

KERTAS 2

BAHAGIAN A

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
1(a)(i)	<p>P : Plasma membrane/<i>Membran plasma</i></p> <p>Q : Cell wall/<i>Dinding sel</i></p> <p>R: Vacuole/<i>Vakuol</i></p>		2	<p>3√ - 2 m</p> <p>1-2√ - 1 m</p> <p>0√ - 0 m</p>
(ii)	<p>1. P is composed of phospholipids and proteins while Q is composed of cellulose</p> <p><i>P dibina daripada fosfolipid dan protein manakala Q dibina daripada selulosa</i></p> <p>2. P is semi-permeable while Q is fully permeable</p> <p><i>P adalah separa telap manakala Q adalah telap sepenuhnya</i></p>	1	2	
(b)(i)	Tonoplast/ <i>Tonoplas</i>	1	1	
(ii)	<p>P1 : When water diffuses into R by osmosis, it will expand</p> <p><i>Apabila air meresap masuk ke dalam R secara osmosis, ia akan mengembang</i></p> <p>P2 : and exerts (turgor) pressure on the cell wall</p> <p><i>dan menghasilkan tekanan (segah) ke atas dinding cell</i></p> <p>P3: which causes the cells to be turgid</p> <p><i>menyebabkan sel menjadi segah</i></p> <p>P4: and provides support in herbaceous plants</p> <p><i>dan memberi sokongan kepada tumbuhan herba</i></p>	1 1 1 1	2	Any 2
(c)(i)	Translocation/ <i>Translokasi</i>	1	1	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
(ii)	<p>Provides sieve tubes with energy/ATP/proteins/nutrients for transporting the organic substances</p> <p><i>Membekalkan tiub tapis dengan tenaga / ATP / protein / nutrien untuk pengangkutan bahan organik</i></p>	1	1	
(d)	<p>P1: The area above the ring is swollen because of the accumulation of organic substances/sugars/sucrose</p> <p><i>Kawasan di atas gelang menjadi bengkak disebabkan pengumpulan bahan organik/gula/sukrosa</i></p> <p>P2: as it cannot be transported to the area below the ring because the phloem tissues have been removed</p> <p><i>disebabkan ia tidak boleh diangkut ke bawah kerana tisu floem telah dibuang</i></p> <p>P3: The area below the ring will die/stop its growth</p> <p><i>Kawasan di bawah gelang akan mati/pertumbuhan terhenti</i></p> <p>P4: since no organic substances/sugar is received to support cells metabolic activity</p> <p><i>Kerana tiada bahan organik/gula diterima untuk menjalankan aktiviti metabolisme sel</i></p>	1	3	
	TOTAL		12	Any 3

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
2(a)(i)	Mitosis / <i>mitosis</i>	1	1	
(ii)	Y → Z → W → X	1	1	
(b)	In animal cell, cytokinesis occurs by constriction of the plasma membrane at the cell equator while in a plant cell, a cell plate is form at the cell equator. <i>Pada sel haiwan, sitokinesis wujud dengan pencerutan membran plasma di tengah sel, manakala dalam sel tumbuhan plat sel terbentuk di tengah sel.</i>	1	1	
(ii)	P1 : <i>Bryophyllum</i> undergoes asexual reproduction / vegetative reproduction <i>Bryophyllum menjalankan pembiakan aseks / pembiakan vegetatif</i> P2: Mitosis takes place (at meristems) along the leaf margin <i>Mitosis berlaku (di bahagian meristem) sepanjang tepi daun</i> P3: To produced plantlets/buds which are identical to the parent cell. <i>Untuk menghasilkan anak pokok/tunas yang serupa dengan induk.</i>	1 1 1	3	
(d)(i)	45 / 44 + X	1	1	
(ii)	Turner syndrome / <i>Sindrom Turner</i>	1	1	
(iii)	P1: Retarded development of female sex organs/secondary sexual characteristics <i>Perkembangan organ seks perempuan/ciri seks sekunder terencat</i> P2: Sterile/ <i>Mandul</i>	1 1	1	Any 1

