SKEMA PEMARKAHAN **BAHAGIAN A** KERTAS 2 MODUL 1 2017 MPSM KEDAH

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
1	(a)	(i)	Sel P : sel epitilium	1	1
		(ii)	Untuk membentuk lapisan yang melindungi bahagian dalaman daripada jangkitan // kecederaan	1	1
		(iii)	P1: Membentuk satu struktur yang terdiri daripada beberapa jenis tisu yang berlainan P2: dan menjalankan fungsi yang sama.	1 1	2
		(iv)	Kepentingan organ R : P1: mengawal suhu badan P2: menghalang kemasukan bakteria P3: menghalang daripada dehidrasi Any one P.	 1 1 1	1
	(b)	(i)	Pepsin // Rennin	1	1
		(ii)	P1: Pepsin : Menghidrolisis protein menjadi polipeptida P2: Renin : Mengentalkan kaseinogen menjadi kasein. Any P	1 1	1
		(iii)	P1: untuk menyediakan medium berasid P2: untuk enzim bertindak balas dengan optimum. P3: membunuh bacteria. Any 2 P's	1 1 1	2
	(c)		P1: Y tisu otot licin P2: pengecutan otot Y / otot licin / otot keliling // pengenduran otot memanjang. P3: membentuk satu siri gelombang (sepanjang dinding Esophagus) P4: dikenali sebagai peristalsis. P5: menolak bolus ke bawah memasuki perut. Any 3 P's	1 1 1 1 1	3
			Total	12	

<table>
<tr><th colspan="3">QUESTION NO.</th><th>MARKING CRITERIA</th><th>SUB MARKS</th><th>TOTAL MARKS</th></tr>
<tr><td>2.</td><td>(a)</td><td>(i)</td><td>P : Sucrose
X: Condensation
Y : Hydrolysis</td><td>1
1
1</td><td>3</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>P1: Fructose is a simple sugar (cannot be digested).
P2: P contains two of monosakaride
P3: will be hydrolysed into two molecules of simple sugar
Any 2 P’s</td><td>1
1
1</td><td>2 marks</td></tr>
<tr><td></td><td>(b)</td><td></td><td>P1:(Help in) hydrolysis of Cellulose
P2: cellulose convert to glocose /smaller molecules
P3: glucose / small Molecules can be absorbed (by the villus into the capillaries)</td><td>1
1
1</td><td>3 marks</td></tr>
<tr><td></td><td>(c)</td><td>(i)</td><td><table><tr><td></td><td>polysaccharide</td><td></td><td>Importance</td></tr><tr><td>F1:</td><td>Cellulose</td><td>E1:</td><td>Component of cell wall</td></tr><tr><td>F2:</td><td>Starch</td><td>E2:</td><td>Food storage</td></tr></table>1 P + 1E</td><td>1+1
1+1</td><td>2 marks</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>P1: Does not taste sweet,
P2: not soluble in water
P3: do not crystalised
Any 2 P’s</td><td>1
1
1</td><td>2 marks</td></tr>
<tr><td></td><td></td><td></td><td>Total</td><td colspan="2">12 marks</td></tr>
<tr><td>3.</td><td>a)</td><td>(i)</td><td>X: Metaphase I
Y: Anaphase</td><td>1
1</td><td>2</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>P : to produce gamete cells // cause variation.
Q: to produce new cells for growth // repair dead / damaged tissue</td><td>1
1</td><td>2</td></tr>
<tr><td></td><td>(b)</td><td>(i)</td><td>Cancerous cells</td><td>1</td><td>1</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>Ultraviolet light // x-ray</td><td>1</td><td>1</td></tr>
<tr><td></td><td>(c)</td><td>(i)</td><td>45 // 44 + XO // 44 + X</td><td>1</td><td>1</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>P1: Turner’s Syndrome
P2: Absence of one X chromosome(which is a sex chromosome).</td><td>1
1</td><td>2</td></tr>
<tr><td></td><td>(d)</td><td>(i)</td><td>Cell division Q // mitosis</td><td>1</td><td>1</td></tr>
</table>

