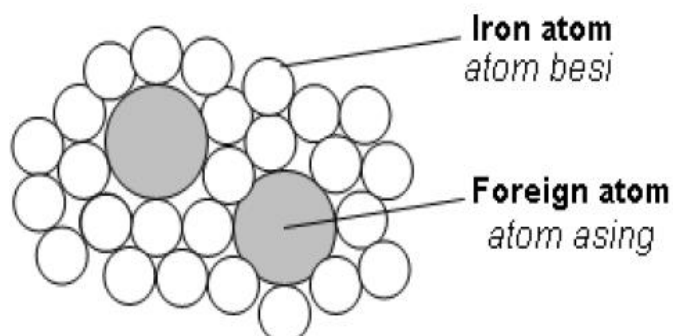
Apakah logam utama yang digunakan dalam pembentukan duralumin?

- | | |
|------------------------|----------------------------------|
| A. Iron
<i>Besi</i> | C. Copper
<i>Kuprum</i> |
| B. Tin
<i>Timah</i> | D. Aluminium
<i>Aluminium</i> |

TRIAL SABAH 2009

16. Diagram shows the particles arrangement of steel.

Rajah menunjukkan susunan zarah bagi keluli.



What is the effect of the presence of foreign atoms in steel?

Apakah kesan kehadiran atom asing di dalam keluli?

- | |
|--|
| A. To prevent the iron atoms from sliding
<i>Untuk menghalang atom-atom besi daripada menelongsor</i> |
| B. To increase the electrical conductivity of the iron
<i>Untuk meningkatkan kekonduksiaan elektrik bagi besi</i> |
| C. To increase the empty spaces between the iron atoms
<i>Untuk meningkatkan ruang kosong antara atom-atom besi</i> |
| D. To decrease the magnetic properties of iron atoms
<i>Untuk mengurangkan sifat magnet bagi atom-atom besi</i> |

TRIAL SABAH 2010

17. Which of the following are the composition of brass?

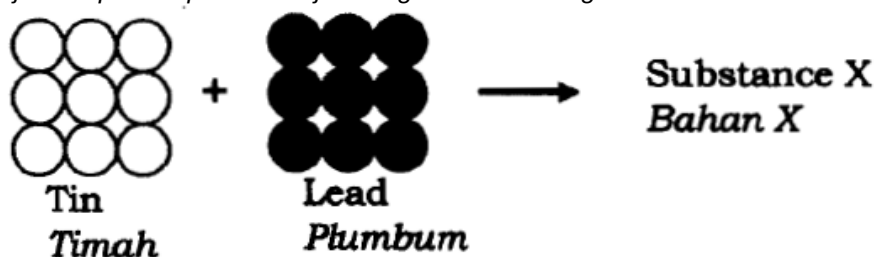
Manakah antara yang berikut merupakan komposisi loyang?

- | | |
|--|--|
| A. Iron and carbon
<i>Besi dan karbon</i> | C. Tin and antimony
<i>Tin dan antimoni</i> |
| B. Copper and zinc
<i>Kuprum dan zink</i> | D. Aluminium and copper
<i>Aluminium dan kuprum</i> |

TRIAL KEDAH 2010

18. Diagram shows the mixing of two metals to form a substance X.

Rajah menunjukkan percampuran dua jenis logam untuk menghasilkan bahan X.



Name the substance X

Namakan bahan X.

- | | |
|-----------------------------|-----------------------------|
| A. Steel
<i>Keluli</i> | C. Bronze.
<i>Gangsa</i> |
| B. Pewter.
<i>Piuter</i> | D. Brass
<i>Loyang</i> |

TRIAL TERENGGANU 2010

19. Which of the following pairs of alloy and its elements is corectly matched?

Antara pasangan aloi dan unsurnya yang manakah dipadankan dengan betul?

	Alloy <i>Aloi</i>	Elements <i>Unsur</i>
A	Brass <i>Loyang</i>	Copper + Tin <i>Kuprum + Timah</i>
B	Steel <i>Keluli</i>	Iron + Carbon <i>Besi + Karbon</i>
C	Pewter <i>Piuter</i>	Tin + Zinc <i>Timah + Zink</i>
D	Duralumin <i>Duralumin</i>	Aluminium + Magnesium <i>Aluminium + Magnesium</i>

TRIAL KELANTAN 2010

20. What are the properties of an alloy is suitable for making aircraft body?

Apakah ciri-ciri aloi yang sesuai untuk membuat badan kapal terbang?

- | | |
|---|--|
| A. Shiny and soft
<i>Berkilat dan lembut</i> | C. Light and strong
<i>Ringan dan kuat</i> |
| B. Hard and heavy
<i>Keras dan berat</i> | D. Low in density and shiny
<i>Ketumpatan rendah dan berkilat</i> |

TRIAL KELANTAN 2010

21. The information below is decribing an alloy X.

Maklumat di bawah menerangkan sejenis aloi X.

Does not easily rust <i>Tidak mudah berkarat</i>
Durable and hard <i>Tahan lasak dan kuat</i>
Contains 75 % copper and 25 % tin <i>Mengandungi 75% kuprum dan 25 % timah</i>

Which of the following is made by alloy X?

Antara berikut yang manakah diperbuat dari aloi X?

- | | |
|--------------------------|---------------------------------------|
| A. Cars
<i>Kereta</i> | C. Coins
<i>Duit syiling</i> |
| B. Boats
<i>Bot</i> | D. Aeroplanes
<i>Kapal terbang</i> |

SPM 2003

22. The information shows the industrial products produced from substance X
Maklumat menunjukkan hasil industri dari bahan X.

- | | |
|---------------|----------------------|
| • Fertilizer | <i>baja</i> |
| • Nitric acid | <i>asid nitrik</i> |
| • Detergent | <i>bahan pencuci</i> |

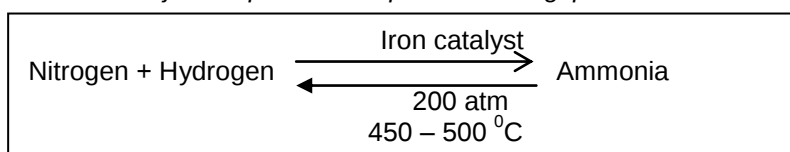
What is X?

Apakah X?

- | | |
|------------|-------------------|
| A. Sulphur | C. Ammonia |
| B. Ethanol | D. Sulphuric acid |

SPM 2004

23. The information shows a word equation of the Haber process.
Maklumat menunjukkan persamaan perkataan bagi proses Haber

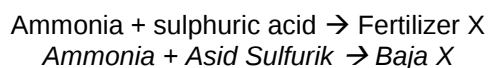


What happens when the temperature is decreased to 200 °C?
Apakah yang berlaku apabila suhu diturunkan pada 200°C?

- | | | |
|-----|--|--------------------|
| I | less ammonia is produced
<i>Sedikit ammonia terhasil</i> | |
| II | the reaction becomes slow
<i>Tindakbalas menjadi perlahan</i> | |
| III | solid ammonia is produced
<i>Pepejal ammonia terhasil</i> | |
| A. | I and II only | C. II and III only |
| B. | I and III only | D. I, II and III |

SPM 2005

24. The word equation below shows the reaction to produce a type of fertilizer.
Persamaan perkataan di bawah menunjukkan tindakbalas untuk menghasilkan sejenis baja.



