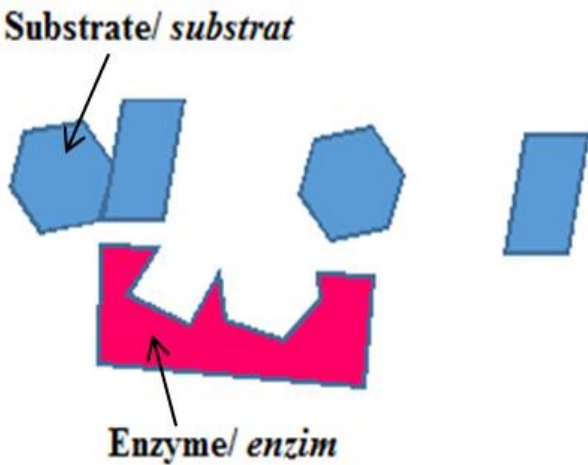


Modul Pintas Tingkatan 5
Peperiksaan Percubaan SPM 2018
Skema Jawapan Biologi
Kertas 1 4551/1

No. Soalan	Jawapan	No. Soalan	Jawapan	No. Soalan	Jawapan
1	C	11	B	21	C
2	A	12	A	22	B
3	D	13	B	23	B
4	C	14	A	24	C
5	C	15	B	25	D
6	A	16	B	26	B
7	A	17	C	27	C
8	B	18	A	28	B
9	C	19	A	29	C
10	A	20	D	30	C
No. Soalan	Jawapan	No. Soalan	Jawapan	No. Soalan	Jawapan
31	B	41	D	51	-
32	A	42	B	52	-
33	D	43	D	53	-
34	B	44	D	54	-
35	D	45	A	55	-
36	C	46	C	56	-
37	A	47	A	57	-
38	B	48	B	58	-
39	A	49	C	59	-
40	C	50	D	60	-

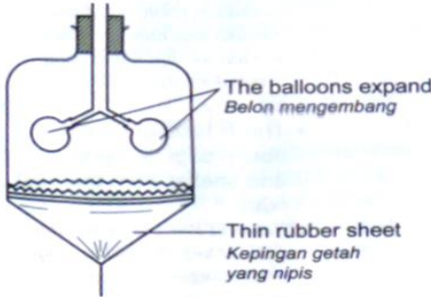
Modul Pintas Tingkatan 5
Peperiksaan Percubaan SPM 2018
Skema Jawapan Biologi
Kertas 2 4551/2

SULIT		J1	4551/2											
No	Marking criteria	Marks	Total marks											
1.	(a)(i) Able to name the following type of cell correctly. <i>Dapat menamakan jenis sel dengan betul.</i> Answer: <i>Jawapan</i> Plant cell <i>Sel tumbuhan</i>	1	1											
1.	(a)(ii) Able to state function of P and Q. <i>Dapat menyatakan fungsi P dan Q.</i> Answer: <i>Jawapan</i> P : Regulates the movement of substances into and out the cytoplasm/cell. <i>Mengawal pergerakan bahan masuk dan keluar dari sitoplasma/sel.</i> Q : Produces (and assembles subunits which form the) ribosome. <i>Menghasilkan (dan membentuk subunit bagi pembentukan) ribosom.</i>	1 1	2											
1.	(b) Able to tick (✓) cells that have abundance of organelle R. <i>Dapat tandakan (✓) sel yang mengandungi banyak organel R.</i> Answer: <i>Jawapan</i> <table border="1" data-bbox="451 1094 1101 1251"> <tbody> <tr> <td>Spongy mesophyll cell/<i>Sel mesofil berspan</i></td> <td></td> </tr> <tr> <td>Cardiac cell/<i>Sel kardiak</i></td> <td>✓</td> </tr> <tr> <td>Nerve cell/<i>Sel saraf</i></td> <td>✓</td> </tr> <tr> <td>Intestinal epithelial cell/<i>Sel epitelium usus kecil</i></td> <td></td> </tr> <tr> <td>Meristem cell/<i>Sel meristem</i></td> <td>✓</td> </tr> </tbody> </table>	Spongy mesophyll cell/ <i>Sel mesofil berspan</i>		Cardiac cell/ <i>Sel kardiak</i>	✓	Nerve cell/ <i>Sel saraf</i>	✓	Intestinal epithelial cell/ <i>Sel epitelium usus kecil</i>		Meristem cell/ <i>Sel meristem</i>	✓	1 1 1	3	
Spongy mesophyll cell/ <i>Sel mesofil berspan</i>														
Cardiac cell/ <i>Sel kardiak</i>	✓													
Nerve cell/ <i>Sel saraf</i>	✓													
Intestinal epithelial cell/ <i>Sel epitelium usus kecil</i>														
Meristem cell/ <i>Sel meristem</i>	✓													
*If students tick all = 1 mark (WCR applied)														
1.	(c) Able to explain how structure S is involved in maintaining the turgidity of plant cells. <i>Dapat menerangkan bagaimana struktur S terlibat dalam mengekalkan kesegahan sel tumbuhan.</i> Answer: <i>Jawapan</i> P1 : S is a vacuole. <i>S ialah vakuol.</i> P2 : S carries out osmoregulation <i>S menjalani pengosmokawalaturan</i> P3 : regulating/maintaining the amount of water inside the cell. <i>Mengawalatur/ mengekalkan jumlah air di dalam sel.</i> water and allows it to diffuse out of the plant cell// suitable explanation <i>Jika sel tumbuhan mengandungi lebih air, vakuol akan menyerap air dan membenarkannya meresap keluar daripada sel tumbuhan// Penerangan sesuai</i> P5 : by osmosis <i>secara osmosis</i>	1 1 1 1	2											
		(any 2P)												

SULIT		J3	4551/2	
No	Marking criteria	Marks	Total marks	
1.	(d)(i) Able to explain the role of X in controlling the water balance in the <i>Paramecium</i> sp. <i>Dapat menerangkan peranan X dalam mengawal keseimbangan air di dalam Paramecium sp. itu.</i> Answer: <i>Jawapan</i> P1 : X is a contractile vacuole. <i>X ialah vakuol mengecut.</i> P2 : Water diffuses into the contractile vacuole (by osmosis) <i>Air meresap masuk ke dalam vakuol mengecut (secara osmosis)</i>	1 1		
	P3 : causing it to expand until reaching its maximum size. <i>menyebabkan ia mengembang sehingga mencapai saiz maksimum.</i> P4 : Excess water will be expelled/removed/excreted by contractile vacuole <i>Air dikeluarkan/disingkirkan/dikumuhkan dari vakuol mengecut</i> P5 : prevents it from bursting. <i>mencegah ia dari meletus.</i> P6 : known as osmoregulation. <i>dikenali sebagai pengosmokawalaturan.</i>	1 1 1 1 (any 2P)	2	
1.	(d)(ii) Able to explain the effects of the inhibitor to the <i>Paramecium</i> sp. <i>Dapat menerangkan kesan-kesan perencat ini terhadap Paramecium sp. tersebut.</i> Answer: <i>Jawapan</i> P1 : The respiratory inhibitor inhibits cellular respiration. <i>Perencat respirasi merencatkan respirasi sel.</i> P2 : cannot generate energy/ATP <i>tidak dapat menghasilkan tenaga/ATP</i> P3 : cellular activities/active transport cannot occur <i>Aktiviti sel/pengangkutan aktif tidak boleh berlaku</i> P4 : <i>Paramecium</i> sp. eventually dies. <i>Paramecium sp. akhirnya mati.</i>	1 1 1 1 (any 2P)	2	
TOTAL		12		
2.	(a) Able to label the enzyme and substrate molecule. <i>Dapat label molekul enzim dan substrat.</i> Answer: <i>Jawapan</i> 	1 1	2	