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
(iv)	<p>P1: Chromosomal mutation / a decrease of number in chromosome <i>Mutasi kromosom / pengurangan dalam bilangan kromosom</i></p> <p>P2: The failure of sex chromosome to separate during anaphase I/ anaphase II/meiosis I/meiosis II <i>Kegagalan kromosom seks terpisah semasa anafasa I/anafasa II/meiosis I/meiosis II</i></p> <p>P3: Producing an ovum with no X chromosome/ 22 autosomes <i>Menghasilkan ovum tanpa kromosom X/22 autosom</i></p> <p>P4: Fertilisation with a normal sperm/sperm with 23+X produces a zygote with 45+XO chromosomes <i>Persenyawaan dengan sperma normal/sperma dengan kromosom 23+X menghasilkan zigot dengan 45 + XO kromosom</i></p>	1	3	Any 3
TOTAL			12	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
3(a)(i)	Oxygen (gas) / O ₂ / (Gas) oksigen	1	1	
(ii)	To supply carbon dioxide // Membekalkan karbon dioksida	1	1	
(iii)	P1: Increase the power / number of bulb <i>Meningkatkan kuasa/ bilangan mentol</i> P2: Decrease the distance of light sources <i>Mengurangkan jarak sumber cahaya</i> P3: Increase the concentration of sodium hydrogen carbonate solution <i>Meningkatkan kepekatan larutan natrium hidrogen karbonat</i>	1 1 1	3	
(b) (i)	P1: At P /low light intensity, the rate of photosynthesis is low <i>Pada P/ keamatan cahaya rendah, kadar fotosintesis rendah</i> P2: When the light intensity increases, the rate of photosynthesis increases until point Q <i>Apabila keamatan cahaya meningkat, kadar fotosintesis meningkat hingga titik Q.</i> P3: After point Q, when the light intensity increase, the rate of photosynthesis remains constant <i>Selepas titik Q, apabila keamatan cahaya meningkat, kadar fotosintesis kekal malar</i> P4: Carbon dioxide becomes the limiting factor <i>Karbon dioksida menjadi faktor penghad</i>	1 1 1 1	3	Any 3
(ii)	P1: The rate of photosynthesis will decrease/stop <i>Kadar fotosintesis akan menurun/berhenti</i> P2: (At high temperature), enzymes are denatured <i>(Pada suhu tinggi), enzim akan ternyahasli.</i>	1 1	2	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
(c)	P1: The rate of photosynthesis will decrease <i>Kadar fotosintesis akan menurun</i> P2: (because) stomata are covered with wax <i>(kerana) stoma telah diliputi dengan lilin</i> P3: (and) prevent carbon dioxide from diffusing into the leaf // prevent gaseous exchange <i>(dan) menghalang karbon dioksida dari meresap masuk ke dalam daun // menghalang pertukaran gas</i>	1	2	Any 2
		1		
		1		
	TOTAL		12	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
4(a)	Succession <i>Sasaran</i>	1	1	
b(i)	Zone I : <i>Avicennia</i> sp / <i>Sonneratia</i> sp <i>Zon I</i> Zone II : <i>Rhizophora</i> sp <i>Zon II</i> Zone III : <i>Bruguiera</i> sp <i>Zon III</i>	1 1 1	3	
(b)(ii)	F : <i>Avicennia</i> sp / <i>Sonneratia</i> sp / The plants have extensive root systems / cable root systems <i>Tumbuhan itu mempunyai sistem rangkaian akar</i> P1 : The roots trap and collect sediments/ organic matter from decaying plants <i>Akar memerangkap dan mengumpulkan sedimen / bahan organik dari pereputan tumbuhan</i> P2 : As time passes, the soil becomes more compact and firm (which is suitable for <i>Rhizophora</i> sp) <i>Bila masa bertambah, tanah menjadi lebih padat dan keras (menjadikannya sesuai untuk <i>Rhizophora</i> sp)</i>	1 1	3	
(c)	Density = <u>Total number of individuals of a species in all quadrats</u> Number of quadrats x quadrat area Kepadatan = <u>Jumlah bilangan individu suatu spesies dalam semua kuadrat</u> Bilangan kuadrat x luas kuadrat = 15 / 5 = 3 individuals per meter ²	1 1	2	
(d)(i)	The capture, mark, release and recapture method <i>Kaedah tangkap, tanda , lepas dan tangkap semula</i>	1	1	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
(ii)	F1 : Emigration rate / <i>Kadar emigrasi</i> P1 : Reduce the population size of the grasshopper <i>Mengurangkan saiz populasi belalang</i> F2 : Immigration rate / <i>Kadar imigrasi</i> P2 : Increase the population size of grasshopper <i>Meningkatkan saiz populasi belalang</i> F3 : Reproduction rate / <i>Kadar pembiakan</i> P3 : Increase the population size of grasshopper <i>Meningkatkan saiz populasi belalang</i> F4 : Number of predators / <i>Bilangan pemangsa</i> P4 : Reduce the population size of grasshopper <i>Mengurangkan saiz populasi belalang</i>	1	2	Any 1 F with corresponding P
	TOTAL		12	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
5 (a)	<p>P1: Process: Ultrafiltration / <i>Ultraturasan</i></p> <p>P2 : The afferent arteriole has a larger diameter than the efferent arteriole causes high hydrostatic pressure in the glomerulus. <i>Diameter arteriol aferen adalah lebih besar daripada diameter arteriol eferen menyebabkan tekanan hidrostatik yang tinggi dalam glomerulus.</i></p> <p>P3: Some of the components/small molecules in the blood plasma are filtered out into the lumen of the Bowman’s capsule (forming glomerular filtrate.) <i>Sesetengah komponen/molekul-molekul kecil dalam plasma darah dituras ke dalam lumen kapsul Bowman (membentuk hasil turasan glomerulus)</i></p>	1 1 1	2	Any 2
(b)(i)	<p>P: 100%/ all amino acids are reabsorbed from X (into the blood capillaries) <i>100%/ semua asid amino diserap semula daripada X (ke dalam kapilari darah)</i></p>	1	1	
(b)(ii)	<p>P1: Coffee contains caffeine <i>Kopi mengandungi kafein</i></p> <p>P2: Caffeine inhibits the release of ADH (from the pituitary gland) <i>Kafein merencatkan rembesan ADH (daripada kelenjar pituitari)</i></p> <p>P3: Distal convulated tubule/collecting duct is less permeable to water. <i>Tubul berlingkar distal/tubul pengumpul kurang telap terhadap air</i></p> <p>P4: Less water will be reabsorbed <i>Kurang air diserap semula</i></p> <p>P5: The volume of urine increases <i>Isipadu urin meningkat</i></p>	1 1 1 1	3	Any 3