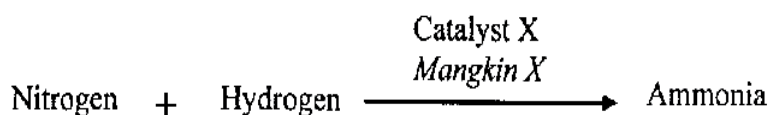
Fertilizer X is

Baja X

- | | |
|----------------------|-----------------------|
| A. Ammonium nitrate | C. Ammonium chloride |
| B. Ammonium sulphate | D. Ammonium carbonate |

TRIAL PERAK 2008

25. The equation below represents the preparation of ammonia in industry.
Persamaan di bawah mewakili persediaan ammonia dalam industri.

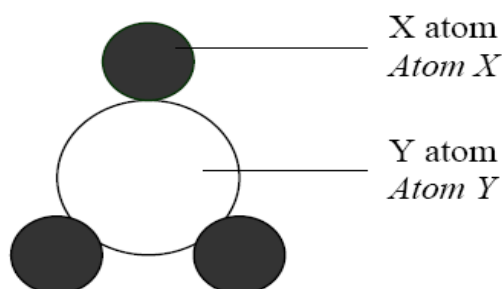


What is catalyst X?
Apakah mungkin X?

- | | |
|---------------------------|---------------------------|
| A. Iron
Besi | C. Aluminium
Aluminium |
| B. Magnesium
Magnesium | D. Zinc
Zink |

TRIAL PERLIS 2008

26. Diagram shows a molecule of ammonia.
Rajah menunjukkan molekul ammonia.



Which of the following pairs represent atom X and atom Y?
Manakah antara pasangan berikut mewakili atom X dan atom Y?

	Atom X Atom X	Atom Y Atom Y
A	Hydrogen Hidrogen	Oxygen Oksigen
B	Nitrogen Nitrogen	Hydrogen Hidrogen
C	Hydrogen Hidrogen	Nitrogen Nitrogen
D	Nitrogen Nitrogen	Oxygen Oksigen

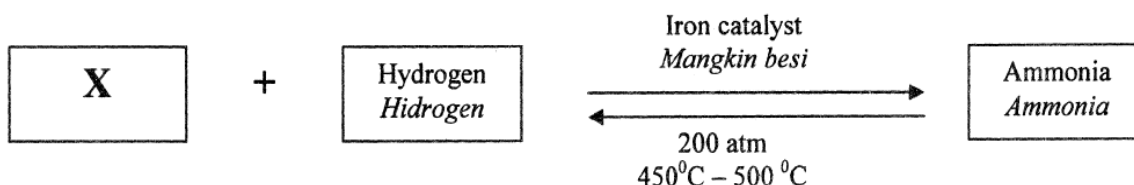
TRIAL SABAH 2008

27. Acid is needed to be mixed with ammonia solution to prepare ammonium fertilizers.
Which of the following acids is used to prepare ammonium phosphate fertilizers?
Asid perlu ditambah kepada larutan ammonia dalam penyediaan baja ammonia.
Manakah antara asid berikut digunakan di dalam penyediaan baja ammonium fosfat?

- | | |
|------------------------------------|---------------------------------------|
| A. Nitric acid
Asid nitric | C. Phosphoric acid
Asid fosforik |
| B. Sulphuric acid
Asid sulfuric | D. Sodium phosphate
Natrium fosfat |

TRIAL TERENGGANU 2008

28. The diagram shows the word equation of the Haber process.
Rajah menunjukkan persamaan perkataan bagi proses Haber.



What is substance X?

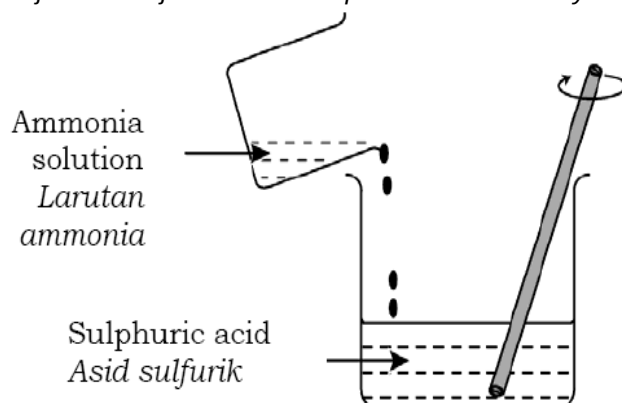
Apakah bahan X?

- | | |
|-------------------------|---|
| A. Lead
Plumbum | C. Carbon dioxide
Karbon dioksida |
| B. Nitrogen
Nitrogen | D. Chloflourocarbons
Kloroflourokarbon |

TRIAL KEDAH 2009

29. Diagram shows an experiment to prepare a nitrogenous fertilizer.

Rajah menunjukkan satu eksperimen untuk menyediakan baja bernitrogen.



Name the fertilizer.

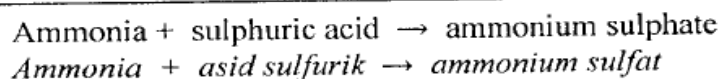
Namakan baja tersebut

- | | |
|----------------------|-----------------------|
| A. Ammonium nitrate | C. Ammonium chloride |
| B. Ammonium sulphate | D. Ammonium carbonate |

TRIAL KELANTAN 2009

30. The word equation shows the reaction to produce ammonium salt fertilizer.

Persamaan perkataan di bawah menunjukkan tindakbalas untuk menghasilkan sejenis baja ammonia.



What is the fertilizers produce if sulphuric acid is replaced by nitric acid?

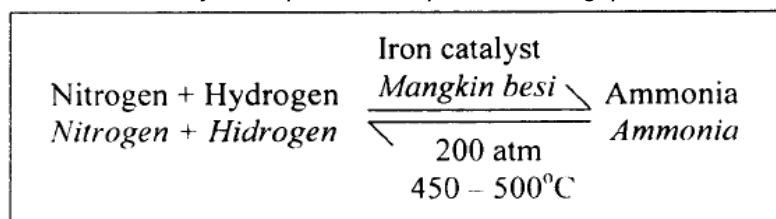
Apakah baja yang terhasil jika asid sulfurik digantikan dengan asid nitrik?

- | | |
|----------------------|-----------------------|
| A. Ammonium nitrate | C. Ammonium chloride |
| B. Ammonium sulphate | D. Ammonium carbonate |

TRIAL PERLIS 2009

31. The information shows a word equation of the Haber process.

Maklumat menunjukkan persamaan perkataan bagi proses Haber.



What happens hen the temperature is decreased to 200°C ?

Apakah yang berlaku apabila suhu diturunkan kepada 200°C ?