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
		(ii)	P1 : large number of new plant can be produced. P2 : new plants are identical to their parent plants P3 : do not involved male or female gametes/ pollination/ fertilisation Any 2 P's	1 1 1	2
			Total	12	
4.	(a)		P : Proximal convoluted tubule Q: Loop of Henle	1 1	2
	(b)		F: **Reabsorption** (process) P1: Glomerular filtrate (from Bowman's capsule) contains water/ glucose/amino acids/mineral salts P2: Reabsorbed by blood capillaries(surrounding the renal tubule) P3: Glucose/amino acids reabsorbed by active transport **//** water by osmosis F + any P	1 1 1 1	3
	(c)		P1 : The coiled tubing is semi permeable membrane P2 : allows waste subtances(from the patient blood) to diffuse out P3 : The tubule is coiled to increase the surface area (for diffusion to occur). Any 2 P's	1 1 1	2
	(d)		P1: by a diffusion process P2: Higher concentration of urea in the blood patient // lower concentration of urea in dialysis fluid P3 : cause urea to difusse out from blood to dialysis fluid P4 : through cellophone/ dialysis membrane (which is semi-permeable) Any 3 P's	1 1 1 1	3
	(e)		P1: The dialysis fluid is isotonic to the blood plasma (of normal person) P2: When a change of blood osmotic presure in patient P3 Osmosis occur P4 Water molecules diffuse between dialysis fluid and blood (flowing in the dialysis tube). Any 2 P's	1 1 1 1	2
			Total	12	

<table>
<tr><th colspan="3">QUESTION NO.</th><th>MARKING CRITERIA</th><th>SUB MARKS</th><th>TOTAL MARKS</th></tr>
<tr><td>5.</td><td>(a)</td><td>(i)</td><td>(Cross between two watermelon plants in which) the inheritance of two different characters is studied (fruit colour and fruit shape).</td><td>1</td><td>1</td></tr>
<tr><td></td><td></td><td>(ii)</td><td><table>
<tr><td rowspan="2">Characteristics
Ciri-ciri</td><td colspan="2">Trait / Trait</td></tr>
<tr><td>Dominant / dominan</td><td>Recessive /resesif.</td></tr>
<tr><td>Colour / warna</td><td>Green without striped</td><td>Green with striped</td></tr>
<tr><td>Shape / Bentuk</td><td>Round</td><td>Oblong</td></tr>
</table></td><td>1

1</td><td>2</td></tr>
<tr><td></td><td></td><td>(iii)</td><td>P1: No an intermediate phenotype
P2 : Because all the fruits in F1 show the dominant trait</td><td>1

1</td><td>2</td></tr>
<tr><td></td><td>(b)</td><td>(i)</td><td><table>
<tr><td>Gametes / Gamet</td><td>RG</td><td>Rg</td><td><u>rG</u></td><td><u>rg</u></td></tr>
<tr><td>RG</td><td>RRGG</td><td><u>RRGg</u></td><td>RrGG</td><td>RrGg</td></tr>
<tr><td>Rg</td><td>RRGg</td><td><u>RRgg</u></td><td>RrGg</td><td><u>Rrgg</u></td></tr>
<tr><td>rG</td><td><u>RrGG</u></td><td>RrGg</td><td>rrGG</td><td>rrGg</td></tr>
<tr><td>rg</td><td>RrGg</td><td>Rrgg</td><td>rrGg</td><td>rrgg</td></tr>
</table></td><td>1

1

1</td><td>3</td></tr>
<tr><td></td><td>(c)</td><td>(i)</td><td>1:1</td><td>1</td><td></td></tr>
<tr><td></td><td></td><td>(ii)</td><td>10 : 4 // 5 : 2</td><td>1</td><td></td></tr>
<tr><td></td><td>(d)</td><td>(i)</td><td>RrGg // Rrgg // rrGg //rrgg</td><td>1</td><td rowspan="2">2</td></tr>
<tr><td></td><td></td><td>(ii)</td><td>25% @ $\frac{1}{4}$</td><td>1</td></tr>
<tr><td></td><td></td><td></td><td>Total</td><td>12</td><td></td></tr>
</table>

