

**SECTION A**  
[20 marks]

*Answer all questions in this section*  
*The time suggested to answer this question is 60 minutes*

1. Diagram 1.1 shows an experiment to study the reactivity of metals with dilute hydrochloric acid.  
*Rajah 1.1 menunjukkan satu eksperimen untuk mengkaji kereaktifan logam dengan asid hidroklorik cair.*

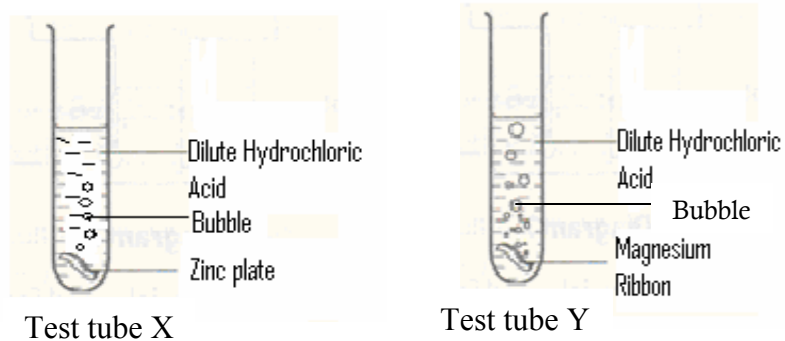


DIAGRAM 1.1

- (a) Write one observation based on Diagram 1.1  
*Tuliskan satu pemerhatian berdasarkan Rajah 1.1*

[1 mark]

- (b) Write one inference for your observation in (a)  
*Tuliskan satu inferens kepada pemerhatian di (a)*

[1 mark]

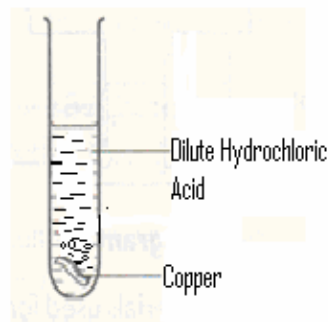


DIAGRAM 1.2

- (c) Based on the Diagram 1.2, predict the position of copper in the reactivity series of metals.  
*Berdasarkan Rajah 1.2, ramalkan kedudukan kuprum dalam siri kereaktifan logam*

[1 mark]

- (d) What is the responding variable in the above experiment?  
*Apakah pembolehubah bergerakbalas dalam eksperimen di atas?*

[1 mark]

- (e) What is the operational definition for **reactivity of metal** in this experiments?  
*Apakah definisi secara operasi bagi **kereaktifan logam** pada eksperimen ini?*

[1 mark]

2. Diagram 2 shows the arrangement of the apparatus in an experiment to study the bacterial growth in different condition.  
*Rajah 2 menunjukkan susunan radas bagi eksperimen untuk mengkaji pertumbuhan bacteria dalam keadaan yang berlainan.*