SULIT		J3	4551/2	
No		Marking criteria	Marks	Total marks
2.	(b)(i)	<p>Able to explain what is meant by term catalyst. <i>Dapat menerangkan maksud terminologi pemangkin.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : speeds up / increases the rate of a chemical reaction <i>mempercepatkan/meningkatkan tindak balas kimia</i></p> <p>P2 : is not changed by the reaction <i>tidak akan berubah selepas tindak balas</i></p> <p>P3 : used/needed in a small quantities <i>Digunakan/diperlukan dalam kuantiti sedikit</i></p>	<p>1</p> <p>1</p> <p>1 (any 2P)</p>	2
2.	(b)(ii)	<p>Able to explain why enzymes are important in organisms. <i>Dapat menerangkan mengapa enzim penting kepada organisma.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : Biochemical reactions occur at high speed/rate/rapidly <i>Tindak balas biokimia dapat berlaku dengan cepat/kadar yang tinggi</i></p> <p>P2 : highly specific <i>sangat khusus</i></p> <p>P3 : Lowers the activation energy <i>Merendahkan tenaga pengaktifan</i></p> <p>P4 : The reaction occurs at optimal temperature <i>Tindakbalas berlaku pada suhu optimum</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1 (Any 2P)</p>	
2.	(c)(i)	<p>Able to explain the changes in the woman's blood glucose concentration for the period shown in the Diagram 2.2. <i>Dapat menerangkan perubahan kepekatan glukosa darah wanita itu bagi tempoh yang ditunjukkan dalam Rajah 2.2.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : The woman's blood glucose concentration rises and decreases. <i>Kepekatan glukosa darah wanita itu meningkat dan berkurang.</i></p> <p>P2 : The highest concentration is 6.6 mmol dm⁻³ at minute 45. <i>Kepekatan tertinggi ialah 6.6 mmol dm⁻³ pada minit ke-45.</i></p> <p>P3 : Sucrose is hydrolysed/digested into glucose (and fructose) <i>Sukrosa dihidrolisis/diuraikan kepada glukosa (dan fruktosa)</i></p> <p>P4 : Glucose is absorbed into blood (capillaries). <i>Glukosa diserap ke dalam (kapilari) darah.</i></p> <p>P5 : The concentration of glucose decreases as it is being used up/ oxidised. <i>Kepekatan glukosa berkurang kerana ia digunakan/dioksidakan.</i></p> <p>P6 : The excess glucose is stored (into glycogen). <i>Glukosa terlebih disimpan (dalam bentuk glikogen).</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1 (any 2P)</p>	2
2.	(c)(ii)	<p>Able to explain why Sucrase does not hydrolyse lactose. <i>Dapat menerangkan kenapa Sukrase tidak menghidrolisis laktosa.</i></p> <p><i>Jawapan</i></p> <p>P1 : Lactose molecule has a different shape/structure. <i>Molekul laktosa mempunyai bentuk/struktur yang berlainan.</i></p> <p>P2 : Thus, it does not fit/can't bind to the active site of the enzyme sucrase. <i>Maka, ia tidak padan/tidak boleh mengikat pada tapak aktif enzim sukrase.</i></p> <p>P3 : The active site of the enzyme sucrase has a specific shape/structure. <i>tapak aktif enzim sukrase mempunyai bentuk/ struktur yang spesifik.</i></p> <p>P4 : Thus, it does not fit / can't bind to lactose molecule. <i>Maka, ia tidak padan/tidak boleh mengikat pada molekul laktosa.</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1 (Any 2P)</p>	2

SULIT		J4	4551/2	
No	Marking criteria	Marks	Total marks	
2.	(d) Able to explain why the pineapple is placed on the meat a few hours before, rather than during cooking. <i>Dapat menerangkan mengapa nenas diletakkan di atas daging beberapa jam sebelum masak dan bukannya ketika dimasak.</i> Answer: <i>Jawapan</i> P1 : Pineapple (slices) contains protease. <i>Nenas (kepingan) mengandungi protease.</i> P2 : Protease tenderises/softens/hydrolyses protein. <i>Protease mengempukkan/melembutkan/menghidrolisis protein.</i> P3 : (By mixing the pineapple a few hours on the meat), allow the enzyme to act efficiently//takes shorter time to cook. <i>(Dengan mencampurkan nenas di atas daging beberapa jam), memberikan enzim lebih masa untuk bertindak secara efektif// mengambil masa yang singkat untuk masak.</i> P4 : Strong heat / high temperature denatures the enzyme. <i>Haba yang kuat/suhu tinggi menyahsikan enzim.</i> P5 : Thus, the enzyme could not tenderise the meat. <i>Maka enzim ini tidak dapat melembutkan daging.</i>	1 1 1 1 1 1 (Any 2P)	2	
TOTAL		12		
3.	(a)(i) Able to name similar structure to the glass tube and the bell jar in the human respiratory system. <i>Dapat menamakan struktur yang setara dengan tiub kaca dan serkup kaca dalam sistem respirasi manusia.</i> Answer: <i>Jawapan</i> Glass tube/tiub kaca : trachea/trakea Bell jar/Balang kaca : ribs/rib cage/ rusuk/sangkar rusuk	1 1	2	
3	(a)(ii) Able to explain the function of the thin rubber sheet in the model of the lungs. <i>Dapat menerangkan fungsi kepingan getah nipis dalam model peparu.</i> Answer: <i>Jawapan</i> P1 : to change the volume of the bell jar. <i>Untuk mengubah isi padu balang kaca.</i> P2 : when the thin rubber sheet is pulled downwards, volume in the bell jar increases// when the thin rubber sheet is pushed upwards, volume in the bell jar decreases <i>Apabila kepingan getah nipis ditarik ke bawah, isipadu balang kaca meningkat// Apabila kepingan getah nipis ditolak ke atas, isipadu balang kaca berkurang.</i> P3 : Air pressure in the bell jar decreases// Air pressure in the bell jar increases. <i>Tekanan udara dalam balang kaca berkurang// Tekanan udara dalam balang kaca meningkat.</i> P4 : Air is forced into the balloons// Air is forced out of the balloons. <i>Udara dipaksa memasuki belon//Udara dipaksa keluar dari belon.</i> P5 : Inhalation occurs//Exhalation occurs. <i>Penarikan nafas berlaku//Hembusan nafas berlaku.</i>	1 1 1 1 1 (any 2P)	2	