BAHAGIAN B KERTAS 2 MODUL 1 2017 MPSM KEDAH

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
6.		(a)	P1: Vigorous exercise increase the rate of cellular respiration P2: To supply /produce more energy P3: More CO_2 is produced P4: CO_2 dissolve in blood plasma P5: Blood pH drops/ becomes acidic P6: Lower pH in blood detected by chemoreceptor (in the medula oblangata) P7: (The increase of CO_2 and the lower blood pH) also detect by aortic bodies and carotic bodies P8: Chemoreseptor send nerve impulse to the respiratory centre P9: Respiratory centre send impulse to the diaphragm and intercostal muscles P10: Diaphragm and intercostal muscles to contract and relax faster P11: Cause the breathing rate/ ventilation rate increase P12: More/ Excess CO_2 is eliminated from the body. P13: Concentration of CO_2 return/ back to normal. Any 10	1 1 1 1 1 1 1 1 1 1 1 1 1	Max 10
		(b)	**Diagram 6.2 (a)** P1: Water treatment used iodine crystal P2: to supply iodine drinking water P3: Iodine is required for the synthesis of the thyroxine hormone P4: By thyroid gland. P5: Thyroxine hormone is needed to control growth / rate of metabolism P6: Under secrection/lack of thyoxine hormone P7: Cause retarded in growth (physicslly and mentally) in a child P8: It's called **cretinisme** P9: Also can cause goitre disease in adult P10: Due to the enlargement/ swelling of thyroid gland Any 5	1 1 1 1 1 1 1 1 1 1	Max 5

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
			Diagram 6.2 (b) P1: Diabetes mellitus / Kencing manis P2: Less /lack production of insulin hormone P3: by pancreas (organ) P4: Excess glucose cannot change to glycogen P5: Glucose remain in the blood P6: Cause increase in blood sugar/ glucose level P7: Glucose excrete in urine (during urination) Any 5	1 1 1 1 1 1 1	Max 5
			Total	20 Marks	
7.		(a)	P1: Nitrogen fixing bacteria/ Nostoc sp. / Rhizobium sp. P2: fix nitrogen to ammonium compounds P3: through nitrogen fixation P4: nitrifying bacteria/Nitrosomonas sp. Oxidise ammonia into nitrites P5: Nitrobacter sp. Oxidise nitrite into nitrate P6: Denitrifying bacteria breakdown nitrates P7: into nitrogen and oxygen P8: through denitrification Any 7	1 1 1 1 1 1 1 1	Max 7
		(ii)	P1: dead organisms cannot be decomposed P2: less ammonium compounds formed P3: less nitrite/nitrate P4: plant get less nitrite/nitrate P5: plant growth retarded/stunted // rate of plant growth decrease. Any 3	1 1 1 1 1	Max 3
		(b)	P1:It is balanced ecosystem in which there is interaction between biotic and abiotic factors P2: provide important locations for scientific research P3: play an important role in educating people about biodiversity and natural processes P4: provide essential habitat for rare or important species such as the endangered P5: Wetlands provide habitat for birds, P6: help to control pests on nearby farms. P7: Wetlands reduce the risk of flooding P8: by slowing down the movement of floodwaters along Rivers.	1 1 1 1 1 1 1 1	

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
			P9: Wetlands improve water quality P10: by trapping sediments//filtering out pollutants P11: Absorbing nutrients that would otherwise result in poor water quality for downstream users. P12: Wetlands support agricultural activities P13: by providing a source of water for irrigation // livestock P14: to provide freshwater/water catchment areas P15: Wetlands provide significant economic/ social / cultural benefits/ecotourism P16: important for primary products such as pastures / timber / fish . P17: and support recreational and tourist activities. P18: to ensure the preservation of flora and fauna / P19: prevent extinction of flora and fauna // maintain biodiversity P20: maintain the natural cycle of water Any 10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 max
			Total	20 marks	

8.	(a)	(i)	Dapat menerangkan proses penipisan lapisan ozon dan kesannya kepada pembentukan lubang ozon. F : Bahan yang menyebabkan penipisan lapisan ozon ialah CFC /klorofluorokarbon P1: Klorofluorokarbon akan dipecahkan oleh sinaran UV untuk membentuk radikal klorin bebas P2: Klorin bertindak balas dengan molekul ozon untuk membentuk molekul oksigen dan klorin monoksida P3: Klorin monoksida tidak stabil P4 : Klorin momoksida akan bertindak balas dengan atom oksigen bebas. P5: untuk membentuk molekul oksigen dan radikal klorin bebas. P6 Radikal klorin bebas akan bertindak balas dengan Molekul ozon yang lain untuk membentuk oksigen dan klorin monoksida P7 Kesannya kurang gas ozon dihasilkan P8 menyebabkan lapisan ozon menipis P9 membentuk lubang ozon di antartika Mana-mana 5	 1 1 1 1 1 1 1 1 1 1	Max 5