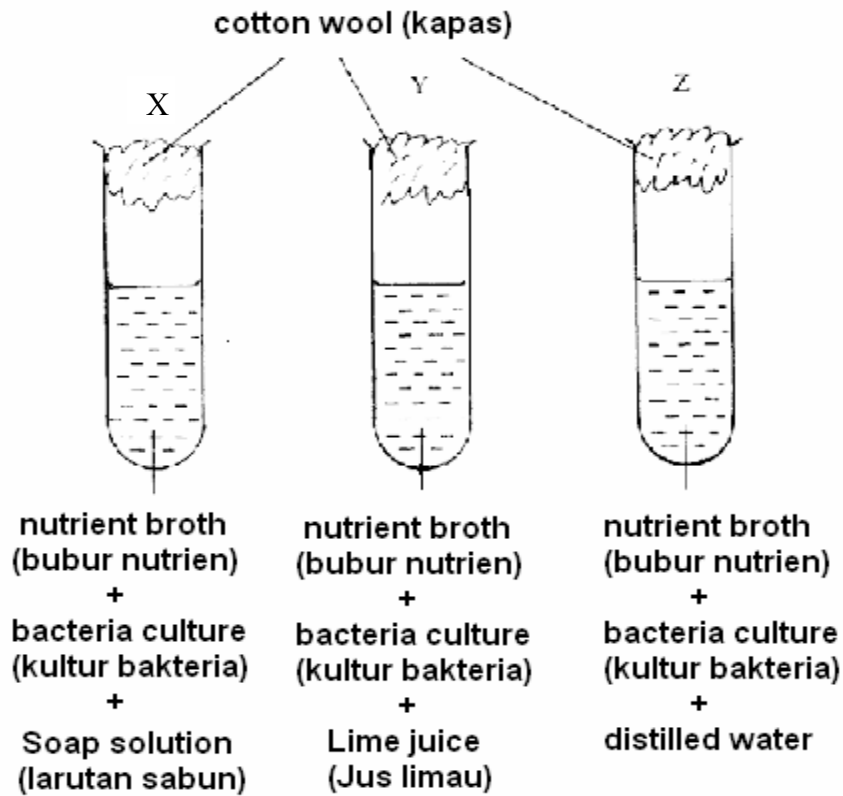


DIAGRAM 2

The arrangement of apparatus is kept in an incubator at 37°C for 2 days. Table 2.1 shows the observation of this experiment.  
*Susunan radas itu disimpan dalam inkubator pada 37°C selama 2 hari. Jadual 2.1 menunjukkan hasil pemerhatian eksperimen itu.*

Test tube ( <i>tabung uji</i> )	Observation ( <i>pemerhatian</i> )
X	No change ( <i>tiada perubahan</i> )
Y	Slightly cloudy ( <i>keruh sedikit</i> )
Z	Cloudy ( <i>keruh</i> )

TABLE 2.1

- (a) Write down one inference based on the observation for test tube Z in Table 2.1  
*Tuliskan satu inferens berdasarkan pemerhatian bagi tabung uji Z dalam Jadual 2.1*

.....  
 [1 mark]

- (b) State the variables in this experiment:  
*Nyatakan pemboleh ubah dalam eksperimen itu:*

(i) Manipulated variable/ *pembolehubah dimanipulasi*

(ii) Constant variable/ *pembolehubah dimalarkan*

- .....  
 [2 marks]
- (c) Tick (✓) in Table 2.2 which shown the properties of solution in each test-tube.  
*Tandakan (✓) dalam Jadual 2.2 untuk menunjukkan sifat larutan yang terkandung dalam setiap tabung uji.*

Properties of solution ( <i>Sifat larutan</i> ) Test tube ( <i>Tabung uji</i> )	Acidic ( <i>Asid</i> )	Alkaline ( <i>alkali</i> )	Neutral ( <i>neutral</i> )
X			
Y			
Z			