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
(c) (i)	<p>P1: Blood (is pumped from the artery in the wrist and) flows into the coiled dialysis tubing</p> <p><i>Darah (dipam dari arteri di pergelangan tangan dan) mengalir ke dalam tiub dialisis</i></p> <p>P2: The semi-permeable membrane (of the dialysis tubing) only allows small molecules/prevent large molecules to diffuse across the membrane into the dialysis fluid</p> <p><i>Membran separa telap (tiub dialisis) hanya membenarkan molekul-molekul kecil/menghalang molekul-molekul besar meresap melaluinya ke dalam bendalir dialisis</i></p> <p>P3: The dialysis fluid is isotonic to the blood plasma</p> <p><i>Bendalir dialisis adalah isotonik kepada plasma darah</i></p> <p>P4: Urea diffuses out from the blood into the dialysis solution due to the concentration gradient/concentration of urea is higher in the blood</p> <p><i>Urea meresap keluar dari darah ke dalam bendalir dialisis disebabkan kecerunan kepekatan/kepekatan urea yang lebih tinggi dalam darah</i></p>	1	3	Any 3
(c) (ii)	<p>P1: The kidney cannot perform osmoregulation</p> <p><i>Ginjal tidak dapat menjalankan pengosmokawalaturan</i></p> <p>P2: The balance of water and mineral salts in the body//the blood osmotic pressure cannot be regulated.</p> <p><i>Keseimbangan air dan garam mineral dalam badan//tekanan osmosis darah tidak dapat dikawalatur.</i></p> <p>P3: Blood volume cannot be maintained</p> <p><i>Isipadu darah tidak dapat dikekalkan</i></p>	1	3	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
	P4: (Metabolic) waste products cannot be excreted from the body <i>Bahan kumuh (metabolisme) tidak dapat disingkirkan daripada badan.</i>	1		Any 3
	TOTAL		12	