- | | |
|--|---|
| A. Less ammonia is produced
<i>Sedikit ammonia terhasil</i> | C. The reaction becomes active
<i>Tindakbalas menjadi cergas</i> |
| B. More ammonia is produced
<i>Banyak ammonia terhasil</i> | D. Solid ammonia is produced
<i>Pepejal ammonia terhasil</i> |

8.3

EFFECTS OF INDUSTRIAL WASTE DISPOSAL

SPM 2007

32. Which of the following is the effect of excessive disposal of organic waste?

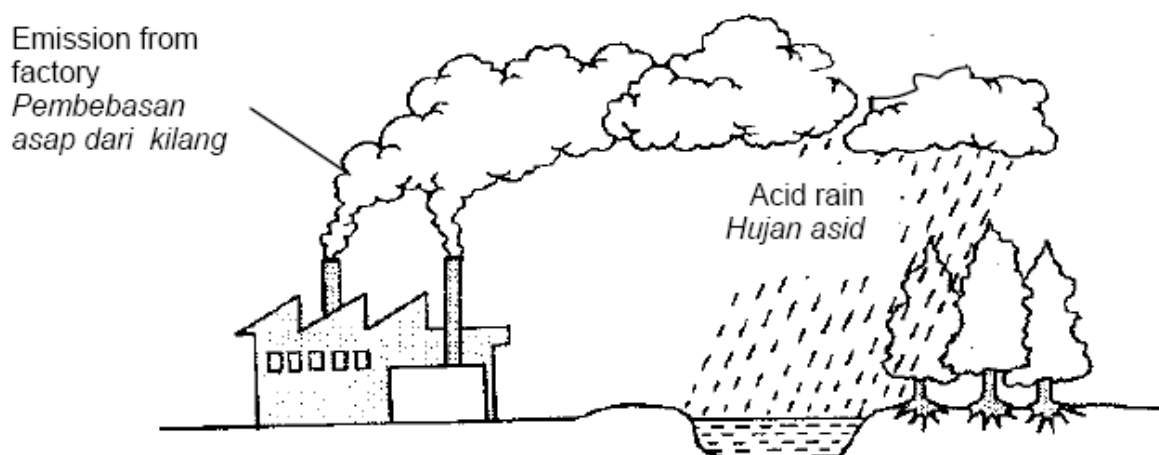
Antara yang berikut, manakah kesan pelupusan sisa organik yang berlebihan?

- | | |
|--|---|
| A. Acid rain
<i>Hujan asid</i> | C. Depletion of ozone layer
<i>Penipisan lapisan ozon</i> |
| B. Greenhouse effect
<i>Kesan rumah hijau</i> | D. Destruction of aquatic life
<i>Kemusnahan hidupan akuatik</i> |

TRIAL PERLIS 2008

33. Diagram shows how acid rain can be produced.

Rajah menunjukkan bagaimana hujan asid terhasil.



Which of the following gasses causes the acid rain?

Antara gas berikut, yang manakah menyebabkan hujan asid?

- | | |
|--|--|
| A. Carbon dioxide
<i>Karbon dioksida</i> | C. Carbon monoxide
<i>Karbon monoksida</i> |
| B. Sulphur dioxide
<i>Sulfur dioksida</i> | D. Chlorofluorocarbon (CFCs)
<i>Klorofluorokarbon</i> |

TRIAL JOHOR 2009

34. A factory releases a poisonous gas, sulphur dioxide. What is the effect to the environment?

Sebuah kilang melepaskan sejenis gas beracun, sulfur dioksida. Apakah kesan gas ini terhadap alam sekitar.

- | | |
|---|---|
| A. Acid rain
<i>Hujan asid</i> | C. Sea water level rises
<i>Paras air laut meningkat</i> |
| B. Green house effect
<i>Kesan rumah hijau</i> | D. Thinning of the ozone layer
<i>Penipisan lapisan ozon</i> |

TRIAL KEDAH 2009

35. Which gas is released when fossil fuels are burnt?

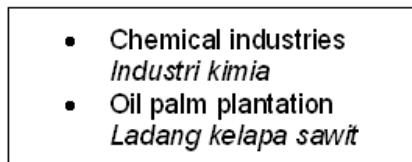
Gas yang manakah dibebaskan apabila bahan api fosil dibakar?

- | | |
|---|--------------------------------|
| A. Carbon dioxide
<i>Karbon dioksida</i> | C. Hydrogen
<i>Hidrogen</i> |
| B. Oxygen
<i>Oksigen</i> | D. Nitrogen
<i>Nitrogen</i> |

TRIAL SABAH 2010

36. Diagram shows activities carried out by humans near a river.

Rajah menunjukkan aktiviti yang dilakukan oleh manusia berhampiran sebatang sungai.



What type of pollution mainly occurs in that area?

Apakah jenis pencemaran yang lazimnya berlaku di kawasan tersebut?

- | | |
|---|---|
| A. Air pollution
<i>Pencemaran udara</i> | C. Water pollution
<i>Pencemaran air</i> |
| B. Heat pollution
<i>Pencemaran haba</i> | D. Sound pollution
<i>Pencemaran bunyi</i> |

TRIAL TERENGGANU 2010

37. Which of the following is not an effect of burning fossil fuel to the environment?

Yang manakah di antara berikut bukan kesan pembakaran bahan api fosil ke atas alam sekitar?

- | | |
|---|---|
| A. Acid rain
<i>Hujan asid</i> | C. Global warming
<i>Pemanasan global</i> |
| B. Green house effect
<i>Kesan rumah hijau</i> | D. Thinning of the ozone layer
<i>Penipisan lapisan ozon</i> |

8.4

PRESERVATION AND CONSERVATION OF THE ENVIRONMENT**SPM 2004**

38. The surrounding area of a factory is polluted when the factory

Kawasan persekitaran kilang tercemar apabila kilang itu

- | |
|---|
| A. Uses air conditioning
<i>Menggunakan pendingin hawa</i> |
| B. Uses a low smoke chimney
<i>Menggunakan cerebong asap yang rendah</i> |
| C. Uses electricity to operate
<i>Menggunakan tenaga elektrik untuk beroperasi</i> |
| D. Burns waste materials in an enclosed incinerator
<i>Membakar bahan buangan dalam insinerator tertutup</i> |

SPM 2006

39. Choose the correct match between industrial wastes and the method of controlling them.

Pilih padanan yang betul tentang bahan sisa industri dan cara pengawalannya.

	Industrial wastes <i>Bahan sisa industri</i>	Methods of controlling <i>Cara pengawalannya</i>
A	Radioactive wastes <i>Sisa radioaktif</i>	Recycle <i>Kitar semula</i>
B	Toxic wastes <i>Bahan sisa toksik</i>	Flow out to the river <i>Alirkan ke sungai</i>
C	Oil palm wastes <i>Sisa kelapa sawit</i>	Open burning <i>Bakar secara terbuka</i>
D	Soot and dust	Electrostatic precipitator

TRIAL KELANTAN 2009

40. Table shows the number of motor vehicles, factories, open burning activities and bronchitis patients in town Y from years 2001 to 2003.

Jadual menunjukkan bilangan kenderaan bermotor, kilang, aktiviti pembakaran terbuka dan pesakit di Bandar Y dari tahun 2001 hingga 2003.

Year	2001	2002	2003
Number of motor vehicles (thousands) <i>Bilangan kenderaan bermotor(ribu)</i>	87	98	117
Number of factories <i>Bilangan kilang</i>	25	41	57
Number of open burning activities <i>Bilangan aktiviti pembakaran terbuka</i>	20	34	46
Number of bronchitis patients <i>Bilangan pesakit bronkitis</i>	75	115	193

Which method can reduce the number of bronchitis patients?