SULIT		J5	4551/2	
No	Marking criteria	Marks	Total marks	
3	<p>(b)</p> <p>Able to draw and label the changes to the thin rubber sheet and the balloon in the box Diagram 3.2 if the string in the model of the lungs is pulled down.</p> <p><i>Dapat melukis dan melabel perubahan pada kepingan getah nipis dan belon dalam kotak Rajah 3.2 jika tali dalam model peparu ditarik ke bawah.</i></p> <p>Answer: <i>Jawapan</i></p>  <p>Draw – 1 mark Label – 1 mark</p>	1	1	2
3	<p>(c)(i)</p> <p>Able to explain the effect of these harmful gases to the aquatic organisms.</p> <p><i>Dapat menerangkan kesan banyak gas berbahaya ini terhadap organisma akuatik.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : Harmful gases released by factories dissolved in rainwater <i>Gas berbahaya yang dibebaskan oleh kilang-kilang melarut dalam air hujan</i></p> <p>P2: causes acid rain. <i>menyebabkan hujan asid.</i></p> <p>P3 : (Acid rain flows into the river and) reduces the pH value of the river water// causes the river water to be acidic. <i>(Hujan asid mengalir ke dalam sungai dan) merendahkan nilai pH air sungai//menyebabkan air sungai menjadi berasid.</i></p> <p>P4 : This leads to the death of aquatic organisms/fish/aquatic plants. <i>Ini menyebabkan kematian organisma akuatik/ikan/tumbuhan akuatik.</i></p> <p>P5 : The population aquatic organisms/fish/aquatic plants is reduced//faced extinction. <i>Populasi organisma akuatik/ikan/tumbuhan akuatik berkurang//menghadapi kepupusan.</i></p>	1 1 1 1 1 1 (Any 3P)	3	3
3	<p>(c)(ii)</p> <p>Able to explain two adaptations that the human respiratory system and the fish respiratory system have in common.</p> <p><i>Dapat menerangkan dua penyesuaian yang sama di antara sistem respirasi manusia dengan sistem respirasi ikan</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : Both have dense network of blood capillaries <i>Kedua-dua mempunyai jaringan kapilari darah yang padat</i></p> <p>E1 : to transport respiratory gases. <i>untuk mengangkut gas pernafasan.</i></p> <p>P2 : Both have numerous respiratory structures (alveolus in humans and filaments in fish) <i>olus bagi manusia ikan)</i></p> <p>E2 : to increase the (total) surface area for gaseous exchange. <i>untuk meningkatkan (jumlah) luas permukaan untuk pertukaran gas.</i></p> <p>P3 : Both have very thin wall//one cell thick <i>Kedua-dua mempunyai dinding yang sangat nipis//setebal satu sel</i></p> <p>E3 : for efficient/rapid gaseous exchange. <i>untuk pertukaran gas yang cekap.</i></p> <p>(any 2 P+E pairs)</p>	1 1 1 1 1 1	3	3
TOTAL		12		

SULIT		J6	4551/2	
No		Marking criteria	Marks	Total marks
4	(a)	<p>Able to name the blood cells P and Q. <i>Dapat menamakan sel darah P dan Q.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P - white blood cell/Leucocytes/Granulocytes/Basophil/Neutrophil/Eosinophil <i>Sel darah putih/leukosit/Granulosit/Basofil/Neutrofil/Eosinofil</i></p> <p>Q - red blood cell/Erythrocytes <i>Sel darah merah/Eritrosit</i></p>	1 1	2
4	(b)	<p>Able to explain the function of R in blood clotting mechanism. <i>Dapat menerangkan fungsi R dalam mekanisme pembekuan darah.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : R is platelet. <i>R ialah platlet.</i></p> <p>P2 : R/platelet reacts with oxygen at the cut site/wound. <i>R/platlet bertindak balas dengan oksigen di tempat luka.</i></p> <p>P3 : (Platelets) produce thrombokinese enzyme. <i>(Platlet) menghasilkan enzim trombokinese.</i></p> <p>P4 : Thrombokinese converts prothrombin to thrombin. <i>Trombokinese menukarkan protrombin kepada trombin.</i></p> <p>P5 : in the presence of calcium ions. <i>Dalam kehadiran ion kalsium.</i></p> <p>P6 : Thrombin converts fibrinogen to fibrin <i>Trombin menukarkan fibrinogen kepada fibrin</i></p> <p>P7 : Fibrins trap erythrocytes and blood clot form. <i>Fibrin memerangkap eritrosit dan darah beku terbentuk.</i></p>	1 1 1 1 1 1 1 (Any 3P)	3
4	(c)	<p>Able to name the health problem and explain how this affects the person's health. <i>Dapat menamakan masalah kesihatan dan terangkan bagaimana ia dapat membahayakan kesihatan seseorang itu.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : Sickle cell anemia <i>Anemia sel sabit</i></p> <p>P2: Red blood cell is in a sickle shape. <i>Sel darah merah berbentuk sabit.</i></p> <p>P3 : Less haemoglobin in the cell <i>kurang hemoglobin dalam sel</i></p> <p>P4 : less oxygen transported <i>kurang oksigen diangkut</i></p> <p>P5 : less cellular respiration// less energy produced <i>kurang respirasi sel/ kurang tenaga dihasilkan.</i></p> <p>P6 : Individual will experienced tiredness/fatigue/exhaustedness. <i>Seseorang itu akan mengalami keletihan/kelesuan/kepenatan.</i></p>	1 1 1 1 1 1 (Any 3P)	3