TABLE 2.2

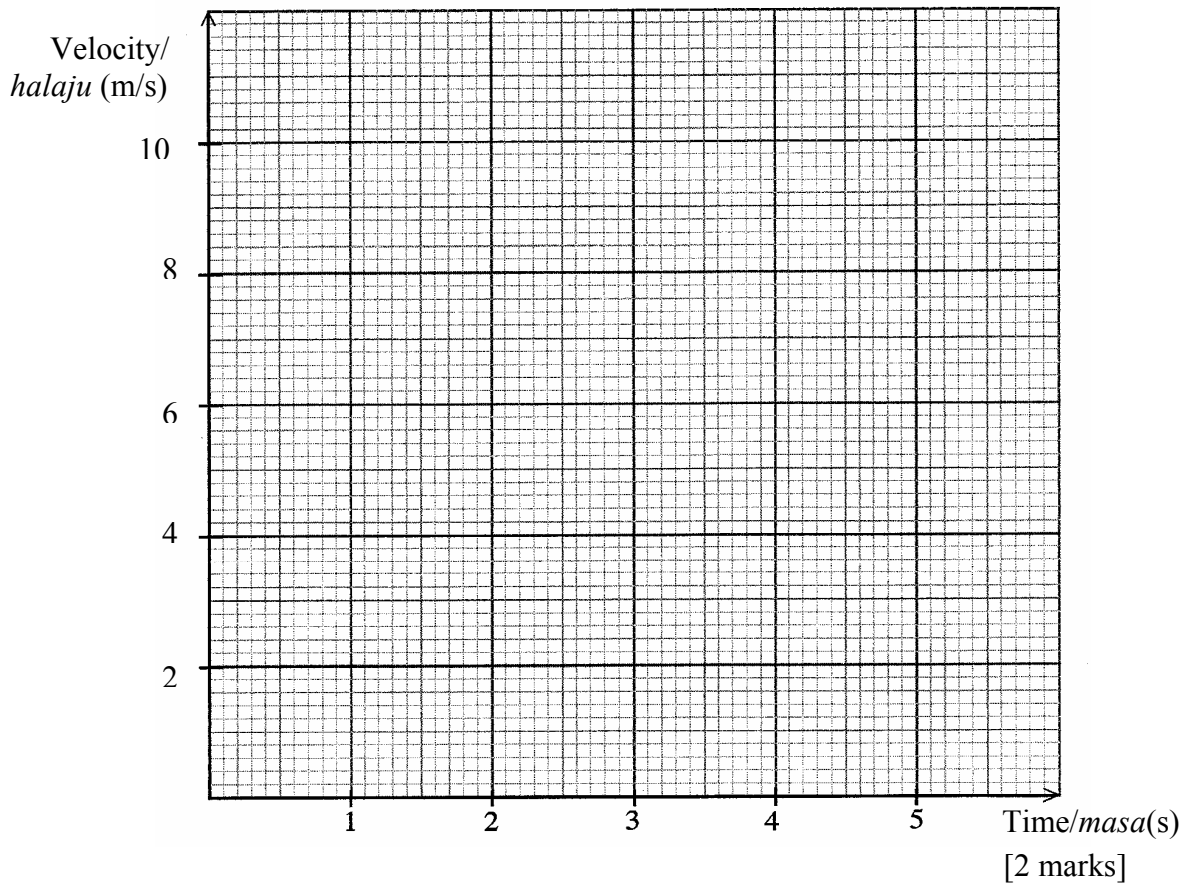
[2 marks]

- 3 In an experiment, the velocity of a toy car is recorded in Table 3.  
*Di dalam satu eksperimen, halaju kereta mainan telah direkodkan dalam Jadual 3*

Time/masa(s)	Velocity/halaju (m/s)
0	0
1	3
2	6
3	8
4	9
5	9

Table 3 /Jadual 3

- (a) Using the data in Table 3, draw a graph of velocity against time.  
*Dengan menggunakan data dalam jadual 3, lukis graf halaju melawan masa.*



- (b) Based on the graph in (a), what is the relationship of time and velocity on the first 3 minutes?  
*Berdasarkan graf di (a), apakah hubungan antara masa dan halaju pada 3 minit pertama?*
- .....

[1 mark]

- (c) Based on the graph in (a), what is the velocity of the toy car at 2.5 seconds?

*Berdasarkan graf di (a), apakah halaju kereta mainan pada masa 2.5 saat?*

.....ms<sup>-1</sup>

[ 1 mark ]

- (d) State the hypothesis of this experiment.

*Nyatakan hipotesis dalam eksperimen ini.*

.....  
[ 1 mark ]

- 4 Diagram 3 shows three bottles of water samples P, Q and R taken from three different areas. Then, the precipitation of each water sample is determined and recorded in Table 4.