Kaedah yang manakah boleh mengutangkan bilangan pesakit bronkitis?

- A. Increase the number of factories
Meningkatkan bilangan kilang
- B. Quarantine the bronchitis patients
Kuarantinkan pesakit bronkitis
- C. Practise the open burning activities
Mengamalkan aktiviti pembakaran terbuka
- D. Decrease the number of motor vehicles
Mengurangkan bilangan kenderaan bermotor.

TRIAL KEDAH 2010

41. Which of the following is the method to control oil palm solid waste?

Manakah antara berikut merupakan kaedah untuk mengawal sisa pepejal kelapa sawit?

- A. Store in lead container
Simpan dalam bekas plumbum
- B. Process into animal food
Proses untuk dijadikan makanan haiwan
- C. Buried deep under the earth
Tanam jauh ke dalam bumi
- D. Decompose into non toxic substances
Uraikan kepada bahan yang tidak beracun

SECTION A

SPM 2005

1. Figure 1.1 shows an experiment to study the pressure produced by metal blocks, P and Q of the same mass.

Rajah 1.1 menunjukkan eksperimen untuk mengkaji tekanan yang dihasilkan oleh bongkah logam P dan bongkah logam Q yang sama jisimnya.

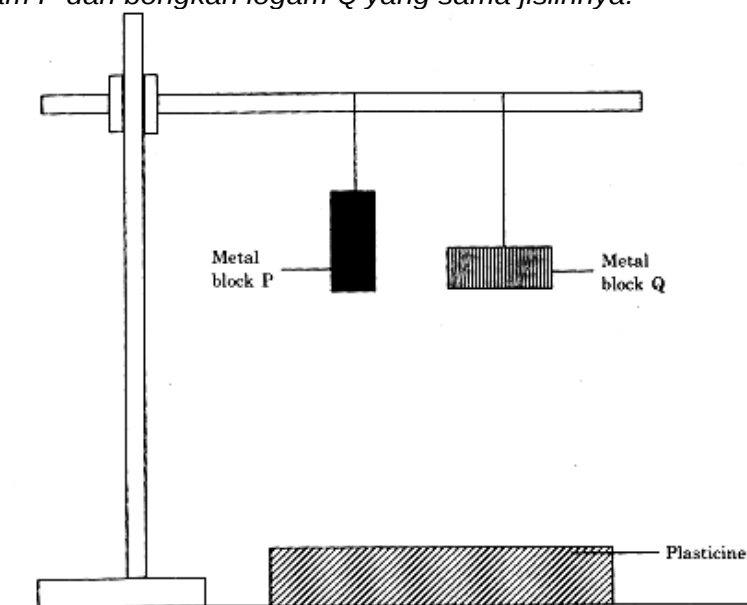


Figure 1.1

Figure 1.2 shows the effect on the plasticine when metal blocks, P and Q were dropped.

Rajah 1.2 menunjukkan kesan ke atas plastisin apabila bongkah logam P dan bongkah logam Q dijatuhkan.

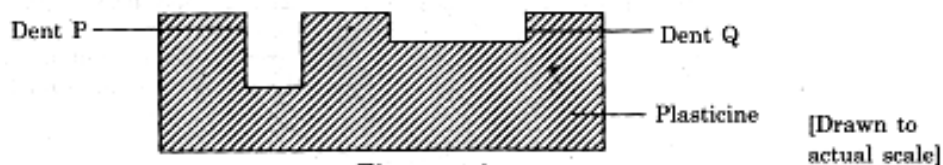


Figure 1.2

- (a) What is the controlled variable in this experiment?
Apakah pemboleh ubah yang dimalarkan dalam eksperimen ini?

..... [1 mark]

- (b) Write down **one** observation from the result of this experiment.
*Tuliskan **satu** pemerhatian bagi hasil eksperimen ini.*

.....
..... [1 mark]

- (c) State **one** inference that can be made based on the observation in Figure 1.2.
*Nyatakan **satu** inferens yang boleh dibuat berdasarkan pemerhatian pada Rajah 1.2.*

.....
..... [1 mark]

- (d) Based on Figure 1.2, measure and record the depth of dent P.
Berdasarkan Rajah 1.2, ukur dan catatkan ke dalaman lekukan P.

..... cm [1 mark]

- (e) Metal block R in Figure 1.3 has the same mass as metal blocks, P and Q.
Bongkah logam R dalam Rajah 1.3 mempunyai jisim yang sama dengan bongkah logam P dan bongkah logam Q.

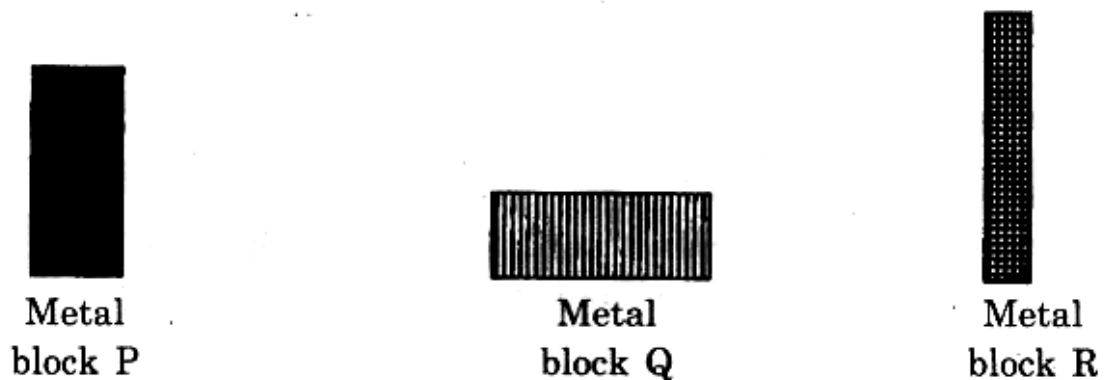


Figure 1.3

Predict the depth of dent produced on the plasticine when metal block R is dropped from the same height.
Ramalkan kedalaman lekukan yang terhasil pada plastisin apabila bongkah logam R dijatuhkan pada ketinggian yang sama.

..... [1 mark]

TRIAL TERENGGANU 2008

2. Diagram shows an experiment to study the hardness of alloy compared to pure metal.
Rajah menunjukkan satu eksperimen untuk mengkaji kekerasan aloi berbanding dengan logam tulen.

