

Item Num.	Scoring Criteria	Mark	
7(a)	Able to state tissue P and tissue Q <i>Answer:</i> Tissue P: Tissue phloem Tissue Q: Tissue xylem	1 1	2
7(b)	Able to explain how structure R acts to ensure tissue P function efficiently. <i>Suggested answers:</i> P1: Structure R/companion cells have mitochondria to supply ATP energy // to transport sucrose/organic matter from leaves through filter tubes by active transport.	1	1

Terima kasih kepada follower channel telegram @soalanpercubaanspm atas perkongsian ini.

7(c)	Able to explain the effect on tissue Q when the formation of tracheid is not complete. <i>Suggested answer:</i> P1: (If T / tracheid is not thickened with enough lignin) support / strength of tissue Q decrease P2: Xylem vessels ruptured P3: Transport of water decrease	1 1 1	3
7(d)	Able to explain how thick lignin increase the growth of country's economy. <i>Suggested answers:</i> P1: This tissue will form woody tissue P2: Woody tissues hard / strong / resistance / have annual ring P3: Can produce beautiful / attractive / expensive / high quality furniture P4: wood produce resin / oil / 'damar' P5: as substance in perfume / medicine	1 1 1 1 1	3
Total		9	

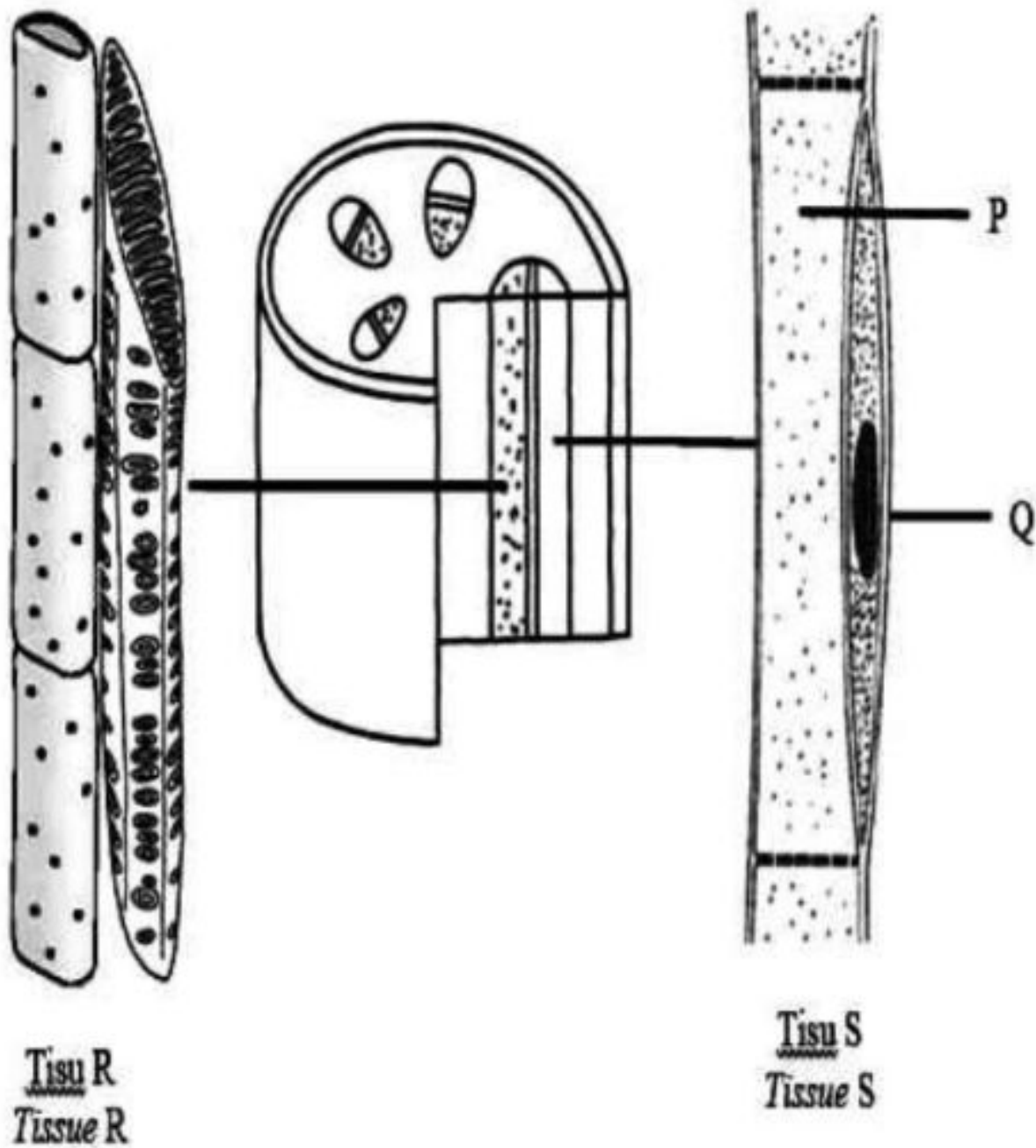
(c)	Dapat menjelaskan ciri penyesuaian struktur X dan struktur Y bagi membolehkan akar menjalankan fungsinya secara efisien. <i>Able to explain the characteristics of structure X and structure Y to enable the root to perform functions efficiently.</i> Jawapan: <i>Answer:</i> P1: Tisu xilem dan floem dikelilingi oleh tisu perisikel setebal satu sel <i>Xylem and phloem tissue surrounded by pericycle tissue that has one cell thick</i> P2: Memudah tisu xilem untuk mengangkut air dan garam mineral <i>Xylem tissue can transport water and minerals salt easily</i> P3: Tisu xilem dan floem disusun dalam corak yang berbentuk bintang <i>Xylem and phloem tissue are arranged like a star pattern</i> P4: Tisu floem mengangkut bahan organik/sukrosa <i>Phloem tissue transport organic substances/sucrose</i> Mana-mana tiga <i>Any three</i>		3
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(d)	Dapat menyatakan kesan kepada fungsi akar jika tiada rambut akar dengan betul. <i>Able to state the effect of root function if there are no root hairs correctly.</i> Jawapan: <i>Answer:</i> P1 : Luas permukaan pada akar tidak dapat ditingkatkan/berkurang <i>Surface area at the root cannot be increases/decreases</i> P2 : Pengangkutan air kurang efisien <i>Transport of water less efficient</i> Mana-mana satu markah <i>Any one point</i>	1 1	1
	JUMLAH <i>TOTAL</i>		7