SULIT		J7	4551/2	
No	Marking criteria	Marks	Total marks	
4	<p>(d) Able to explain how the electronic pacemaker functions to stimulate the contraction of the heart. <i>Dapat menerangkan bagaimana perentak elektronik itu berfungsi untuk merangsang pengecutan jantung.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : The electronic pacemaker replaces/acts as sino-atrial nodes. <i>Perentak elektronik menggantikan / bertindak sebagai nodus sino-atria.</i></p> <p>P2 : The electronic pacemaker sends small electrical charges/low voltage <i>Perentak elektronik menghantar cas elektrik yang kecil/ voltan rendah</i></p> <p>P3 : spread over the walls of both atria. <i>tersebar ke seluruh dinding atrium.</i></p> <p>P4 : causing it to contract/atrial systole <i>menyebabkan kedua-duanya mengecut/sistol atrium</i></p> <p>P5 : then electrical charges reach atrioventricular nodes, bundles of His fibres and bundle branches. <i>dan kemudian cas elektrik itu sampai ke nodus arterioventrikel, berkas gentian His dan cabang berkas.</i></p> <p>P6 : Electrical impulses spread to the ventricles (Purkinje fibres conduct impulses to the apex of the heart) <i>Impuls elektrik tersebar ke ventrikel (gentian Purkinje menghantar impuls ke bahagian hujung jantung)</i></p> <p>P7 : causing ventricles to contract/ ventricular systole <i>menyebabkan ventrikel mengecut/ sistol ventrikel.</i></p>	1 1 1 1 1 1	4	
TOTAL		12		
5	<p>(a)(i) Able to state the genotype of offspring in the spaces provided in Diagram 5.1. <i>Dapat menyatakan genotip anak dalam ruangan yang disediakan dalam Rajah 5.1.</i></p> <p>Answer: <i>Jawapan</i></p> <p>Offspring's genotype IA⁺B IA⁺O IB⁺O IO⁺O <i>Genotip anak</i></p>	2	2	
5	<p>(a)(ii) Able to state the phenotypic ratio of offspring. <i>Dapat menyatakan nisbah fenotip anak.</i></p> <p>Answer:</p> <p>Blood group AB : Blood group A : Blood group B : Blood group O <i>Kumpulan Darah AB : Kumpulan Darah A : Kumpulan Darah B : Kumpulan Darah O</i> 1 : 1 : 1 : 1</p>	1 1	2	
5	<p>(b)(i) Able to explain which offspring is a universal donor and universal recipient. <i>Dapat menerangkan yang mana satu adalah penderma universal dan penerima universal.</i></p> <p>Answer: <i>Jawapan</i></p> <p>Universal donor : offspring have blood group O <i>arah O</i></p> <p>P1 : can donor their blood to all type of blood group // blood group A, blood group B, blood group AB, blood group O <i>boleh menderma darah kepada semua jenis kumpulan darah// Kumpulan Darah A, B, AB, O</i></p>	1 1	4	
5	<p>(b)(ii) Universal recipient : offspring have blood group AB <i>Penerima universal : Anak mempunyai kumpulan darah AB</i></p> <p>P2: can accept blood from any type of blood group <i>boleh menerima darah kepada semua jenis kumpulan darah</i></p>	1 1	4	

SULIT		J8	4551/2	
No		Marking criteria	Marks	Total marks
5	(c)(i)	<p>Able to explain why the second child did not survive. <i>Dapat menerangkan mengapa anak kedua tidak dapat diselamatkan</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : (Second) Foetal RBC fragments/debris contain antigen Rhesus <i>Serpihan sel darah merah fetus (kedua) mengandungi antigen Rhesus</i></p> <p>P2 : diffuse across the placenta into mother's blood/mother's blood circulatory system. <i>Meresap merentasi plasenta ke dalam darah ibu/sistem peredaran darah ibu</i></p> <p>P3 : stimulate (mother's) lymphocytes to produce <u>more</u> antibody anti-Rhesus. <i>Merangsang limfosit (ibu) untuk menghasilkan <u>banyak</u> antibodi anti-Rhesus.</i></p> <p>P4 : Anti-Rhesus antibody level rises/ is high in mother <i>Aras antibodi anti-Rhesus ibu meningkat/tinggi</i></p> <p>P5 : (more anti-Rhesus antibody) diffuse across the placenta <i>(banyak antibodi anti-Rhesus) meresap merentasi plasenta</i></p> <p>P6 : transported to the foetus <i>diangkut ke fetus</i></p> <p>P7 : causes (major) agglutination/ haemolysis of (the second foetal) red blood cells <i>Menyebabkan penggumpalan/hemolisis(major) sel darah merah (fetus kedua)</i></p> <p>P8 : erythroblastocyst fetalis occurs. <i>Eritroblastosis fetalis berlaku.</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>(Any 3P)</p>	3
5	(c)(ii)	<p>Able to suggest a step to be taken to ensure they have a surviving third child. <i>Dapat mencadangkan satu langkah yang perlu diambil bagi memastikan anak ketiga selamat.</i></p> <p>Answer: <i>Jawapan</i></p> <p>P1 : Give injection immunoglobulin to the wife before third pregnancy <i>suntikan immunoglobulin kepada ibu diberi sebelum kehamilan ketiga</i></p> <p>P2 : (Total fetal) blood transfusion <i>Transfusi darah (sepenuhnya)</i></p>	<p>1</p> <p>1</p> <p>(any 1P)</p>	2
TOTAL			12	
6(a)(i)		<p>Able to explain the meaning of the knee jerk reflex action correctly. <i>Dapat menerangkan maksud tindakan refleks sentakan lutut dengan betul.</i></p> <p>Sample answer: <i>Contoh jawapan:</i></p> <p>P1: Reflex action is a unconscious action <i>Tindakan refleks adalah tindakan tanpa sedar</i></p> <p>P2: that occur automatically <i>berlaku secara automatik</i></p> <p>P3: involving two neurons, afferent neuron and efferent neuron <i>yang melibatkan dua neuron iaitu neuron aferen dan neuron eferen</i></p> <p>P4: with immediately/rapidly/very fast when the knee-jerk occurred <i>dalam kadar waktu yang cepat/pantas apabila berlaku sentakan lutut</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	3

SULIT		J9	4551/2																																	
No	Marking criteria	Marks	Total marks																																	
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SULIT		J10	4551/2																			
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	P16: zygote develops into embryo consists of (one / two) cotyledon, a radicle and plumule. <i>Zigot berkembang menjadi embrio terdiri daripada (satu / dua) kotiledon, radikel dan plumul.</i>	1																																														
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<i>menghidrolisis maltosa kepada glukosa.</i>	1		P13:	Concentration of glucose is higher in the (lumen of) ileum / small intestine as compared to that of the villi. <i>Kepekatan glukosa lebih tinggi dalam (lumen) ileum / usus kecil dibandingkan dengan kepekatan glukosa di dalam vilus,</i>	1		P14:	Glucose diffuses into the blood capillaries (in the villi) by facilitated diffusion. <i>Glukosa meresap ke dalam kapilari darah () secara resapan berbantu.s.</i>	1 (Any 10P)	10		
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Modul Pintas Tingkatan 5
Peperiksaan Percubaan SPM 2018
Skema Jawapan Biologi
Kertas 3 4551/3