BAHAGIAN B

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
6 (a)	P1: P is mouth, Q is duodenum and R is ileum <i>P adalah mulut, Q adalah duodenum dan R adalah ileum</i>	1		ALL 3 correct answer awarded 1 m
	P2: Bread contains carbohydrates <i>Roti mengandungi karbohidrat</i>	1		
	P3: In mouth /P, bread is chewed to break it up into smaller pieces to increase the surface area for enzyme action. <i>Di mulut /P, roti di kunyah untuk memecahkannya kepada ketulan kecil untuk meningkatkan luas permukaan untuk tindakan enzim</i>	1		
	P4: Bread is mixed with saliva which is secreted by the salivary glands. <i>Roti akan bercampur dengan air liur yang dirembeskan oleh kelenjar air liur</i>	1		
	P5: Saliva contain (salivary) amylase <i>Air liur mengandungi amilase (airliur)</i>	1		
	P6 : Which hydrolyses starch into maltose <i>Yang akan menghidrolisiskan kanji kepada maltosa</i>	1		

	<p>P7: In duodenum / Q, the pancreatic juice (secreted by the pancreas) contains amylase, (trypsin and lipase) <i>Di duodenum /Q, jus pankreas (dirembeskan oleh pankreas) mengandungi amilase, (tripsin dan lipase)</i></p> <p>P8: (Pancreatic) amylase acts on starch to hydrolyse it to maltose. <i>Amilase (pankreas) akan bertindak ke atas kanji untuk menghidrolisis kanji kepada maltosa</i></p> <p>P9: In ileum /R, intestinal juice contains maltase, (sucrase, lactase and erepsin) <i>Di ileum / R , jus usus mengandungi maltase (sukrase, laktase dan erepsin)</i></p> <p>P10: Maltase hydrolyse maltose into glucose <i>Maltase menghidrolisis maltosa kepada glukosa</i></p> <p>P11: Sucrase hydrolyses sucrose into glucose and fructose <i>Sukrase menghidrolisis sukrosa kepada glukosa dan fruktosa</i></p> <p>P12: Lactase hydrolyses lactose into glucose and galactose <i>Laktase akan menghidrolisis laktosa kepada glukosa dan galaktosa</i></p>	1		
		1		
		1		
		1		
		1		
		1	10	Any 10
(b)(i)	<p>Total energy intake / <i>Jumlah tenaga di ambil</i></p> <p>$= (500 \times 18) + (200 \times 8) + (200 \times 11) + (150 \times 4) + (180 \times 4)$ $= (5 \times 1800) + (2 \times 800) + (2 \times 1100) + (1.5 \times 400) + (1.8 \times 400)$ $= 14\,120 \text{ kJ}$</p>	1	2	
(b)(ii)	<p>F: Energy intake is more than the daily requirement <i>Tenaga yang diambil melebihi tenaga keperluan</i></p>	1	1	
	<p><u>Consequences of consuming diet:</u> P1: Rice contain carbohydrate <i>Nasi mengandungi karbohidrat</i></p>	1	5	
	<p>P2: Excess intake of carbohydrate will lead obesity</p>	1		