No. Item	Kriteria Pemarkahan / Scoring Criteria	Markah Mark									
5(a)	Dapat menamakan struktur Q dan R. <i>Able to name structure Q and R</i> Jawapan/Answer: Q: Plat tapis / <i>Sieve plate</i> R: Sel rakan/ <i>Companion cell</i>	1 1	2								
5(b)	Dapat menyatakan kesan keupayaan air di dalam P apabila bahan dari daun diangkut melalui R <i>Able to state the effect of water potential in P when the substances transported through R.</i> Cadangan jawapan/ <i>Suggested answer:</i> Keupayaan air dalam P berkurang. <i>The water potential in P decrease.</i>	1	1								
5(c)	Dapat menerangkan bagaimana tumbuhan dalam Rajah 5.2 boleh digunakan untuk menangani isu pencemaran sumber air. <i>Able to explain how plant in Diagram 5.2 can be used to solve the issue of water sources pollution.</i> Cadangan jawapan/ <i>Suggested answer:</i> P1: Kaedah fitoremediasi. <i>Phytoremediation method.</i> P2: Mempunyai akar yang serabut (panjang). <i>Has fibrous root (long).</i> P3: Akar mengakumulasi / mengumpul / menyerap logam berat. <i>The root accumulates / absorbs heavy metal.</i> P4: Akar serap nutrien. <i>The root absorbs nutrients.</i>	1 1 1 1	3								
5(d)	Dapat menyatakan dua perbezaan di antara kedua-dua proses yang ditunjukkan dalam Rajah 5.3(a) dan Rajah 5.3(b) <i>Able to state two differences between both processes shown in Diagram 5.3(a) and Diagram 5.3(b).</i> Cadangan jawapan/ <i>Suggested answer</i> <table><tr><th>Rajah 5.3(a)/ <i>Diagram 5.3(a)</i></th><th>Rajah 5.3(b)/ <i>Diagram 5.3(b)</i></th></tr><tr><td>P1: Proses gutasi. <i>Guttation process.</i></td><td>P1: Proses transpirasi. <i>Transpiration process.</i></td></tr><tr><td>P2: Berlaku pada waktu malam dan awal pagi. <i>Occurs at night and early morning.</i></td><td>P2: Berlaku pada waktu siang yang panas dan berangin. <i>Occurs on hot and windy days.</i></td></tr><tr><td>P3: Hanya berlaku dalam tumbuhan herba. <i>Only occurs in herbaceous plants.</i></td><td>P3: Berlaku dalam semua tumbuhan. <i>Occurs in all plants.</i></td></tr></table>	Rajah 5.3(a)/ <i>Diagram 5.3(a)</i>	Rajah 5.3(b)/ <i>Diagram 5.3(b)</i>	P1: Proses gutasi. <i>Guttation process.</i>	P1: Proses transpirasi. <i>Transpiration process.</i>	P2: Berlaku pada waktu malam dan awal pagi. <i>Occurs at night and early morning.</i>	P2: Berlaku pada waktu siang yang panas dan berangin. <i>Occurs on hot and windy days.</i>	P3: Hanya berlaku dalam tumbuhan herba. <i>Only occurs in herbaceous plants.</i>	P3: Berlaku dalam semua tumbuhan. <i>Occurs in all plants.</i>	1 1 1	2
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	P4: Air terbebas dalam bentuk titisan air. <i>Water is released in the form of water droplets.</i>	P4: Air terbebas dalam bentuk wap air. <i>Water is released as water vapour.</i>		1	
	P5: Air terbebas melalui struktur khas di bahagian urat daun. <i>Water is released through a special structure at the end of the leaf veins.</i>	P5: Air terbebas melalui stoma. <i>Water is released through stomata.</i>		1	
	P6: Berlaku apabila tekanan akar tinggi. <i>Occurs when root pressure is high.</i>	P6: Dikawal oleh pembukaan dan penutupan stoma. <i>Controlled by the stomatal opening and closing.</i>		1	
	P7: Membebaskan air yang kaya dengan mineral. <i>Releases water that is rich minerals.</i>	P7: Membebaskan air yang tulen sahaja. <i>Releases pure water.</i>		1	
	Jumlah / Total			8	