Question 1

No	Mark Scheme	Score																												
KB0603 – Measuring Using Number																														
1 (a)	<table border="1"><thead><tr><th rowspan="2">Pots <i>Pasu</i></th><th rowspan="2">Mass of fertilizer (g) <i>Jisim baja (g)</i></th><th colspan="3">Length of French bean (cm) <i>Panjang kacang panjang (cm)</i></th></tr><tr><th>1</th><th>2</th><th>3</th></tr></thead><tbody><tr><td>P</td><td>5</td><td>1.8</td><td>2.6</td><td>1.8</td></tr><tr><td>Q</td><td>10</td><td>3.6</td><td>3.6</td><td>5.6</td></tr><tr><td>R</td><td>15</td><td>4.8</td><td>5.6</td><td>5.6</td></tr><tr><td>S</td><td>20</td><td>3.6</td><td>4.2</td><td>4.0</td></tr></tbody></table>	Pots <i>Pasu</i>	Mass of fertilizer (g) <i>Jisim baja (g)</i>	Length of French bean (cm) <i>Panjang kacang panjang (cm)</i>			1	2	3	P	5	1.8	2.6	1.8	Q	10	3.6	3.6	5.6	R	15	4.8	5.6	5.6	S	20	3.6	4.2	4.0	3
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Able to record all 12 - 10 ticks																														
Able to record all 9 - 5 ticks		2																												
Able to record all 4 - 1 ticks		1																												
No response <u>or</u> incorrect response		0																												

KB0601 - Observation		
1 (b) (i)	<p>Able to state two correct observations based on the following aspect:</p> <p>P1: Manipulated variable (Mass of fertilizers)</p> <p>P2: Responding variable (Length of French bean)</p> <p>P3: Reading / Comparison</p> <p>Sample answer</p> <ol style="list-style-type: none"> The length of French bean in Pot P are 1.8cm, 2.6cm and 1.8cm. <i>Panjang kacang buncis di dalam pasu P ialah 1.8cm, 2.6cm dan 1.8cm.</i> The length of French bean in Pot R are 4.8cm, 5.6cm and 5.6cm. <i>Panjang kacang buncis di dalam pasu R ialah 4.8cm, 5.6cm dan 5.6cm.</i> The length of French bean in Pot S//P is the least // most <i>Panjang kacang buncis di dalam pasu S //P adalah paling rendah // tinggi.</i> 	3
	<p>Able to state one correct observation and one inaccurate observation or able to state two inaccurate observations.</p> <p>Sample answer</p> <ol style="list-style-type: none"> The length of French bean in Pot P are the shortest. <i>Panjang kacang buncis di dalam pasu P ialah paling pendek</i> The length of French bean in Pot R are the highest. <i>Panjang kacang buncis di dalam pasu R ialah paling panjang.</i> The average of French bean in Pot P is 2.07cm. <i>Purata panjang kacang buncis di dalam pasu P ialah 2.07cm.</i> 	2
	<p>Able to state one correct observation or able to state two observations at idea level.</p> <p>Sample Answer:</p> <ol style="list-style-type: none"> The length of French bean is different. <i>Panjang kacang buncis adalah berbeza</i> 	1
	No response or wrong response	0

Scoring

Correct	Inaccurate	Idea	Wrong	Score
2	-	-	-	3
1	1	-	-	2
-	2	-	-	
1	-	1	-	1
-	-	2	-	
1	-	-	1	
-	1	1	-	
-	1	-	1	0
-	-	1	1	

KB0604 - Making inference

1(b)(ii)	<p>Able to state two inferences correctly based on the following aspect:</p> <p>P1: Manipulated variable (Mass of fertilizers)</p> <p>P2: Responding variable (Growth rate//Not suitable for growth/maximum/high/low)</p> <p>Sample answer</p> <ol style="list-style-type: none"> In Pot P, mass of fertilizers is low, so growth rate of French beans is low <i>Di pasu P, jisim baja adalah rendah, jadi kadar pertumbuhan kacang buncis adalah rendah.</i> In Pot R, mass of fertilizers is high, so growth rate of French beans is high. <i>Di pasu R, jisim baja adalah tinggi, jadi kadar pertumbuhan kacang buncis adalah tinggi.</i> 	3
	<p>Able to make one correct inferences and one inaccurate inference</p> <p>Sample answer</p> <ol style="list-style-type: none"> In Pot P, so not suitable for growth of French beans. <i>Di pasu P, pertumbuhan kacang buncis tidak sesuai.</i> 	2
	<p>Able to state one correct inference and one inference at idea level.</p> <ol style="list-style-type: none"> Different length in growth. <i>Perbezaan panjang dalam pertumbuhan</i> 	1
	No response OR wrong response	0

Scoring

Score	Correct	Inaccurate	Idea	Wrong
3	2	-	-	-
2	1	1	-	-
	-	2	-	-
1	1	-	1	-
	-	-	2	-
	-	1	1	-
0	-	1	-	1
			1	1

KB0610 - Controlling variables

1(c)

Able to state all 3 variables and the 3 methods to handle the variable correctly.

3

Sample Answer:

Variables <i>Pembolehubah</i>	Method to handle the variable correctly <i>Kaedah mengawal pembolehubah</i>
<u>Manipulated variable</u>	
Mass of fertilizers <i>Jisim baja</i>	Use the different mass of fertilizers // Use the mass of fertilizers at 5g, 10g, 15g and 20g <i>Menggunakan jisim baja yang berbeza // Menggunakan jisim baja pada 5g, 10g, 15g dan 20g</i>
<u>Responding variable</u>	
Length of French beans <i>Panjang kacang buncis</i>	Measure and Record the length of French beans using by ruler <i>Mengukur dan merekod panjang kacang buncis dengan menggunakan pembaris</i>
The average length of the mass French beans <i>Purata panjang kacang buncis</i>	Calculate the average length of the mass French beans by using the formula : Average length = $\frac{\text{mass 1} + \text{mass 2} + \text{mass 3}}{3}$ <i>Mengira purata panjang kacang buncis dengan menggunakan fomula:</i> Purata = $\frac{\text{panjang 1} + \text{panjang 2} + \text{panjang 3}}{\text{panjang 3}}$
Growth Rate <i>Kadar Pertumbuhan</i>	Calculate the growth rate using the formula : Growth Rate = $\frac{\text{mass of French beans, g}}{2 \text{ month}}$ <i>Mengira kadar pertumbuhan dengan menggunakan formula:</i> <hr style="width: 20%; margin: auto;"/> 2 bulan
Variation <i>Variasi</i>	Compare / show different the length of French bean in different mass of fertilizer <i>Bandingkan panjang kacang buncis pada jisim baja yang berbeza</i>

	<p><u>Constant variable</u></p> <p>Amount of water // Sunlight //Light intensity// Type of plant// Duration// Volume of soils // Number of seedling</p> <p><i>Jumlah air // Pencahayaan // Keamatan cahaya // Jenis tumbuhan // Tempoh masa // Isipadu tanah // Bilangan biji benih</i></p>	<p>All the plant watered with same amount of water// Placed under sunlight every day// Use the same type of plant at French beans// Fix the duration of time for growth for two month // Fix the volume of soils // Fix the number of seedling</p> <p><i>Semua tumbuhan disiram dengan jumlah air yang sama // Diletakkan di bawah cahaya matahari setiap hari // Menggunakan jenis tumbuhan yang sama iaitu kacang buncis// Tetapkan masa untuk pertumbuhan selama dua bulan// Menggunakan isipadu tanah yang sama// Menggunakan bilangan biji benih yang sama</i></p>	
	All 6 ticks		
	Able to state 3- 5 ticks		2
	Able to state 1-2 ticks		1
	No response or incorrect response		0

