For Examiner's Use

## Section A
## *Bahagian* A

[60 marks]
[60 *markah*]

Answer **all** questions in this section.
*Jawab* ***semua*** *soalan dalam bahagian ini.*

1 Diagram 1.1 show alveolus and blood capillaries.
Diagram 1.2 shows the structure of the plasma membrane of epithelial cells in the alveolus.

*Rajah* 1.1 *menunjukkan alveolus dan kapilari darah.*
*Rajah* 1.2 *menunjukkan struktur membran plasma sel epitelium pada alveolus.*

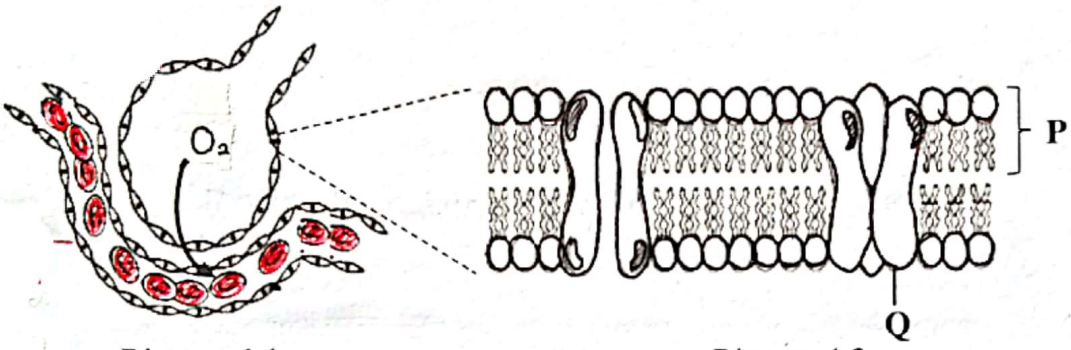



Diagram 1.1
*Rajah* 1.1

Diagram 1.2
*Rajah* 1.2

(a) (i) Name the process of oxygen movement in Diagram 1.1.
*Namakan proses pergerakan oksigen pada Rajah* 1.1.

resapan ringkas

[1 mark]
[1 *markah*]

1/1

(ii) Explain how the process which is named in 1(a) (i) occur.
*Terangkan bagaimana proses yang dinamakan pada* 1(a) (i) *berlaku.*

.....

.....

.....

[2 marks]
[2 *markah*]

2/2

For Examiner's Use

(b) (i) Based on Diagram 1.2, name the structure P and Q.
*Berdasarkan Rajah 1.2, namakan struktur P dan Q.*

P: .....

Q: .....

2

[2 marks]
[2 *markah*]

(ii) Explain the characteristic of P, which is related to polarity.
*Terangkan ciri P yang berkait dengan kekutuban*

.....

.....

.....

.....

2

[2 marks]
[2 *markah*]

(c)

An individual suffers from severe diarrhea and causes his red blood cells to become dehydrated.

*Seorang individu mengalami cirit birit yang teruk dan menyebabkan sel darah merah beliau mengalami dehidrasi.*

(i) Draw the condition of one of his red blood cell.
*Lukiskan keadaan satu sel darah merah beliau.*

1

[1 mark]
[1 *markah*]

For Examiner's Use

(ii) Explain how this condition happen.
*Terangkan bagaimana keadaan ini berlaku.*

.....

.....

.....

3

[3 marks]
*markah*]

(iii) Suggest how the individual can restore the shape of his red blood cells to normal.
*Cadangkan bagaimana individu tersebut dapat mengembalikan sel darah merahnya kepada bentuk normal.*

.....

1

[1 mark]
[1 *markah*]