1 Rajah 1.1 menunjukkan keratan rentas batang tumbuhan.
Diagram 1.1 shows a cross section of a plant stem.



Rajah 1.1/ Diagram 1.1

(a) (i) Namakan tisu R dan bahagian yang berlabel P serta Q.
Name tissue R and parts labelled P and also Q.

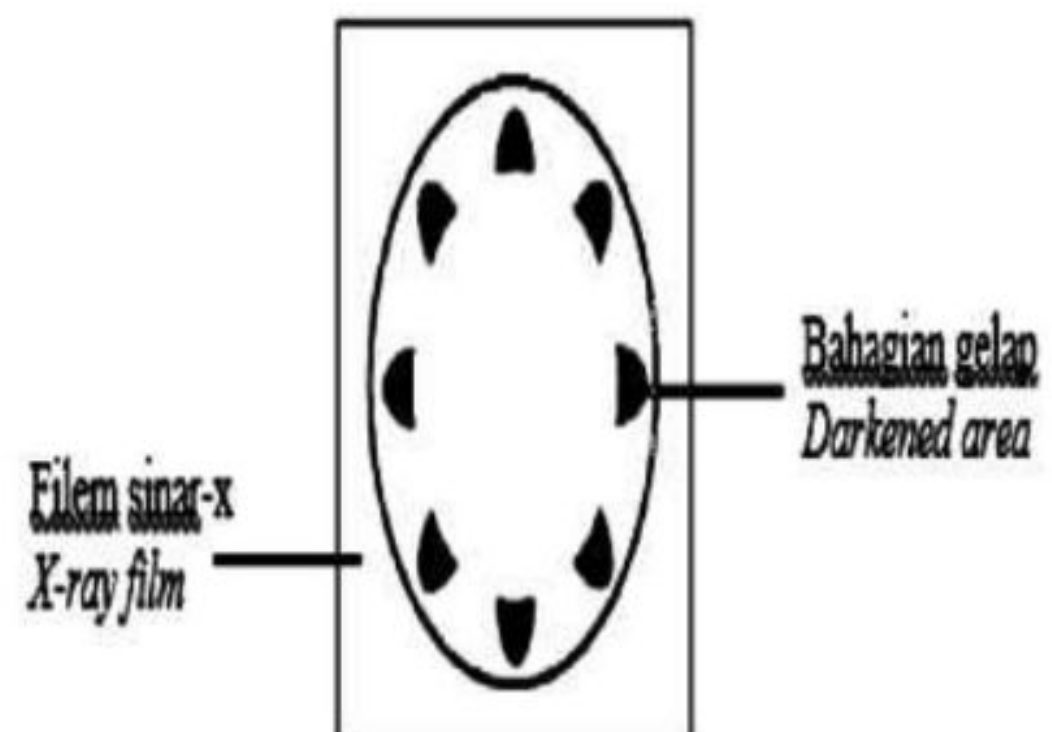
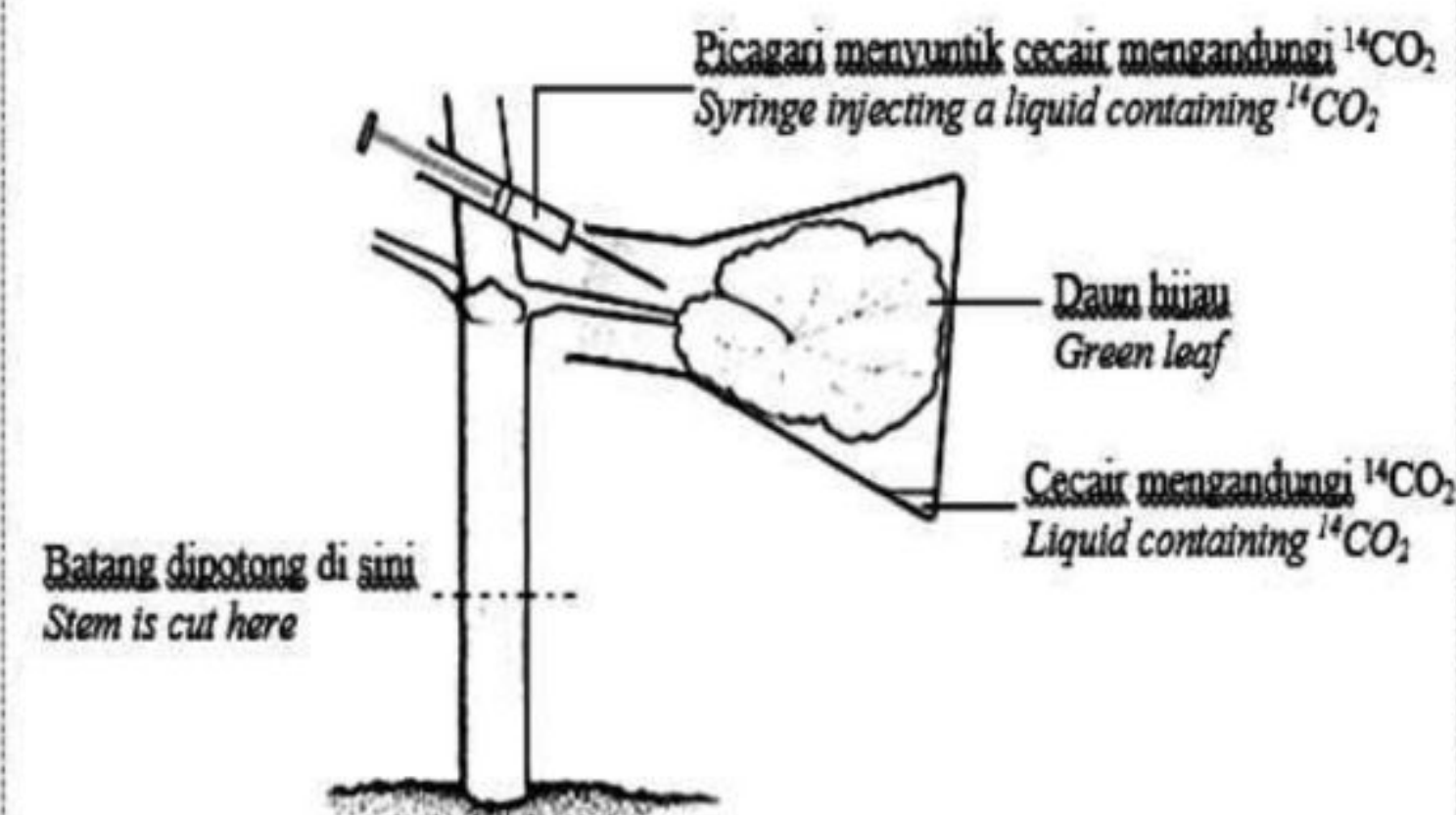
Tisu R : xilem
Tissue R
P : Tiub tapis
Q : Sel rakan