*Rajah 3 menunjukkan tiga botol sample air P, Q dan R yang diambil daripada tiga kawasan yang berbeza. Kemudian enapan di dalam air setiap botol ditentukan dan direkodkan dalam Jadual 4.*

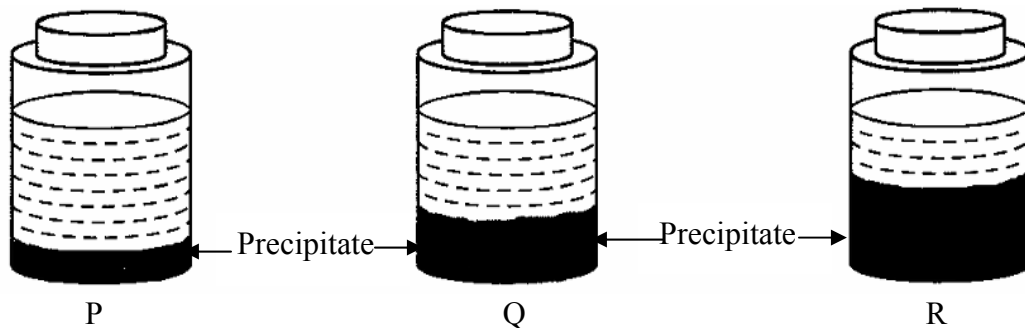


DIAGRAM 3

Area of water sample/ <i>kawasan sampe air</i>	Height of precipitation/ <i>Ketinggian enapan / (cm)</i>
P	
Q	
S	

TABLE 4

- (a) Measure the height of precipitation in the bottle of P, Q and R and record it in the table.

*Ukur ketinggian enapan di dalam botol P, Q dan R dan rekodkan dalam jadual.* [1 mark]

- (b) Based on the height of precipitation, which is the most polluted area?

*Berdasarkan ketinggian enapan, kawasan manakah yang paling tercemar?*

.....  
[1 mark]

- (c) State the operational definition of water pollution.  
*Nyatakan definisi secara operasi bagi pencemaran air.*

.....  
[1 mark]

- (d) State the variables in this investigation:  
*Nyatakan pembolehubah dalam kajian ini:*

- (i) Manipulated variable.  
*Pembolehubah dimanipulasi.*

.....  
[1 mark]

- (ii) Responding variable.  
*Pembolehubah bergerakbalas.*

.....  
[1 mark ]

**Section B**  
[30 marks]

*Answer all questions in this section*  
*The time suggested to complete this section is 50 minutes*  
*Jawab semua soalan di bahagian ini.*  
*Masa yang dicadangkan untuk bahagian ini ialah 50 minit.*

- 5 Diagram 4 shows the structure of a camera.  
*Rajah 4 menunjukkan struktur sebuah kamera.*

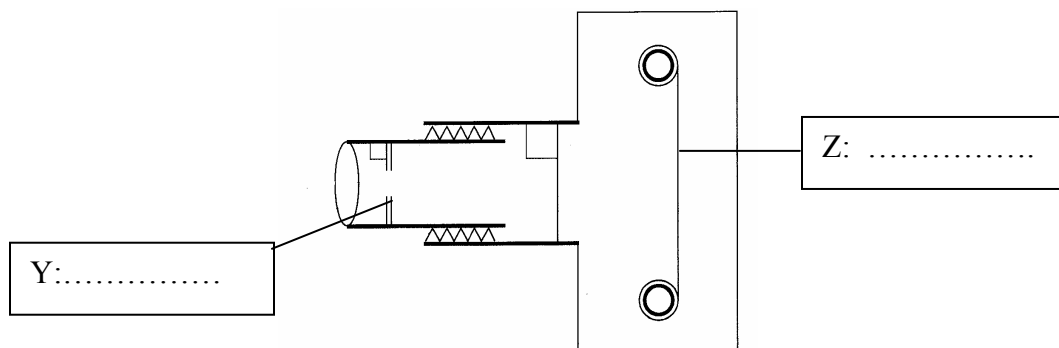


DIAGRAM 4

- (a) Label parts Y and Z in Diagram 4.  
*Label bahagian Y dan Z dalam Rajah 4.*

[2 marks]

- (b) (i) Name the part in eyes that has the same function with part labelled Z in Diagram 4.