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
		(ii)	Kesan penipisana lapisan ozon kepada organisma hidup dalam alam sekitar Kesan kepada alam sekitar P1 meningkatkan suhu bumi/kesan rumah hijau/pemanasan global P2 ais di kutub cair P3 Peningkatan aras laut P4 Banjir di kawasan rendah P5 perubahan dalam corak cuaca Kesan kepada manusia P6 Penipisan lapisan ozon meningkatkan sinaran UV yang sampai ke bumi P7 pendedahan kepada sinaran UV meningkatkan Risiko penyakit kanser kulit P8 katarak mata P9 melemahkan system keimunan badan Kesan kepada tumbuhan P10 Pemusnahan sel-sel daun dan klorofil oleh sinar UV P11 mengurangkan kadar fotosintesis P12 mengurangkan hasil tanaman Mana-mana 5.	 1 1 1 1 1 1 1 1 1 1 1 1	Max 5
	(b)		Dapat menyatakan sungai yang paling tercemar dan sebabnya F 1 : Sungai yang paling tercemar ialah sungai A P1: Sungai ini berada berhampiran dengan kawasan ladang dan kawasan penternakan P2 : kerana kandungan bahan organik /pepejal terampai dan baja nitrat / fosfat	 1 1 1	

QUESTION NO.			MARKING CRITERIA	SUB MARKS	TOTAL MARKS
			Dapat meyatakan kesan pencemaran kepada ekosistem F2 : Penggunaan baja di ladang untuk meningkatkan hasil tanaman P3 Baja mengandungi nitrat/fosfat P4 nitrat/fosfat/baja berlebihan larut dalam air hujan dan mengalir ke sungai P5 menyebabkan pertumbuhan algae/alga bloom pada permukaan air P6 menghalang cahaya ke dasar tasik P7 kadar fotosintesis oleh tumbuhan di dasar sungai berkurang P8 Jumlah oksigen dan nutrient dihasilkan berkurang P9 Tumbuhan akuatik akan mati P10 Aras oksigen menurun secara berperingkat P11 menyebabkan hidupan akuatik mati P12 Proses penguraian oleh bakteria meningkat P13 Hasil buangan daripada kawasan penternakan seperti najis P14 Meningkatkan kandungan bahan organic P15 Meningkatkan kadar BOD Mana-mana 10.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Max 10
			Total	20 markah	
9	(a)		Able to explain the type of skeletons Leech F1: Hydrostatic skeleton E1: Consists of internal watery fluid contained within confined spaces in the body. E2: The fluid is held under pressure in compartment surrounded by muscles. E4: Since the fluid cannot escape, it forms an incompressible skeleton *Any 3* Cockroach F3: Exoskeleton E5: The cuticle of an insect covers the surface of its body. E6: Protects the internal organs from destroy. E7: Insects have to shed their skeletons by ecdysis to grow. *Any 3*	1 1 1 1 1 1 1 1	Max 6

	(b)	(i)	Able to explain the action of action the antagonistic muscles and adaptation of the rear legs to enable the frog to jump. P1: A frog has antagonistic muscles called the flexor and extensor muscles P2: Frog has long, strong and muscular hind legs which are adapted for jumping. P3: Flexor muscle contract to flex the leg / prepare for jumping. P4: Extensor muscle contract, flexor muscle relaxed causes the hind legs to straighten suddenly. P5: The force produced exerted to push the frog P6: upwards and forwards. *Any 4*	1 1 1 1 1 1	4
		(ii)	Able to explain the functions of the web in locomotion of a frog. F1: Webbed feet allow the frog a larger surface area E1: push against the water E2: propel themselves through the water while swimming E3: give more up thrust force to propel through the air during jumping. *Any 4*	1 1 1 1	4
		(d)	Able to explain the bad effect of wearing high-heeled shoes P1: The awkward curvature of the leg while wearing high heels puts too much pressure on the knee joint and cause pain. P2: (Fibers in the) calf muscle to shorten, and the (achilles) tendon, which connects the calf muscle to the bone, to stiffen and become thicker. P3: This can lead to discomfort when standing / walking (and cause pain)	1 1 1	6

			P4: Wearing them increases risk for ankle sprains / stress fractures / pinched nerves (and cause pain.) P5: These type of shoes exacerbate the problem because they tip your body weight forward P6: Forcing her toes towards the front of her shoe cause pain at toes joints. P7:This action forces her big toes against your other toes, which can cause bunion (protrusion) P8: Wearing high also increasing the pressure on the balls of the feet / heel through a downward force (and cause pain)	1 1 1 1 1	
			Any 6		
			TOTAL		**20**