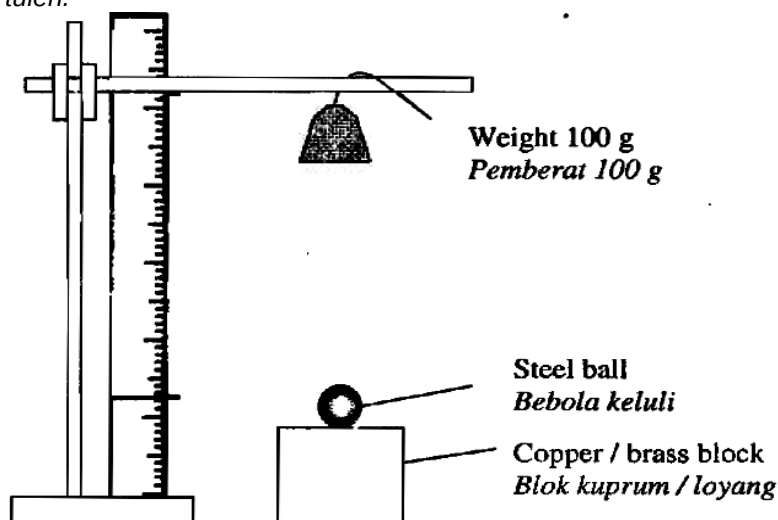
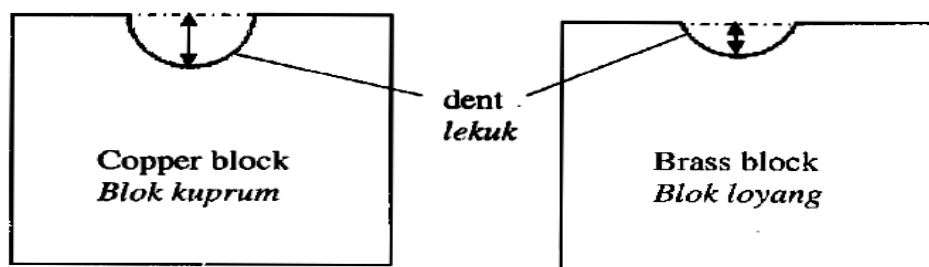


Diagram shows the effect on the copper and brass block.
Rajah menunjukkan kesan ke atas blok kuprum dan loyang.



- (a) What is the controlled variable in this experiment?
Apakah pembolehubah yang dimalarkan dalam eksperimen ini?
 [1 mark]
- (b) Write down one observation based on Diagram.
Tuliskan satu pemerhatian berdasarkan Rajah.
 [1 mark]
- (c) State one inference based on the observation in (b).
Nyatakan satu inferens berdasarkan pemerhatian di (b)
 [1 mark]
- (d) State the operational definition of brass.
Nyatakan definisi secara operasi bagi loyang.

 [1 mark]

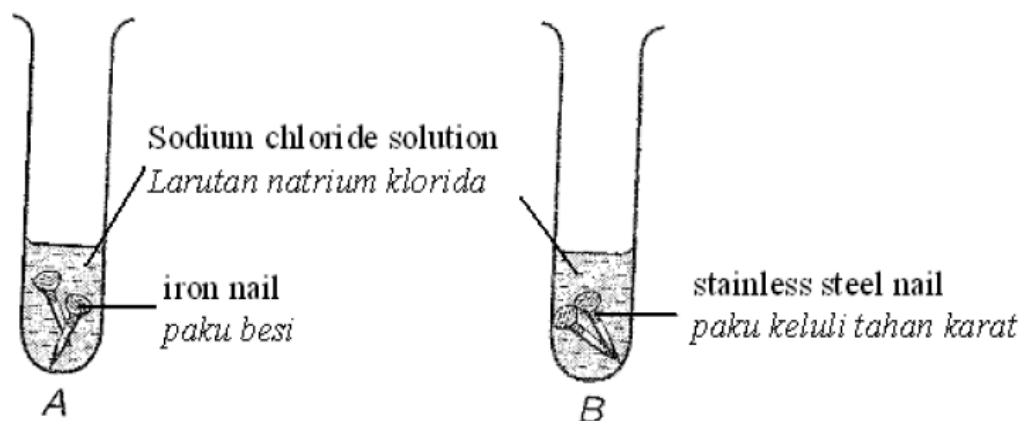
- (e) Predict the dent of copper block if weight 200g is used in this experiment.
Ramalkan lekuk pada logam kuprum jika pemberat 200g digunakan dalam eksperimen ini.

..... [1 mark]

TRIAL SABAH 2009

3. Diagram shows an experiment to study the resistance of iron nail and stainless steel nail (an alloy) to corrosion.

Rajah menunjukkan satu eksperimen untuk mengkaji rintangan paku besi dan paku keluli tahan karat (suatu aloi) ke atas kakisan.



Both test tubes with their contents are left for three days and the results of the experiment are shown in Table.

Kedua-dua tabung uji dan kandungannya dibiarkan selama tiga hari dan keputusan eksperimen ditunjukkan dalam Jadual.

Type of nail <i>Jenis paku</i>	Observation <i>Pemerhatian</i>
Iron nail <i>Paku besi</i>	
Stainless steel nail <i>Paku keluli tahan karat</i>	

- (a) Complete Table with the following information:

Lengkapkan Jadual dengan maklumat berikut:

Rust <i>Berkarat</i>	No rust <i>Tidak berkarat</i>
-------------------------	----------------------------------

[1 mark]

- (b) State one inference to explain the observation made in Table.

Nyatakan satu inferens untuk menjelaskan pemerhatian yang dilihat dalam Jadual

.....

..... [1 mark]

- (c) State the operational definition of an alloy.

Nyatakan definisi secara operasi bagi aloi.

.....

..... [1 mark]

(d) Tick (✓) the objects that rust in sodium chloride solution.

Tandakan (✓) objek yang akan berkarat dalam larutan natrium klorida.

[1 mark]

			
Iron scissors	Steel hammer	Steel lock	Iron key

(e) What can be observed when the test tube containing iron nail is left for four weeks?

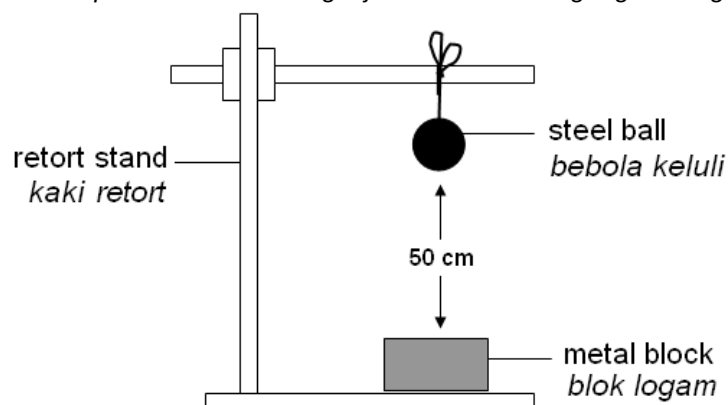
Apakah yang akan diperhatikan apabila tabung uji yang mengandungi paku besi dibiarkan selama empat minggu?

..... [1 mark]

TRIAL SABAH 2010

4. Diagram shows an experiment to study the hardness of bronze block and copper block.

Rajah menunjukkan eksperimen untuk mengkaji kekerasan blok gangsa dengan blok kuprum.



Steel ball is dropped at the of height of 50 cm on bronze block and copper block.

Table 2 shows the result of this experiment.

Bola keluli dijatuhkan pada ketinggian 50 cm ke atas blok gangsa dan blok kuprum.

Jadual 2 menunjukkan keputusan eksperimen.

Type of metal block <i>Jenis blok logam</i>	Depth of the dent (mm) <i>Kedalaman lekuk (mm)</i>
Copper block <i>Blok kuprum</i>	1.0
Bronze block <i>Blok gangsa</i>	0.5

(a) State the variables in this experiment.

Nyatakan pembolehubah dalam eksperimen ini.