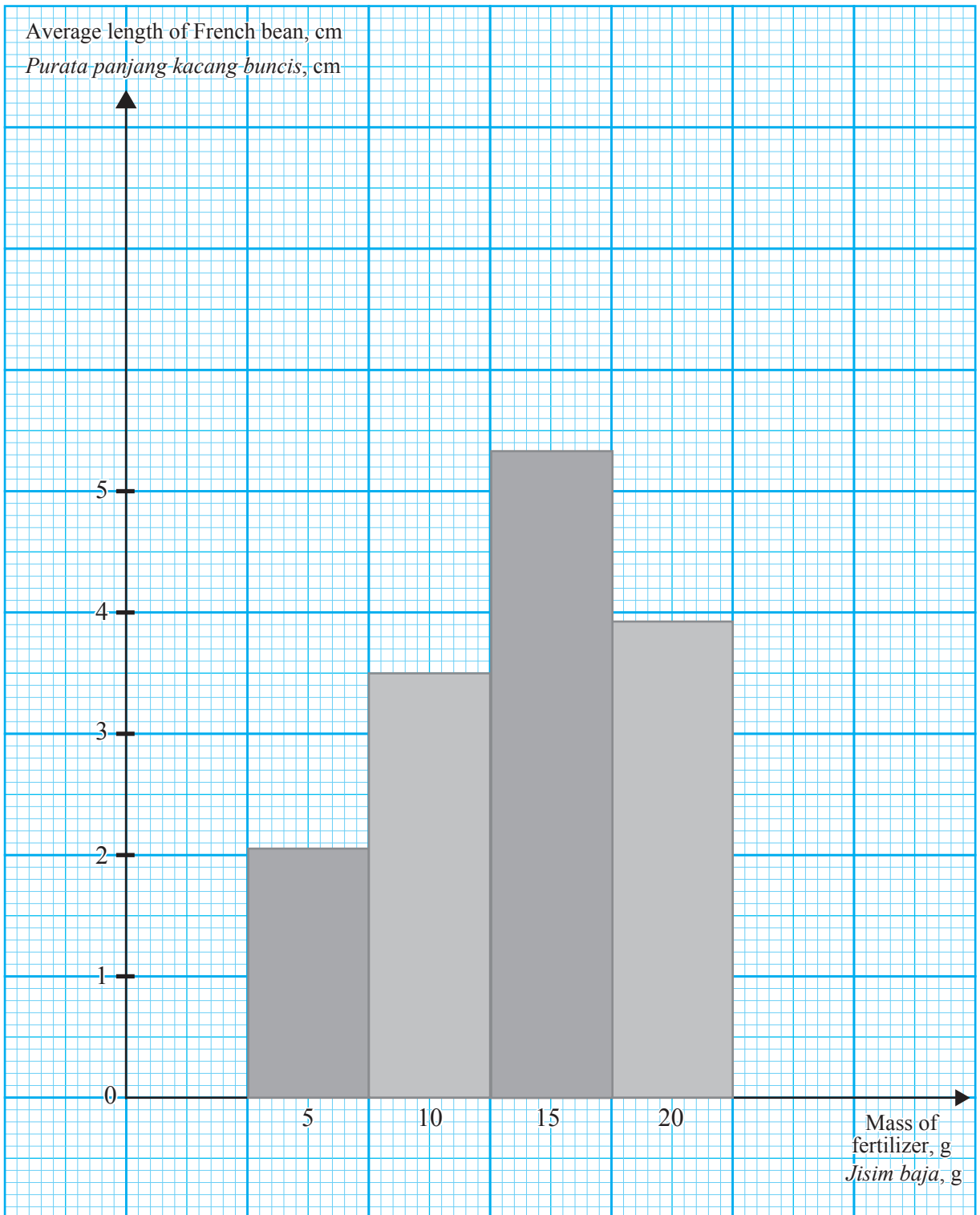
KB0611 - State hypothesis		
1 (d)	<p>Able to make a hypothesis based on the following aspect:</p> <p>P1: Manipulated variable (Mass of fertilizers)</p> <p>P2: Responding variable (Length of French bean // Growth rate // variation)</p> <p>P3: Relationship between variables</p> <p>Sample Answer:</p> <ol style="list-style-type: none"> When the mass of fertilizers increase, the length of French beans are increases till mass of fertilizers at 15gram. <i>Apabila jisim baja bertambah, panjang kacang buncis bertambah sehingga jisim baja pada 15gram.</i> As the mass of fertilizers increases , the length of French beans increases// the growth rate increase // the average length of French beans increase <i>Semakin bertambah jisim baja, semakin bertambah panjang kacang buncis // semakin bertambah kadar pertumbuhan // bertambah purata panjang kacang buncis</i> 	3
	<p>Able to make a hypothesis relating the manipulated variable and responding variable inaccurately</p> <p>Sample Answer:</p> <ol style="list-style-type: none"> Mass of fertilizers affect length of French beans. <i>Jisim baja mempengaruhi panjang kacang buncis.</i> 	2
	<p>Able to state a hypothesis relating the manipulated variable at idea level, with one aspect correctly.</p> <p>Sample Answer:</p> <ol style="list-style-type: none"> Different mass of fertilizers <i>Perbezaan jisim baja</i> 	1
	No response or wrong response if no P1 or P2 no mark for each.	0

KB0606 – Communicating data

1 (e)(i)	<p>Able to construct a table which contain the following aspects:</p> <p>P1: Able to state the 6 titles with units correctly. P2: Able to record all data correctly. P3: Able to calculate the average length of French beans</p> <p>Sample answer:</p> <table border="1" data-bbox="375 548 1228 1008"> <thead> <tr> <th rowspan="2">Mass of fertilizers (g) <i>Jisim baja (g)</i></th> <th colspan="3">Length of French beans (cm) <i>Panjang kacang buncis (cm)</i></th> <th rowspan="2">Average length of French beans(cm) <i>Panjang purata kacang buncis (cm)</i></th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>1.8</td> <td>2.6</td> <td>1.8</td> <td>2.07</td> </tr> <tr> <td>10</td> <td>3.6</td> <td>3.6</td> <td>5.5</td> <td>3.72</td> </tr> <tr> <td>15</td> <td>4.8</td> <td>5.6</td> <td>5.6</td> <td>5.33</td> </tr> <tr> <td>20</td> <td>3.6</td> <td>4.2</td> <td>4.0</td> <td>3.93</td> </tr> </tbody> </table>	Mass of fertilizers (g) <i>Jisim baja (g)</i>	Length of French beans (cm) <i>Panjang kacang buncis (cm)</i>			Average length of French beans(cm) <i>Panjang purata kacang buncis (cm)</i>	1	2	3	5	1.8	2.6	1.8	2.07	10	3.6	3.6	5.5	3.72	15	4.8	5.6	5.6	5.33	20	3.6	4.2	4.0	3.93	3
Mass of fertilizers (g) <i>Jisim baja (g)</i>	Length of French beans (cm) <i>Panjang kacang buncis (cm)</i>			Average length of French beans(cm) <i>Panjang purata kacang buncis (cm)</i>																										
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15	4.8	5.6	5.6	5.33																										
20	3.6	4.2	4.0	3.93																										
	Any two aspects correct	2																												
	Any one aspect correct	1																												
	No response or wrong response.	0																												