	<p>// Excess carbohydrate will stored as fat <i>Pengambilan karbohidrat berlebihan menyebabkan obesity</i> // Karbohidrat berlebihan disimpan sebagai lemak</p> <p>P3: Fried chicken contain a lot of fat <i>Ayam goreng mengandung lemak yang banyak</i></p> <p>P4: Increases the level of cholesterol in blood <i>Meningkatkan kadar kolesterol dalam darah</i></p> <p>P5: Cholesterol will be deposited on the wall of arteries // Artherosclerosis /cardiovascular diseases occurs <i>Kolesterol terenal pada dinding arteri</i> //Arterosklerosis /Penyakit kardiovaskular berlaku</p> <p>P6: Fried potato contain high (fats) and salts <i>Kentang goreng mengandung (lemak) dan garam yang tinggi</i></p> <p>P7: Excess salts will lead to high blood pressure / hypertension <i>Garam yang berlebihan menyebab tekanan darah tinggi / hipertensi</i></p> <p>P8: Soft drink contains high sugar <i>Minuman ringan mengandung gula yang tinggi</i></p> <p>P9: High intake of sugar will lead to diabetes <i>Pengambilan gula yang tinggi menyebabkan diabetes</i></p> <p>P10: Snack contains preservatives / artificial colouring / artificial flavour <i>Snek mengandung pengawet / pewarna tiruan / perisa tiruan</i></p> <p>P11 : Lead to cancer <i>Menyebabkan kanser</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>		<p>Any 5</p>
	<p><u>Recommendation to improve her daily diet:</u> R1: Reduce the intake of rice // Replace with healthy type of rice / parboiled rice / basmathi rice / brown rice <i>Kurangkan pengambilan nasi // Gantikan dengan beras sihat / beras parboiled / beras basmathi / beras perang</i></p>	<p>1</p>	<p>2</p>	<p>Reject : No intake of rice <i>Tiada pengambilan nasi</i></p>

	<p>R2: Replace fried chicken with steamed / roasted chicken // Cook with air fryer <i>Gantikan ayam goreng dengan ayam stim / panggang // Masak menggunakan penggoreng udara</i></p> <p>R3: Replace soft drink with fruit juice / mineral water <i>Gantikan minuman ringan dengan jus buah buahan / air mineral</i></p> <p>R4: Replace fried potato with boiled / grilled potato <i>Gantikan kentang goreng dengan kentang rebus / panggang</i></p> <p>R5: Replace snack with vegetable salad / fruit salad <i>Gantikan snek dengan salad sayur sayuran / buah buahan</i></p>	1 1 1 1		Any 2 1F+5P+2R
	TOTAL / JUMLAH		20	
7 (a)	<p>C1 : (Colour blindness is) caused by a recessive allele / gene <i>(Buta warna) disebabkan oleh satu alel resesif / gen</i></p> <p>C2 : on X chromosome / <i>pada kromosom X</i></p>	1 1		

	Parent's phenotype <i>Fenotip induk</i>	Father Colour blind	X	Mother Carrier colour blind			
C3	Parent's genotype <i>Genotip induk</i>	$X^b Y$		$X^B X^b$		1	
C4	Meiosis					1	
C5	Gametes						
C6	<i>Gamet</i>	X^b	Y	X^B	X^b	1,1	
C7	Fertilisation <i>Persenyawaan</i>					1	
C8	Offspring's genotypes <i>Genotip anak</i>	$X^B X^b$	$X^b X^b$	$X^B Y$	$X^b Y$	1,1	
C9& C10	Offspring's phenotypes <i>Fenotip anak</i>	female carrier	female colour blind	male normal	male colour blind	1	
C11	Probability of male / female / offspring to have colour blindness is 50% / 0.5 / $\frac{1}{2}$ <i>Kebarangkalian anak lelaki/anak perempuan / kesemua anak mendapat buta warna adalah 50% / 0.5 / $\frac{1}{2}$</i> Notes: C3 until C10 are awarded 1 mark each if labelled in a genetic diagram. If any pair of the parent's genotype is incorrect, marks are only given / rewarded for C4 and C7					1	
							For C6 & C8 All gametes/ offspring genotype correct = 2m 2-3 gametes/ offspring genotype correct = 1m 0-1 gametes/ offspring genotype = 0 m
						10	Any 10