*Namakan bahagian pada mata yang mempunyai persamaan fungsi dengan bahagian dilabel Z dalam Rajah 4.*

.....  
[1 mark]

- (ii) What is the function of the part Y?

*Apakah fungsi bahagian Y?*

.....  
[1 mark]

- (c) (i) State one characteristic of images formed by the camera.

*Nyatakan satu ciri imej yang dibentuk oleh kamera.*

.....  
[1 mark]

- (ii) State one optical instrument that forms the same characteristic of image as in (c)(i).

*Nyatakan satu alat optikal yang membentuk ciri-ciri yang sama pada imej di (c)(i).*

.....  
[1 mark]

6

Diagram 5 shows the formation of twins in human being.  
*Rajah 5 menunjukkan pembentukan kembar pada manusia.*

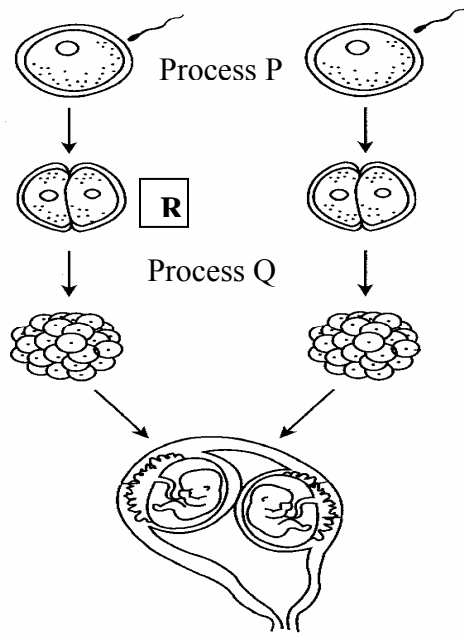


DIAGRAM 5

- (a) (i) Name process P.  
*Namakan proses P.*

.....  
[1 mark]

- (ii) What are the numbers of chromosomes in R?  
*Berapakah bilangan kromosom di dalam R?*

.....  
[1 mark]

- (b) (i) Name process Q.  
*Namakan proses Q.*

.....  
[1 mark]

- (ii) State **one** importance of process Q in human being.  
*Nyatakan satu kepentingan proses Q pada manusia*

.....  
[1 mark]

- (c) (i) What is the type of twins shown in Diagram 5?  
*Apakah jenis kembar yang ditunjukkan dalam Rajah 5?*

.....  
[1 mark]

- (ii) Explain your answer in (c) (i)  
*Terangkan jawapan anda di (c)(i).*

.....  
 .....

[1 mark]

- 7 Diagram 6 shows the calorie requirements for different individuals.  
*Rajah 6 menunjukkan keperluan kalori untuk setiap individu yang berbeza.*

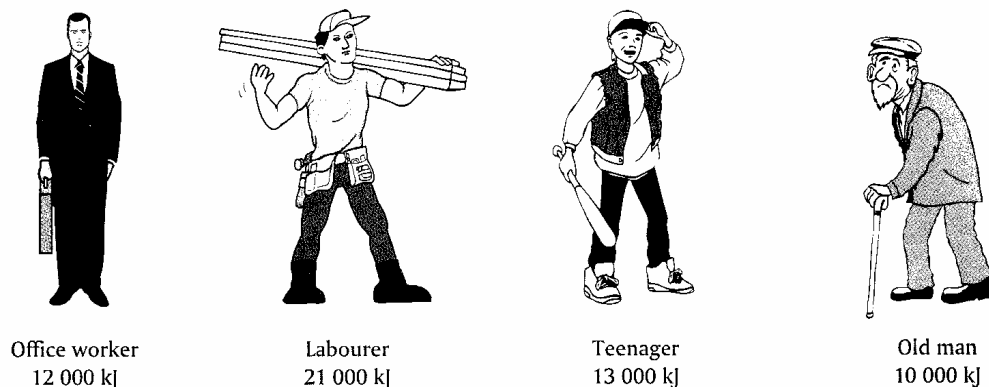


DIAGRAM 6

- (a) Why do human beings need calories?  
*Mengapa manusia memerlukan kalori?*

.....  
 [1 mark]

- (b) Based on Diagram 6, state two factors which affect the calorie requirement of an individual.  
*Berdasarkan Rajah 6, nyatakan dua faktor yang memberi kesan ke atas keperluan kalori setiap individu.*

Factor 1 : .....