Histogram of average length of French bean against the mass of fertilizer

Histogram bagi purata panjang kacang buncis melawan jisim baja



KB0607 – Relationship between space and time		
1 (e)(ii)	<p>Able to plot the graph correctly:</p> <p>Criteria:</p> <p>P: Correct Axis with label, uniform scale and unit Y axis, Average of the length X axis, Mass of fertilizer</p> <p>T: All 6 bars drawn</p> <p>B: Histogram</p>	3
	Any two criteria	2
	Any one criteria	1
	No response or wrong response	0

KB0608 – Interpreting the data

1 (f)	<p>Able to state the types of variation and explain. Sample answer:</p> <p>R: Types of variation: Continuous variation</p> <p>Explanation:</p> <p>E1: Normal distribution // Bell shape // Biomial. E2: Effected by environmental factor // by mass of fertilizers E3: Shows small/not distinct differences in length between French beans E4: Differences can be measured / quantitatively</p> <p>(1R + Any 2E)</p> <p>Note: If R1 wrong, reject E1 & E2</p> <p>Sample Answer:</p> <p>1. The type of variation is continuous variation because it shows normal distribution and can be measured. <i>Jenis variasi ialah variasi selanjar kerana ia menunjukkan taburan normal dan boleh diukur.</i></p>	3
	<p>Two aspects including <u>R1</u> Example: R1 + E1 / R1 + E2</p>	2
	<p>Only <u>R1</u> stated</p>	1
	<p>No response or incorrect response</p>	0

KB0605 - Predicting

1(g)	<p>Able to predict using all the following criteria/aspects:</p> <p>P: Correct prediction – (Average less than 3.93cm // decrease)</p> <p>E1: Reason – pH soils are not suitable // acidic // pH soils are low</p> <p>E2: Effect – Growth rate slower // Plant wilt</p> <p>Sample answer:</p> <p>1. The average length of French beans is decrease / less than 3.93cm. The soils are acidic. The plant will growth rate is slower. <i>Purata panjang kacang buncis menurun / kurang daripada 3.93cm. pH tanah adalah berasid. Tumbuhan menjadi kadar pertumbuhan lebih rendah</i></p>	3
	<p>Any two aspects:</p> <p>P(idea) + 2E // P + 1E</p>	2
	<p>Any one aspect:</p> <p>P(idea) + E1 // P1 (idea) + E2</p>	1
	No response or wrong response	0

KB0609 – Defining by operation

1 (h)	<p>Able to state the operational definition of continuous variation based on the following aspects:</p> <p>P1: not distinct/clear different in characteristic P2: length / growth of the French bean P3: affected by mass of fertilizers</p> <p>Sample answer:</p> <p>Continuous variation is difference in a characteristic are not distinct (P1) (P2) which determined by the length of French beans affected by mass of fertilizers.(P3) <i>Variasi ialah perbezaan dalam ciri yang tidak ketara yang ditentukan melalui panjang kacang buncis dipengaruhi oleh jisim baja.</i></p>	3
	Any two criteria stated	2
	Any one criteria stated // theoretical definition	1
	No response or wrong response.	0

KB0608 – Classifying

1 (i)	Able to classify all the factors in table correctly:	3								
	<table border="1"><thead><tr><th>Continous variation</th><th>Discontinous variation</th></tr></thead><tbody><tr><td>Shoulder width <i>Lebar bahu</i></td><td>Colour of iris <i>Warna iris mata</i></td></tr><tr><td>Rate of heartbeat <i>Kadar denyutan jantung</i></td><td>Fingerprint <i>Cap jari</i></td></tr><tr><td>Length of sole <i>Panjang tapak kaki</i></td><td>Left-handedness <i>Kidal</i></td></tr></tbody></table>	Continous variation	Discontinous variation	Shoulder width <i>Lebar bahu</i>	Colour of iris <i>Warna iris mata</i>	Rate of heartbeat <i>Kadar denyutan jantung</i>	Fingerprint <i>Cap jari</i>	Length of sole <i>Panjang tapak kaki</i>	Left-handedness <i>Kidal</i>	
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Length of sole <i>Panjang tapak kaki</i>	Left-handedness <i>Kidal</i>									
	Able to get 3-5 tick correctly	2								
	Able to get 1-2 tick correctly	1								
	No response or wrong response	0								

Question 2

KB061201 – (KB061203 – Statement of Identified Problem)		
	Criteria	Score
2 (i)	<p>Able to state a problem statement relating the manipulated variable with the responding variable correctly.</p> <p>P1: Manipulated Variable (Type of food sample) P2: Responding Variables (Energy value / Final temperature) P3: Question form and have question mark (what / how does.....?)</p> <p>Sample Answer</p> <ol style="list-style-type: none"> 1. What is the effect of the toasted bread, dried fish and roasted nuts (P1) on the energy value of foods (P2) ? (P3) <i>Apakah kesan roti bakar, ikan kering dan kekacang panggang ke atas nilai tenaga makanan?</i> 2. How does the difference food sample affect the energy content? <i>Bagaimanakah perbezaan sampel makanan dipengaruhi kandungan tenaga?</i> 3. Does the roasted nuts contain the highest energy value? <i>Adakah kekacang panggang mengandungi nilai tenaga paling tinggi?</i> 	3
	<p>Able to state problem statement inaccurately.</p> <p>Sample Answer:</p> <ol style="list-style-type: none"> 1. What is the effect of the toasted bread, dried fish and roasted nuts (P1) on the energy value of foods (P2) <i>Apakah kesan roti bakar, ikan kering dan kekacang bakar ke atas nilai tenaga makanan</i> <p>P1 +P2 / P1 +P2 / P2 +P3</p>	2
	<p>Able to state a problem statement at idea level.</p> <p>Sample Answer:</p> <ol style="list-style-type: none"> 1. The foods have the energy value (P2) <i>Makanan mempunyai nilai tenaga</i> 2. To investigate the energy value in food <p>P1/P2/P3</p>	1
	No response or wrong response	0