(i) Responding variable:

Pembolehubah bergerakbalas: _____ [1 mark]

(ii) Constant variable:
Pembolehubah dimalarkan: _____ [1 mark]

(b) Write down **one** observation from the result of this experiment.
Tuliskan **satu** pemerhatian bagi hasil eksperimen ini.

_____ [1 mark]

(c) State the inference that can be made based on the observation in this experiment.
Nyatakan inferens yang boleh dibuat berdasarkan pemerhatian dalam eksperimen ini.

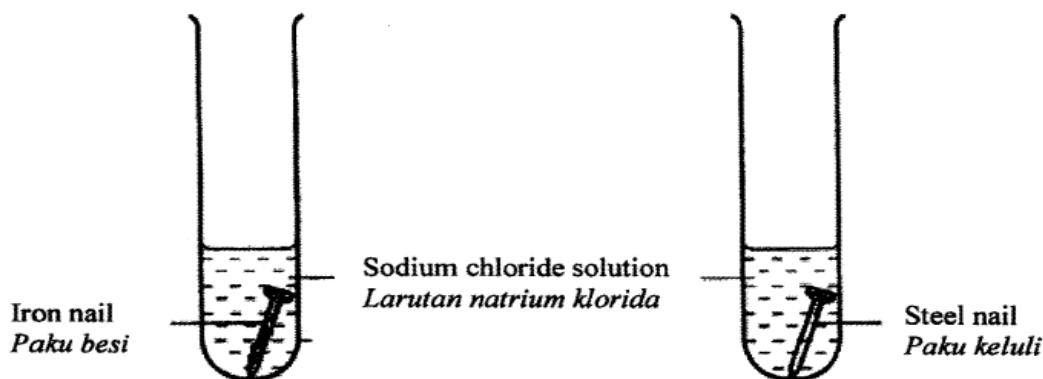
_____ [1 mark]

(d) Bronze is an example of an alloy. State the operational definition of an alloy.
Gangsa adalah contoh aloi. Nyatakan definisi secara operasi aloi.

_____ [1 mark]

TRIAL TERENGGANU 2010

5. Diagram shows an experiment to study the corrosive resistance of iron and steel nails.
Rajah menunjukkan eksperimen untuk mengkaji ketahanan kakisan bagi paku besi dan paku keluli.



The results of the experiment are recorded after two days in Table.
Keputusan eksperimen dicatat selepas dua hari dalam Jadual.

Type of nail <i>Jenis paku</i>	Condition of nail <i>Keadaan paku</i>
Iron nail <i>Paku besi</i>	Brown dust sticks onto the nail <i>Serbuk perang terbentuk pada paku</i>
Steel nail <i>Paku keluli</i>	No changes onto the nail <i>Tiada perubahan pada paku</i>

(a) State one inference from your observation on the iron nail.
Nyatakan satu inferens daripada pemerhatian anda pada paku besi

..... [1 mark]

(b) State the variables in this experiment.

Nyatakan pembolehubah dalam eksperimen ini.

(i) Manipulated variable:

Pembolehubah dimanupilasi: _____ [1 mark]

(ii) Constant variable:

Pembolehubah dimalarkan: _____ [1 mark]

(c) Mark (✓) the objects which have same characteristics as steel nail at Diagram.

Tandakan (✓) objek-objek yang mempunyai ciri yang sama seperti paku keluli pada Rajah.

		
Brass saxophone <i>Saksofon toyang</i>	Aluminium pot <i>Periuk aluminium</i>	Bronze medal <i>Pingat gangsa</i>

[1 mark]

(d) State the operational definition for iron nail.

Nyatakan definisi secara operasi bagi paku besi

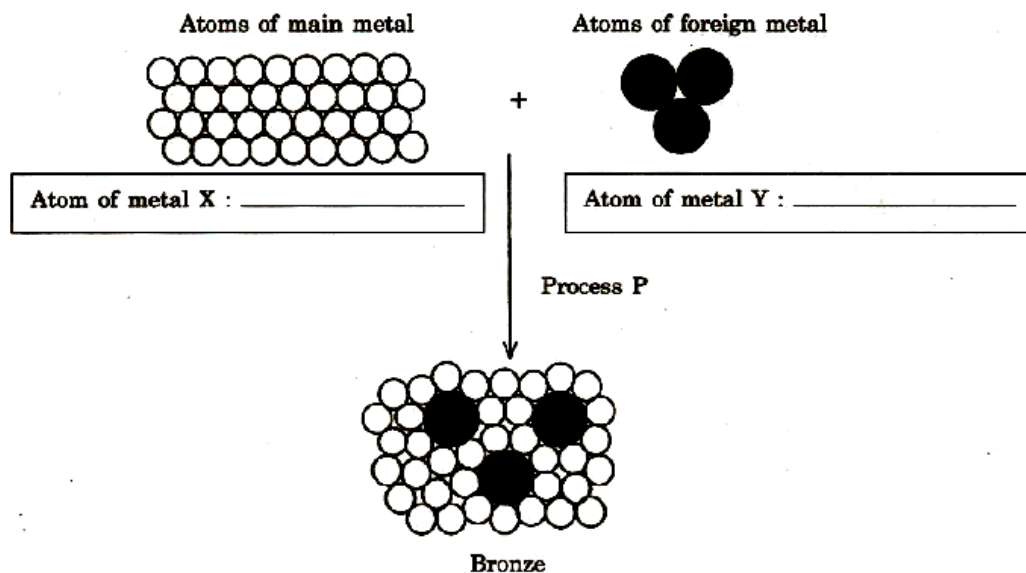
..... [1 mark]

SECTION B

SPM 2005

6. Figure shows the formation of bronze.

Rajah menunjukkan pembentukan gangsa



a) On figure, name the atoms of metals X and Y

Dalam Rajah, namakan atom bagi logam X dan Y

b) Name process P.

Namakan proses P

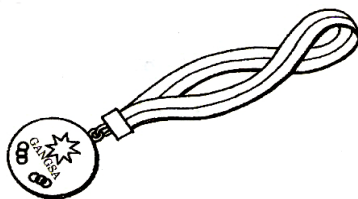
_____ [1 mark]

- c) (i) State one property of bronze
Nyatakan satu ciri bagi gangsa

_____ [1 mark]

- (ii) State the effect of the atoms of metal Y in bronze.
Nyatakan kesan atom logam Y dalam gangsa

_____ [1 mark]

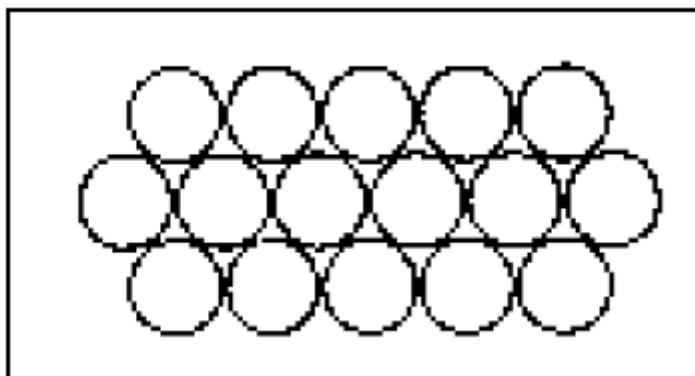


- d) The medal in Figure is made of bronze.
 Give one property of the metal if it is made of metal X only.
Pingat dalam Rajah diperbuat daripada gangsa.
Berikan satu ciri logam jika pingat tersebut diperbuat daripada logam X sahaja.