Factor 2 : .....

[2 marks]

- (c) (i) Which individual has the highest calorie requirement?  
*Individu yang manakah mempunyai keperluan kalori yang tertinggi?*

.....  
 [1 mark]

- (ii) Explain why the individual in (b)(i) needs the highest amount of energy?  
*Terangkan mengapa individu di (b)(i) memerlukan jumlah tenaga yang terbanyak?*

.....  
[1 mark]

- (d) State one reason why teenager needs more calories than the old man?  
*Nyatakan satu sebab kenapa remaja memerlukan lebih kalori berbanding orang tua?*

.....  
[1 mark]

- 8 Diagram 7.1 shows examples of processed food  
*Rajah 7.1 menunjukkan contoh-contoh makanan yang diproses*

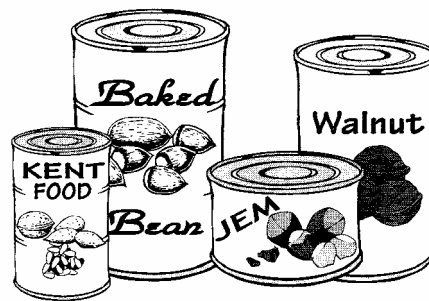


DIAGRAM 7.1

- (a) Why the foods in Diagram 7.1 need to be processed?  
*Mengapakah makanan dalam Rajah 7.1 perlu diproses?*

.....  
[1 mark]

- (b) (i) Name the method used to process the foods in Diagram 7.1  
*Namakan kaedah yang digunakan untuk memproses makanan dalam Rajah 7.1*

.....  
[1 mark]

- (ii) How the method of food processing in (b)(i) is carried out?  
*Bagaimana kaedah penyediaan makanan dalam (b)(i) dijalankan?*

.....  
[1 mark]

Diagram 7.2 shows example of another processed food  
*Rajah 7.2 menunjukkan satu lagi contoh makanan yang diproses*

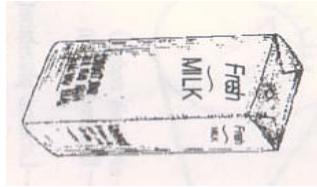


DIAGRAM 7.2

(c) (i) Name the method used to process the foods in Diagram 7.2  
*Namakan kaedah yang digunakan untuk memproses makanan dalam Rajah 7.2*

.....  
 [1 mark]

(ii) How the method of food processing in (c)(i) is carried out?  
*Bagaimana kaedah penyediaan makanan dalam (c)(i) dijalankan?*

.....  
 [1 mark]

(d) Where the information of the processed food is obtained?  
*Dimanakah maklumat tentang makanan yang diproses diperolehi?*

.....  
 [1 mark]