7(b)	<p>C. (caused by) gene mutation <i>(berpunca) mutasi gen</i></p> <p>E1. red blood cells has sickle / crescent shaped // sickle cell anaemia <i>sel darah merah berbentuk sabit // penyakit anaemia sel sabit</i></p> <p>E2. (the individual) is easily tired / fatigue / difficulty in breathing <i>(individu) mudah letih / lesu / sukar bernafas</i></p> <p>E3. less oxygen is transported // store less haemoglobin <i>mengangkut kurang oksigen // menyimpan kurang haemoglobin</i></p> <p>E4. cellular respiration is less efficient <i>respirasi sel kurang cekap</i></p>	1 1 1 1	4	1C + Any 3E
(c)	<p>P1. Type O blood does not has antigen A / B (on the red blood cell membrane) <i>Darah jenis O tidak mempunyai antigen A / B (pada membran sel darah merah)</i></p> <p>P2. Type O blood has antibodies anti-A and anti-B (in the blood plasma) <i>Darah jenis O mempunyai antibodi A dan B (dalam plasma darah)</i></p> <p>P3. Type O blood can only receive type O blood only (in blood transfusions) <i>Darah jenis O hanya boleh menerima jenis darah O sahaja (semasa pemindahan darah)</i></p> <p>P4. (If the individual receive another type of blood), the body will develop antibodies against the foreign antigens A / B <i>(Jika individu ini menerima darah jenis lain), badan akan menghasilkan antibodi menentang antigen asing A / B</i></p>	1 1 1 1		

	<p>P5. (causes) agglutination / clotting/coagulation of blood <i>(menyebabkan) agglutinati / penggumpalan darah</i></p> <p>P6. which will lead to death <i>akan menyebabkan kematian</i></p>	1		Any 6
		1	6	
	TOTAL / JUMLAH		20	
8a	<p>P1 - Mrs A has blocked Fallopian tubes// any related problem related to the fallopian tubes <i>Puan A mempunyai masalah tiub Fallopio yang tersumbat / sebarang masalah berkaitan tiub Fallopio</i></p> <p>P2 - Sperm cannot reach the ovum for fertilization <i>Sperma tidak dapat bersenyawa dengan ovum</i></p> <p>P3- This method is known as in-vitro fertilisation (IVF) <i>Kaedah ini ialah Persenyawaan in- vitro</i></p> <p>P4 - (A laparoscope is inserted at the navel to) collect the ova / secondary oocyte from the ovaries <i>(Laparoskop digunakan) untuk mengeluarkan ovum / oosit sekunder dari ovari</i></p> <p>P5- The ova are placed in a culture medium (to mature) <i>Ovum diletakkan dalam medium kultur (untuk matang)</i></p> <p>P6 - Sperms are collected from the husband <i>Sperma dikumpulkan daripada suami</i></p> <p>P7 - and placed in the culture medium <i>dan dimasukkan ke dalam medium kultur</i></p> <p>P8 – Fertilisation occurs in the culture medium // outside the body. <i>Persenyawaan berlaku di dalam medium kultur // di luar badan</i></p>	1		
		1		
		1		
		1		
		1		
		1		
		1		

	<p>P9- The embryo/ zygote is then transferred into Mrs A 's uterus for implantation <i>Embrio/ zigot dipindahkan ke uterus Pn A untuk Penempelan</i></p> <p>P10- The embryo undergoes normal development in the uterus of Mrs. A //as normal pregnancy. <i>Embrio berkembang di dalam uterus Pn A // Pn A mengandung</i></p>	1														
		1	8	Any 8												
8b	<table border="1"> <thead> <tr> <th></th> <th>X</th> <th>Y</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td> <p>The presence of primary xylem (in the vascular bundle) <i>Kehadiran xylem primer (dalam berkas vaskular) //</i></p> <p>Absence of secondary xylem <i>Tiada xylem sekunder</i></p> </td> <td> <p>The presence of primary xylem and secondary xylem (in the vascular bundle) <i>Kehadiran xylem primer dan xylem sekunder dalam berkas vascular //</i></p> <p>Presence of secondary xylem <i>Mempunyai xylem sekunder</i></p> </td> </tr> <tr> <td>P2</td> <td> <p>The presence of primary phloem (in the vascular bundle) <i>Kehadiran floem primer (dalam berkas vaskular) //</i></p> <p>Absence of secondary phloem <i>Tiada floem sekunder</i></p> </td> <td> <p>The presence of primary phloem and secondary phloem (in the vascular bundle) <i>Kehadiran floem primer dan floem sekunder (dalam berkas vaskular) //</i></p> <p>Presence of secondary phloem <i>Mempunyai floem sekunder</i></p> </td> </tr> <tr> <td>P3</td> <td> <p>Cork cambium does not formed beneath the epidermis <i>Kambium gabus tidak terbentuk di bawah epidermis</i></p> </td> <td> <p>Cork cambium is formed beneath the epidermis <i>Kambium gabus terbentuk di bawah epidermis</i></p> </td> </tr> </tbody> </table>		X	Y	P1	<p>The presence of primary xylem (in the vascular bundle) <i>Kehadiran xylem primer (dalam berkas vaskular) //</i></p> <p>Absence of secondary xylem <i>Tiada xylem sekunder</i></p>	<p>The presence of primary xylem and secondary xylem (in the vascular bundle) <i>Kehadiran xylem primer dan xylem sekunder dalam berkas vascular //</i></p> <p>Presence of secondary xylem <i>Mempunyai xylem sekunder</i></p>	P2	<p>The presence of primary phloem (in the vascular bundle) <i>Kehadiran floem primer (dalam berkas vaskular) //</i></p> <p>Absence of secondary phloem <i>Tiada floem sekunder</i></p>	<p>The presence of primary phloem and secondary phloem (in the vascular bundle) <i>Kehadiran floem primer dan floem sekunder (dalam berkas vaskular) //</i></p> <p>Presence of secondary phloem <i>Mempunyai floem sekunder</i></p>	P3	<p>Cork cambium does not formed beneath the epidermis <i>Kambium gabus tidak terbentuk di bawah epidermis</i></p>	<p>Cork cambium is formed beneath the epidermis <i>Kambium gabus terbentuk di bawah epidermis</i></p>	1	6	
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		1														