_____ [1 mark]

TRIAL PERLIS 2008

7. Diagram shows the atom arrangement of pure metal. The foreign atoms are added during alloying process.
Rajah menunjukkan susunan atom logam tulen. Atom asing ditambah semasa proses pengaloiian.



- (a) Draw the arrangement of atoms in an alloy.
Lukiskan susunan atom dalam suatu aloi.

[2 marks]



○ — Pure atom
Atom tulen

● — Foreign atom
Atom asing

- (b) State two reason for alloying.

Nyatakan dua tujuan pengaloiian.

.....
 [2 marks]

- (c) Give one example of alloy
 Berikan satu contoh aloi.

..... [1 mark]

- (d) In Table, tick (✓) the usage of alloys in daily life.

Dalam Jadual, tandakan (✓) kegunaan aloi dalam kehidupan harian.

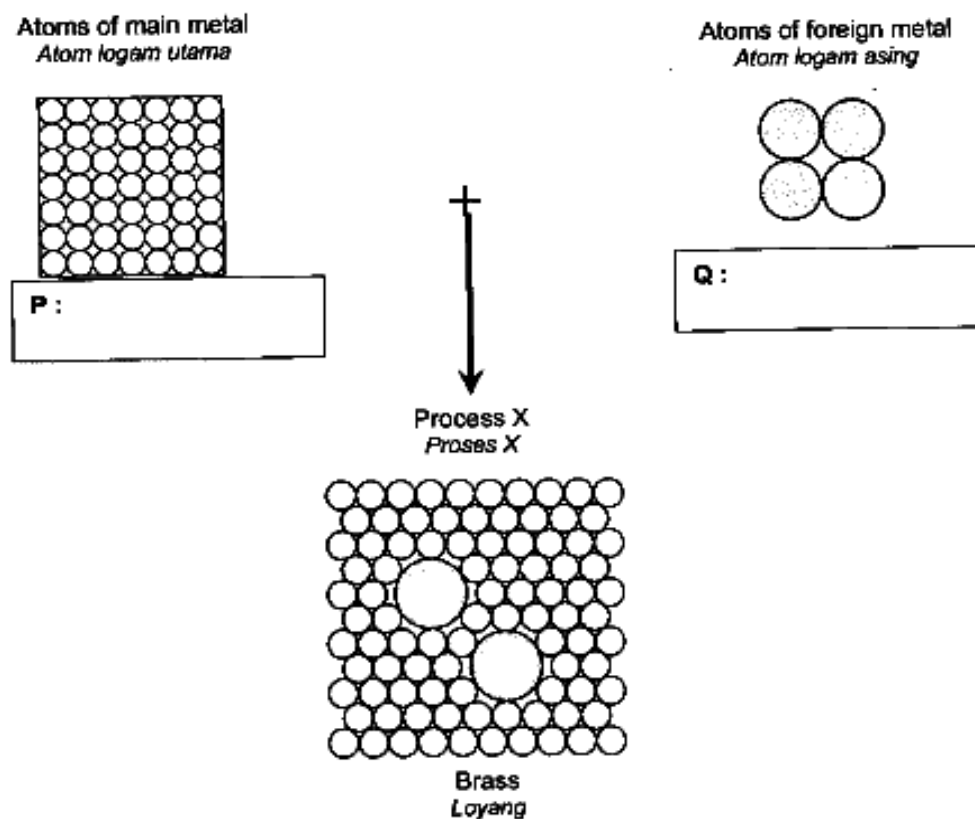
[1 mark]

Coins Syiling	Car batteries Bateri kereta	Medals Pingat	Electrical wires Wayar elektrik

TRIAL SELANGOR 2009

8. Figure shows the process of mixing two different metals to form brass.

Rajah menunjukkan proses pencampuran dua logam yang berbeza untuk membentuk loyang.



- a) On figure, name the atoms of metals P and Q
 Dalam Rajah, namakan atom bagi logam P dan Q

[2 marks]

- b) Name process X.
 Namakan proses X

_____ [1 mark]

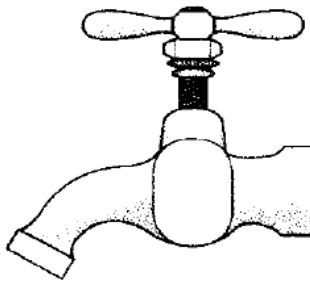
- c) (i) State one property of brass
Nyatakan satu ciri bagi loyang

_____ [1 mark]

- (ii) Explain how the foreign atoms of metal Q help brass to possess the property stated in (c) (i)
Terangkan bagaimana logam asing atom Q membantu loyang untuk memperolehi ciri yang dinyatakan di (c) (i)

_____ [1 mark]

- d) Diagram show a tap made of brass
Rajah menunjukkan kepala paip yang diperbuat daripada loyang.



Give one weakness of the tap if it is made of the main metal metal P only.
Berikan satu kelemahan jika kepala paip tersebut diperbuat daripada logam utama P sahaja.

_____ [1 mark]

SECTION C

SPM 2007

9. Study the following statement.

Kaji pernyataan di bawah.

An alloy is harder than its pure metals
Aloi lebih keras berbanding logam tulennya.

- a) Suggest one hypothesis to investigate the above statement.
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 mark]
- b) Brass is an alloy containing copper.
Using a copper block, brass block, steel ball and other apparatus, describe an experiment to test your hypothesis in 1(a) based on the following criteria.
Loyang ialah aloi yang mengandungi kuprum. Dengan menggunakan blok kuprum, blok loyang, bola keluli dan radas lain, huraikan satu eksperimen untuk menguji hipotesis anda di 1(a) berdasarkan kriteria berikut:
- i. Aim of the experiment
Tujuan eksperimen [1 mark]
- ii. Identification of the variables
Pengenalpastian pembolehubah [2 marks]
- iii. List of the apparatus and materials
Senarai radas dan bahan [1 mark]
- iv. Procedure or method
Prosedur atau kaedah [4 marks]
- v. Tabulation of data
Penjadualan data [1 mark]

SPM 2006

10. Study the following statement.

Kaji pernyataan berikut.

An alloy and a pure metal have a different corrosive resistance characteristic.

Aloi dan logam tulen mempunyai sifat tahan kakisan yang berbeza.

You are given an iron nail, a steel nail and sodium chloride solution.

Anda diberikan sebatang paku besi, sebatang paku keluli dan larutan natrium klorida.

(a) Suggest a hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk mengkaji pernyataan di atas.

[1 mark]

(b) describe an experiment to test your hypothesis in (a) based on the following criteria;

Huraikan satu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment [1 mark]
Tujuan eksperimen
- Identification of variables [2 marks]
Kenalpasti pembolehubah
- List of apparatus [1 mark]
Senarai radas
- Procedure [4 marks]
Prosedur
- Tabulation of data [1 mark]
Penjadualan data

SPM 2007

11. (a) Explain the effect of disposal of toxic substances from factories to the environment.
Terangkan kesan pembuangan bahan toksik daripada kilang terhadap alam sekitar. [4 marks]

(b) Most domestic waste such as paper is disposed by open burning. Open burning will cause air pollution. Explain methods to overcome this problem.
Kebanyakan bahan buangan domestik seperti kertas dilupuskan dengan cara pembakaran terbuka. Pembakaran terbuka akan menyebabkan pencemaran udara. Terangkan kaedah untuk mengatasi masalah ini.