9. Diagram 9 shows a wave.  
*Rajah 9 menunjukkan satu gelombang*

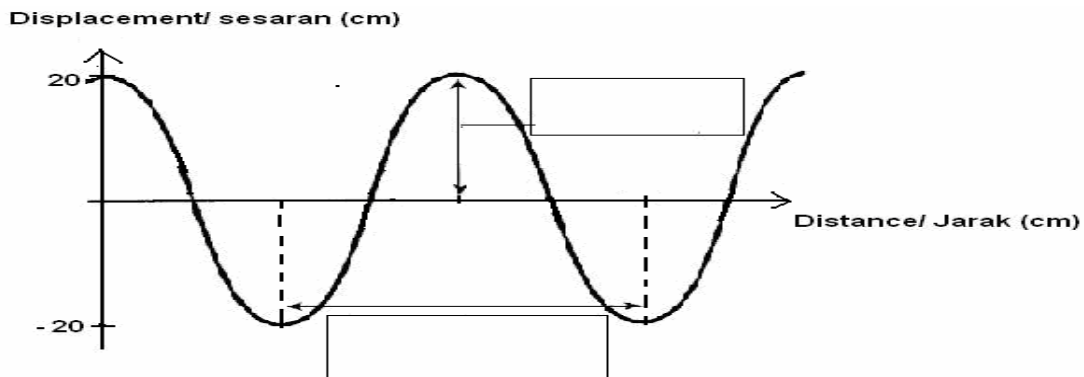


DIAGRAM 9.1

(a) Choose the correct terms and fill in the boxes in Diagram 9.1.  
*Pilih istilah yang betul dan isikan kotak dalam Rajah 9.1.*

<b>Wavelength</b>	<b>Amplitude</b>	<b>Frequency</b>	<b>Period</b>
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[2 marks]

- (b) State one characteristic of wave.  
*Nyatakan satu sifat gelombang.*

.....  
 [1 mark]

Diagram 9.2 shows the electromagnetic waves spectrum.  
*Rajah 9.2 menunjukkan spektrum gelombang electromagnet.*

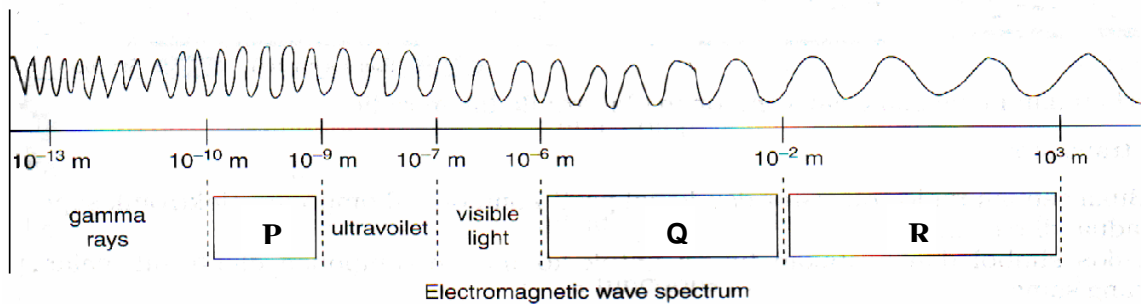


DIAGRAM 9.2

- (c) P, Q and R are three types of waves. Which of the waves is  
*P, Q dan R adalah tiga jenis gelombang. Gelombang yang manakah ialah*

- (i) radio wave?  
*gelombang radio?* .....
- (ii) x-ray?  
*sinar-X* .....

[2 marks]

- (d) Why is the radio wave suitable for communication?  
*Mengapakah gelombang radio sesuai untuk tujuan komunikasi?*

.....  
 .....

[1 mark]

### Section C

[20 marks]

Answer **Question 10** and either **Question 11** or **Question 12**

10.

Vulcanised rubber is better than non-vulcanised rubber for making tyres.  
*Getah asli tervulkan lebih baik berbanding getah asli tak tervulkan apabila digunakan untuk membuat tayar.*

You are suggested to plan an experiment to investigate the differences between the two types of rubber in terms of elasticity.

*Anda dicadangkan untuk merancang satu eksperimen yang bersesuaian untuk menguji perbezaan kedua-dua jenis getah dari segi kekenyalan.*

(a) Suggest a hypothesis to investigate the above statement.

*Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.*

[1 mark]

You are given strips of 10cm vulcanised rubber, 10cm non-vulcanised rubber, weight with a mass of 200g, 2 clips, a stop watch, a retort stand and other apparatus

*Anda dibekalkan dengan satu jalur getah tervulkan 10 cm, satu jalur getah tak tervulkan 10 cm, pemberat berjisim 200g, 2 klip, satu jam randik, kaki retot dan radas lain.*

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

*Huraikan satu eksperimen untuk menguji hipotesis anda di 10(a) berpandukan kriteria berikut:*

- |       |   |           |
|-------|---|-----------|
| (i)   | Aim of the experiment<br><i>Tujuan eksperimen</i>                 | [1 mark]  |
| (ii)  | Identification of variables<br><i>Mengenal pasti pembolehubah</i> | [2 marks] |
| (iii) | List of apparatus and materials<br><i>Senarai radas dan bahan</i> | [1 mark]  |
| (iv)  | Procedure or method<br><i>Prosedur atau kaedah</i>                | [4 marks] |
| (v)   | Tabulation of data<br><i>Penjadualan data</i>                     | [1 mark]  |

11. (a) State **four** differences between nervous coordination and hormonal coordination.

*Nyatakan empat perbezaan antara koordinasi saraf dengan koordinasi hormon.*

[4 marks]

- (b) Diagram 11 shows examples of endocrine glands.

*Rajah 11 menunjukkan beberapa contoh kelenjar endokrin.*

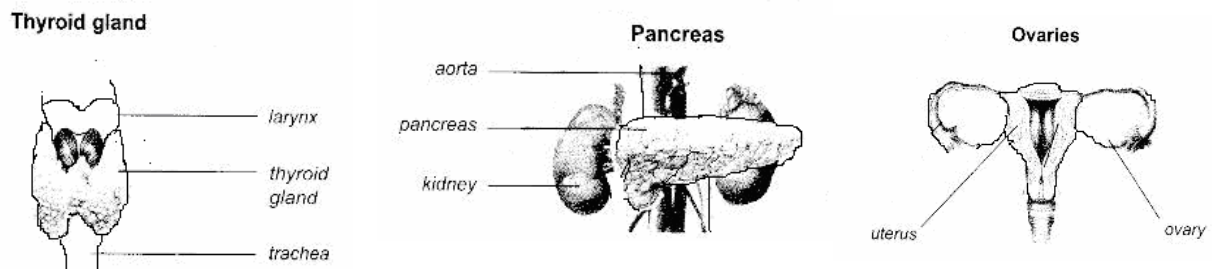


DIAGRAM 11

Study the information in Diagram 11 and construct the concept of endocrine glands. Your answer should be based on the following steps:

*Kaji maklumat dalam Rajah 11 dan bina konsep tentang kelenjar endokrin.*

*Jawapan and hendaklah berdasarkan langkah-langkah berikut:*

- Identify the information  
*Mengenal pasti maklumat.* [1 mark]
- Identify the common characteristics  
*Mengenal pasti ciri-ciri sepunya.* [2 marks]
- Write an example of another endocrine gland and state the reason  
*Tuliskan satu contoh lain kelenjar endokrin dan nyatakan sebab.* [1 mark]
- Write a non example of endocrine gland and state the reason.  
*Tuliskan satu bukan contoh kelenjar endokrin dan nyatakan sebab.* [1 mark]
- State the actual concept of endocrine glands  
*Nyatakan konsep sebenar kelenjar endokrin* [1 mark]

12. (a) State **four** differences between metal and non metal  
*Nyatakan empat ciri perbezaan antara logam dan bukan logam* [4 marks]

(b) Nora found out that the water comes out from the pipe in her house is cloudy and yellowish in colour after a heavy rain.  
*Nora mendapati air yang keluar dari paip rumahnya keruh dan berwarna kuning, selepas hujan lebat.*

Explain how you can help her to gets a clean water.

*Terangkan bagaimana anda boleh membantunya untuk mendapatkan air yang bersih.*

Your answer should include the following;

*Jawapan anda perlu merangkumi perkara berikut;*

- Identify the problem  
*Mengenal pasti masalah* [1 mark]
- Clarification of the problem  
*Penjelasan masalah* [1 mark]
- Solving methods  
*Kaedah-kaedah penyelesaian* [3 marks]
- Evaluate the methods  
*Penilaian kaedah* [1 mark]

**END OF QUESTION PAPER**  
**KERTAS PEPERIKSAAN TAMAT**