	P4	The vascular cambium (in the vascular bundles) do not joined // Cambium ring does not formed <i>Kambium vaskular (dalam berkas – berkas vaskular) tidak bersambung // Tiada gelang kambium terbentuk</i>	The vascular cambium (in the vascular bundles) is joined // Cambium ring is formed <i>Kambium vaskular (dalam berkas – berkas vaskular) bersambung // Gelang kambium terbentuk</i>	1		
	P5	The outer layer of the stem is covered with the epidermis <i>Bahagian luar batang diliputi oleh epidermis</i>	The outer layer of the stem is covered with bark and cork <i>Bahagian luar batang diliputi oleh kulit kayu dan gabus</i>	1		
	P6	The presence of cortex in the stem <i>Kehadiran korteks dalam batang</i>	The presence of secondary cortex in the stem <i>Kehadiran korteks sekunder dalam batang</i>	1		
	P7	Primary growth is the growth in height of the stem <i>Pertumbuhan primer ialah pertumbuhan ketinggian batang</i>	Secondary growth is the growth in the diameter of the stem <i>Pertumbuhan sekunder ialah pertumbuhan diameter batang</i>	1		Any 6
8c	F : The growth curve shows a series of steps <i>Menunjukkan lengkung berbentuk tangga</i>			1	6	
	P1 : The insect has a (hard) exoskeleton which limits its growth <i>Serangga mempunyai rangka luar (yang keras) yang menghadkan pertumbuhan</i>			1		

	<p>P2 : The insect undergoes 4 times of ecdysis before reaching adult <i>Serangga ini mengalami ekdysis sebanyak 4 kali sebelum mencapai dewasa</i></p> <p>P3 : During ecdysis, the insect takes in a lot of air to force the old exoskeleton to split open <i>Semasa ekdysis, serangga menyedut banyak udara untuk memaksa rangka luar lama pecah</i></p> <p>P4 : New exoskeleton is formed <i>Rangka luar baru terbentuk</i></p> <p>P5 : The insect increases its length as the new exoskeleton is still soft <i>Serangga itu bertambah panjang badan semasa rangka luar baru masih lembut</i></p> <p>P6 : During the nymph stage, the insect stops growing <i>Semasa fasa nimfa, serangga tidak mengalami pertumbuhan</i></p>	1		
		1		
		1		
		1		
		1		1F + 5P
	TOTAL / JUMLAH		20	