(ii) Terangkan bagaimanakah Q disesuaikan dengan fungsinya dalam pengangkutan bahan organik pada tisu S?
Explain how Q is adapted to its function in transportation of organic substances at tissue S?

- Sel rakan / Q mempunyai mitokondria
- Membekalkan tenaga / ATP
- Untuk pengangkutan aktif.

Rajah 1.2 menunjukkan satu set radas yang digunakan untuk mengkaji fotosintesis. Daun telah dibekalkan dengan isotop radioaktif karbon-14 dalam bentuk $^{14}\text{CO}_2$ dan dibiarkan terdedah kepada cahaya matahari selama dua hari. Selepas dua hari, satu potongan nipis dibuat pada bahagian batang. Radiografi sinar-x telah dilakukan terhadap potongan tersebut dan didapati beberapa bahagian gelap muncul pada filem sinar-x seperti pada Rajah 1.3.

Diagram 1.2 shows a setup of apparatus used to study photosynthesis. The leaf was supplied with radioactive isotope of carbon-14 in the form of $^{14}\text{CO}_2$ and left exposed to sunlight for two days. After two days, a thin section was cut from the stem. X-ray radiography was applied to the stem section and it was found that there were few dark areas corresponded to certain parts on the x-ray film as shown in Diagram 1.3.



Rajah 1.3/ Diagram 1.3

Kenal pasti tisu di bahagian yang diwarnakan gelap pada filem sinar-x di Rajah 1.3.
Identify the tissue darkened on the x-ray film as in Diagram 1.3.

floem