KB061202 (KB061203 – Making Hypothesis)		
2 (ii)	<p>Able to state a hypothesis relating the MV to the RV correctly</p> <p>P1: Manipulated Variable (Type of food sample)</p> <p>P2: Responding Variables (Energy value / Final temperature)</p> <p>H: - relationship</p> <p>Sample Answer:</p> <p>1. Roasted nuts have higher food energy value compared to toasted bread and dried fish <i>Kekacang panggang mempunyai nilai tenaga makanan lebih tinggi berbanding roti bakar dan ikan kering.</i></p> <p>2. Roasted nuts have the highest energy value <i>Kekacang panggang mempunyai nilai tenaga makanan paling tinggi</i></p> <p>P1 + P2 + H</p>	3
	<p>Able to state a hypothesis inaccurately</p> <p>Sample answer:</p> <p>1. Different foods sample has different energy value. <i>Jenis makanan yang berbeza mempunyai nilai tenaga makanan yang berbeza.</i></p> <p>P1 +P2/ P1 +H/ P2 +H</p>	2
	<p>Able to state a hypothesis at idea level.</p> <p>Sample answer:</p> <p>1. The foods sample has energy. <i>Sampel makanan mempunyai tenaga</i></p> <p>P1/P2/H</p>	1
	No response or wrong response	0

(KB061203-Controlling variable)		
2 (iii)	<p>Able to state three variables correctly:</p> <p>Sample answer:</p> <ol style="list-style-type: none"> 1. Manipulated variable The type of foods // roasted nuts, toasted bread and dried fish <i>Jenis makanan // kacang panggang, roti bakar dan ikan kering</i> 2. Responding variable The energy value // the final reading of thermometer // increases of water temperature <i>Nilai tenaga makanan // bacaan akhir termometer // kenaikan suhu air</i> 3. Constant variable Mass of distilled water <i>Jisim air suling</i> 	3
	Able to state any two variables correctly	2
	Able to state any one variables correctly	1
	No response or wrong response	0

KB061205 (KB061203 - Listing of Materials and Apparatus)		
2 (iv)	<p>Able to list all the important apparatus and material correctly</p> <p>Sample answer:</p> <p>Apparatus (A) : retort stand, thermometer*, needle, boiling tube, Bunsen burner, electronic balance, shield <i>Radas : kaki retort, termometer, jarum, tabung didih, penunu Bunsen, penimbang elektronik, pengadang</i></p> <p>Materials (M) : roasted nuts*, toasted bread*, dried fish*, distilled water, plasticine <i>Bahan : kacang panggang, roti bakar, ikan kering, air suling, plastisin</i></p> <p>5M + 7A * wajib</p>	3
	<p>Able to list 4-3 materials and any 6-4 apparatus related to the experiment</p> <p>4-3M + 6-4A</p>	2
	<p>Able to list 2-1 materials and any 3-1 apparatus related to the experiment</p> <p>2-1 M + 3-1A</p>	1
	Wrong response or no response	0

KB061204 (KB061203 - Method / procedure of investigation) - 3m

2 (v)

Notes:

K1: Preparation of materials and apparatus (all 3)

K2: Operating the constant variable (any 1)

K3: Operating the responding variable (any 1)

K4: Operating the manipulated variable (any 1)

K5: Steps to increase reliability of results accurately / precaution (any 1)

Able to describe all the 5 'K'

Sample answer

K4/ K1	1	Measure the mass of roasted nuts and its mass is recorded <i>Ukur jisim kekacang panggang dan merekodkan jisimnya</i>
K1	2	Pin up roasted nuts with the needle <i>Cucukkan kekacang panggang dengan jarum</i>
K1/ K2	3	Measure 20ml of distilled water pour into boiling tube <i>Mengukur 20ml air suling dan mengisi ke dalam tabung didih</i>
K2	4	The initial temperature of the distilled water in the boiling tube is recorded <i>Suhu awal air suling di dalam tabung didih direkodkan</i>
K1	5	The roasted nuts is burned and placed below the boiling tube <i>Kekacang panggang dibakar dan diletakkan di bawah tabung didih</i>
K5	6	The combustion of food must be carried out in a closed condition or cover with shield to minimal heat loss to the surroundings. <i>Pastikan pembakaran makanan dijalankan dalam tertutup atau ditutup dengan pengadang untuk menghalang kehilangan haba ke persekitaran</i>
K4	7	The final temperature of water is recorded using thermometer <i>Suhu terakhir air suling direkodkan menggunakan termometer</i>
K1	8	The increase in temperature was measured when the roasted nuts burnt completely <i>Peningkatan suhu diukur apabila kekacang panggang dibakar sepenuhnya</i>
K4	9	Calculate the amount of energy value of the roasted nuts by using the formula = Energy value = $\frac{\text{mass of water(g)} \times \text{increase in temperature}(\text{°C}) \times 4.2 \text{ Jg}^{-1}\text{C}^{-1}}{\text{mass of roasted nuts (g)}}$ <i>Mengira jumlah nilai tenaga kekacang panggang menggunakan formula=</i> <i>Nilai tenaga = $\frac{\text{Jisim air (g)} \times \text{Peningkatan suhu}(\text{°C}) \times 4.2 \text{ Jg}^{-1}\text{C}^{-1}}{\text{Jisim kekacang panggang}}$</i>
K3	10	Repeat step 1 to 9 using toasted bread and dried fish <i>Ulang langkah 1 hingga 9 dengan roti bakar dan ikan kering</i>

3

Any 3-4 'K'

2

Any 1-2 'K'

1

No response or incorrect response

0

KB061203 – Planning Investigation (KB061203 - Data Presentation) - 2m														
2 (vi)	<p>Able to construct a table to record data with units</p> <ul style="list-style-type: none"> - All titles with unit 1m - Manipulated data 1m <p>Sample answer:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Type of food sample <i>Jenis sampel makanan</i></th> <th style="text-align: center;">Increase in temperature (°C) <i>Kenaikan suhu (°C)</i></th> <th style="text-align: center;">Energy value (J/g) <i>Nilai tenaga (J/g)</i></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Roasted nuts <i>Kekacang panggang</i></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Toasted bread <i>Roti bakar</i></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Dried fish <i>Ikan kering</i></td> <td></td> <td></td> </tr> </tbody> </table>	Type of food sample <i>Jenis sampel makanan</i>	Increase in temperature (°C) <i>Kenaikan suhu (°C)</i>	Energy value (J/g) <i>Nilai tenaga (J/g)</i>	Roasted nuts <i>Kekacang panggang</i>			Toasted bread <i>Roti bakar</i>			Dried fish <i>Ikan kering</i>			2
Type of food sample <i>Jenis sampel makanan</i>	Increase in temperature (°C) <i>Kenaikan suhu (°C)</i>	Energy value (J/g) <i>Nilai tenaga (J/g)</i>												
Roasted nuts <i>Kekacang panggang</i>														
Toasted bread <i>Roti bakar</i>														
Dried fish <i>Ikan kering</i>														
	Able to construct a table to record data based on one aspect only	1												
	No response or incorrect response	0												

END OF SCHEME