ITEM NO	SCORING CRITERIA	MARKS		REMARKS
9 (a)	<p>P1: Compost is a mixture of (decayed) of an organic matter/ domestic waste/ food waste <i>Kompos ialah campuran bahan organik (reput)/ sisa domestik/ sisa makanan.</i></p> <p>P2 : that has been decomposed in a process called decomposition by microorganisms. <i>yang terurai dalam proses penguraian oleh mikroorganisma.</i></p> <p>P3: as (good) fertilizer for plants <i>sebagai baja (yang baik) untuk tumbuhan.</i></p> <p>P4: Enriches soil/ adds nutrients into the soil / repair</p>	1	10	
		1		
		1		
		1		

<p>damaged soil using chemical fertilisers. <i>Memperkayakan tanah/ menambah nutrien dalam tanah/ memperbaiki tanah yang rosak akibat penggunaan baja kimia.</i></p>			
<p>P5: Reduces the need for chemical fertilizers/ contains no chemicals. <i>Mengurangkan keperluan baja kimia / tidak mengandungi bahan kimia.</i></p>	1		
<p>P6: Does not contain any harmful substances <i>Tidak mengandungi zarah yang merbahaya</i></p>	1		
<p>P7: Increases the production of fungi and beneficial bacteria in the soil. <i>meningkatkan penghasilan kulat dan bakteria berfaedah dalam tanah.</i></p>	1		
<p>P8 : Reduces landfill waste. <i>Mengurangkan pembuangan sampah</i></p>	1		
<p>P9: Helps to reduce the formation of a greenhouse gases in the atmosphere. <i>Membantu mengurangkan pembentukan gas-gas rumah hijau di atmosfera.</i></p>	1		
<p>P10: No air pollution/ water pollution/ soil pollution. <i>Tiada pencemaran udara/ pencemaran air/ pencemaran tanah.</i></p>	1		
<p>P11: Reduces soil erosion <i>Mengurangkan hakisan tanah.</i></p>	1		
<p>P12: Safe to use and has no side effects when used too much. <i>Selamat digunakan dan tidak membawa sebarang kesan apabila digunakan secara berlebihan.</i></p>	1		
<p>P13: 100% natural fertiliser. <i>Baja 100% semulajadi.</i></p>	1		
<p>P14: Suitable for all types of plants. <i>Sesuai untuk semua jenis tanaman</i></p>	1		
			Any 10

(b)(i)	<p>Good effect/ <i>Kesan baik:</i></p> <p>G1 : trap heat / provide temperature suitable to sustain life on earth <i>Memerangkap haba / menyediakan suhu yang sesuai untuk mengekalkan kehidupan di bumi</i></p> <p>Bad effect/ <i>Kesan buruk :</i></p> <p>B1 : Increases global temperature // greenhouse effect <i>Meningkat suhu global / bumi // kesan rumah hijau</i></p> <p>B2 : Reduce agricultural productivity // rate of photosynthesis <i>Mengurangkan produktiviti pertanian / kadar fotosintesis</i></p> <p>B3 : less sunlight is absorbed by plants <i>Kurang cahaya matahari diserap oleh tumbuhan</i></p> <p>B4 : Change in global climate // drought <i>Perubahan cuaca bumi // kemarau</i></p> <p>B5 : Melting of iceberg in the artic / poles <i>Pencairan ais di kutub</i></p> <p>B6 : Rise in sea level // flood <i>Peningkatan aras air laut // banjir</i></p>	1	5	1G+any 4B
(b)(ii)	<p>P1 : Use energy from sources other than fossil fuels// renewal energy such as solar energy// reduce the usage of fossil fuels <i>Gunakan tenaga selain daripada bahan api fosil// tenaga yang diperbaharui seperti tenaga solar// kurangkan penggunaan bahan api fosil.</i></p> <p>P2 : Limit/ avoid open burning <i>Hadkan / elakkan pembakaran terbuka</i></p> <p>P3 : Limit deforestation <i>Hadkan penebangan hutan</i></p> <p>P4 : Replant plants after logging. <i>Tanam semula pokok selepas pembalakan</i></p> <p>P5 : Reduce mirrored buildings <i>Kurangkan bangunan bercermin</i></p>	1		Any 5

	P6 : Sharing vehicle / car pooling <i>Berkongsi kenderaan</i>	1	5	
	TOTAL			20