Your explanation should include the following aspects.
Penerangan anda hendaklah mengandungi aspek-aspek berikut:

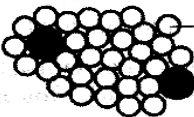
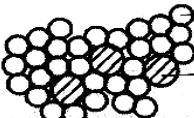
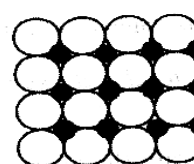
- Identify the problem
Kenalpasti masalah [1 mark]
- Explain two methods to solve the problem
Terangkan dua kaedah penyelesaian. [4 marks]
- Choose the best method and explain your choice.
Pilih kaedah terbaik dan jelaskan pilihan anda. [1 mark]

SPM 2009

12. (a) State **one** similarity and **three** differences between alloys and pure metals.
Nyatakan **satu** persamaan dan **tiga** perbezaan antara aloi dan logam tulen. [4 marks]

(b) Table shows the arrangement of atoms in three types of alloys which are bronze, brass and steel.

Jadual menunjukkan susunan atom bagi tiga jenis aloi iaitu gangsa, loyang dan keluli.

Type of alloy <i>Jenis aloi</i>	Arrangement of atoms <i>Susunan atom</i>
Bronze <i>Gangsa</i>	 Copper atom <i>Atom kuprum</i> Tin atom <i>Atom timah</i>
Brass <i>Loyang</i>	 Copper atom <i>Atom kuprum</i> Zinc atom <i>Atom zink</i>
Steel <i>Keluli</i>	 Iron atom <i>Atom besi</i> Carbon atom <i>Atom karbon</i>

Study the information in Table and construct the concept of alloy.

Your answer should be based on the following steps:

Kaji maklumat dalam Jadual dan bina konsep aloi.

Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- (i) Identify **two** common characteristics
Kenalpasti **dua** ciri sepunya. [2 marks]
- (ii) Give **one** other example of an alloy
Berikan **satu** contoh lain bagi aloi [1 mark]
- (iii) Give one example of a non alloy and the reason.
Beri satu contoh bukan aloi dan sebabnya. [2 marks]
- (iv) Relate the common characteristics to construct the concept of alloy.
Hubungkaitkan ciri sepunya untuk membina konsep aloi. [1 mark]

TRIAL PAHANG 2008

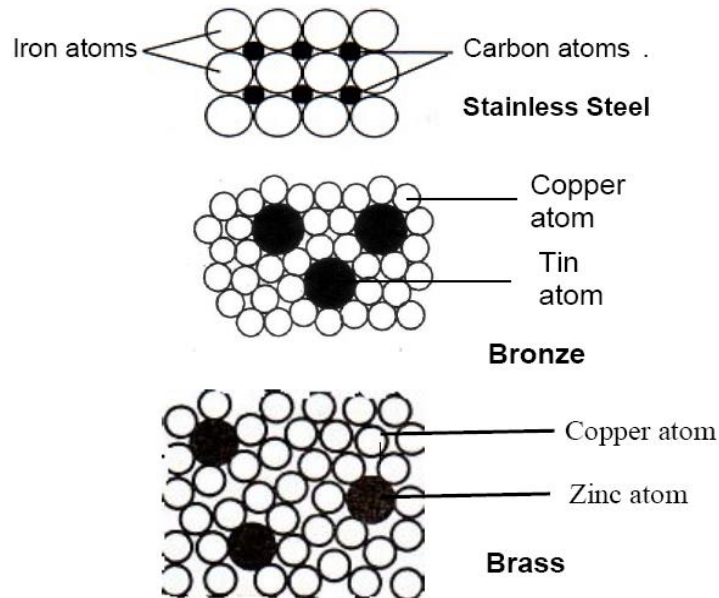
13. (a) Explain four uses of ammonia in everyday life.

Terangkan empat kegunaan ammonia dalam kehidupan harian.

[4 marks]

(b) Diagram shows the arrangement of atoms in several alloys.

Rajah menunjukkan susunan atom-atom dalam beberapa contoh aloi.



Study the information given in Diagram and construct the concept of alloy

Your answer should be based on the following steps:

Kaji maklumat dalam Rajah dan binakan konsep tentang aloi.

Jawapan anda hendaklah berdasarkan langkah-langkah berikut:

- Identify the information
Mengenalpasti maklumat [1 mark]
- Identify the common characteristics of the alloy
Mengenalpasti ciri sepunya aloi. [2 marks]
- State another example of alloy and a non example of alloy and give a reason.
Nyatakan satu contoh aloi dan satu bukan contoh aloi serta nyatakan sebab. [2 marks]
- State the actual concept of alloy.
Nyatakan konsep aloi [1 mark]

TRIAL PAHANG 2009

14. (a) Choose two examples of alloy. For each alloy, state the main element in it and its uses.
Pilih dua contoh aloi. Bagi setiap aloi, nyatakan unsur utama yang membinanya dan kegunaannya. [4 marks]

- (b) You are carpenter who makes furniture using hard wood. You are given three types of nail that is iron nail, copper nail and steel nail. You must choose the best nail to be use in your work.
Anda adalah seorang tukang kayu yang membuat perabut menggunakan kayu keras. Anda diberi tiga jenis paku iaitu paku besi, paku kuprum dan paku keluli. Anda mesti memilih paku yang terbaik untuk digunakan dalam kerja anda.

Explain your choice based on the following:
Terangkan jawapan anda berdasarkan perkara berikut:

- Aim of choice
Tujuan pemilihan [1 mark]
- Explain the hardness of each type of nail based on its atomic structure.
Terangkan tahap kekerasan setiap jenis paku berdasarkan struktur atomnya. [3 marks]
- List the type of nail according to its hardness
Senaraikan jenis paku mengikut tahap kekerasannya [1 mark]
- State the reason for your choice
Nyatakan sebab kepada pemilihan anda. [1 mark]

KELANTAN

15. (a) (i) State two differences of alloy and pure metal.
Nyatakan dua perbezaan antara aloi dan logam tulen.

(ii) Give one example of alloy and metal
Berikan satu contoh aloi dan logam.

[4 marks]

(b) You are given two types of metal as shown in the diagram.
Anda diberi dua jenis logam seperti ditunjukkan dalam Rajah.

BRONZE

IRON

STEEL

Choose most suitable metal for built of construction such as bridge and building.

Explain your choice based on the following aspects:

Pilih logam yang paling sesuai untuk pembinaan seperti jambatan dan bangunan.

Terangkan pilihan anda berdasarkan perkara-perkara berikut:

- Aim of the choice
Tujuan pemilihan
- Explanation on the advantages of each type of metal
Penerangan tentang kebaikan bagi setiap logam
- List the type of metal according to its priority
Senaraikan jenis logam mengikut keutamaan
- The reason for your choice
Berikan alasan bagi pilihan anda

[6 marks]