**Total**

12

For Examiner's Use

2 Diagram 2.1 shows the cells in dicotyledon plant.
*Rajah* 2.1 *menunjukkan sel-sel pada tumbuhan dikotiledon*

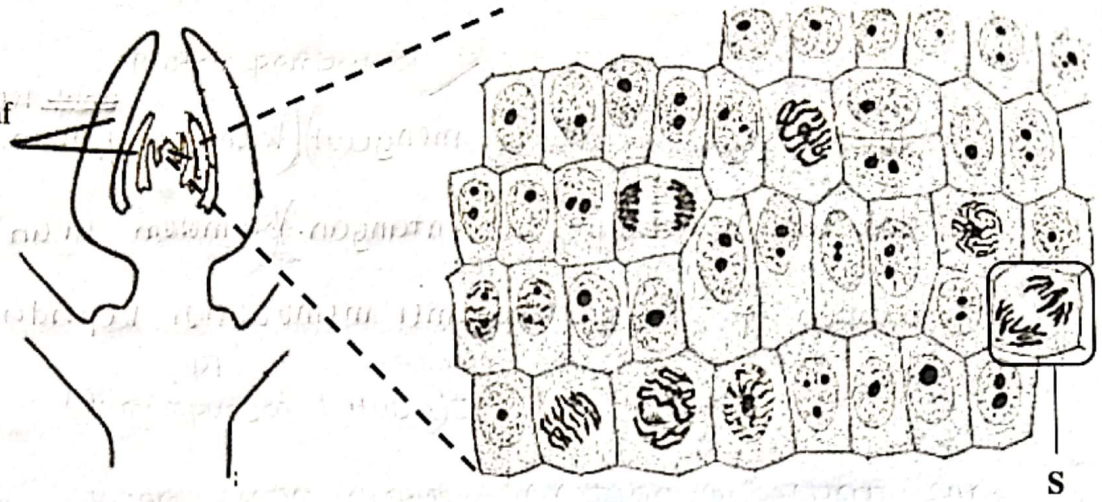



Diagram 2.1
*Rajah* 2.1

(a) (i) Name the type of cells in Diagram 2.1.
*Namakan jenis sel pada Rajah* 2.1.

.....
[1 mark]
[1 *markah*]

1/1

(ii) State the characteristic of the cell.
*Nyatakan ciri-ciri pada sel tersebut.*

.....
[2 marks]
[2 *markah*]

2/2

(b) (i) Based on Diagram 2.1, name the type of cell division that occurs.
*Berdasarkan Rajah* 2.1, *namakan jenis pembahagian sel yang berlaku.*

.....
[1 mark]
[1 *markah*]

1/1

For Examiner's Use

(ii) Stage S is one of the stages in cell division in (b)(i) where the spindle fibre contracts.
Explain the chromosomal behaviour at stage S.
*Peringkat* S *merupakan salah satu peringkat dalam pembahagian sel di* (b)(i) *di mana gentian gelendung mengecut.*
*Terangkan perlakuan kromosom pada peringkat* S.

.....

.....

1/2

[2 marks]
[2 *markah*]

(c) State the significance of process that occurs in 2(b)(i).
*Nyatakan kepentingan proses yang berlaku dalam* 2(b)(i).

.....

.....

.....

2/2

[2 marks]
[2 *markah*]

(d) Diagram 2.2 shows a type of reproduction by stem cutting.
*Rajah* 2.2 *menunjukkan sejenis pembiakan secara keratan batang.*

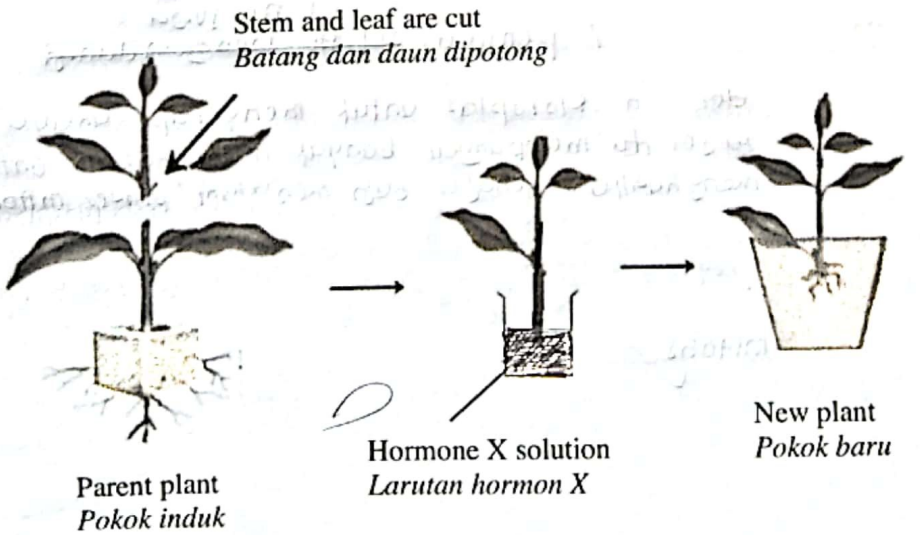



Diagram 2.2
*Rajah* 2.2

For Examiner's Use

(i) Name the type of the reproduction in Diagram 2.2.
*Namakan jenis pembiakan pada Rajah 2.2.*

.....

[1 mark]
[1 *markah*]

1

(ii) Explain the role of hormone X in Diagram 2.2.
*Terangkan peranan hormon X dalam Rajah 2.2.*

...

...

...

.....

[3 marks]
[3 *markah*]

3

4

Total

12

For Examiner's Use

3 Diagram 3 shows nucleic acids X and Y involve in synthesize of protein Z.
*Rajah 3 menunjukkan asid nukleik X dan Y yang terlibat dalam sintesis protein Z.*

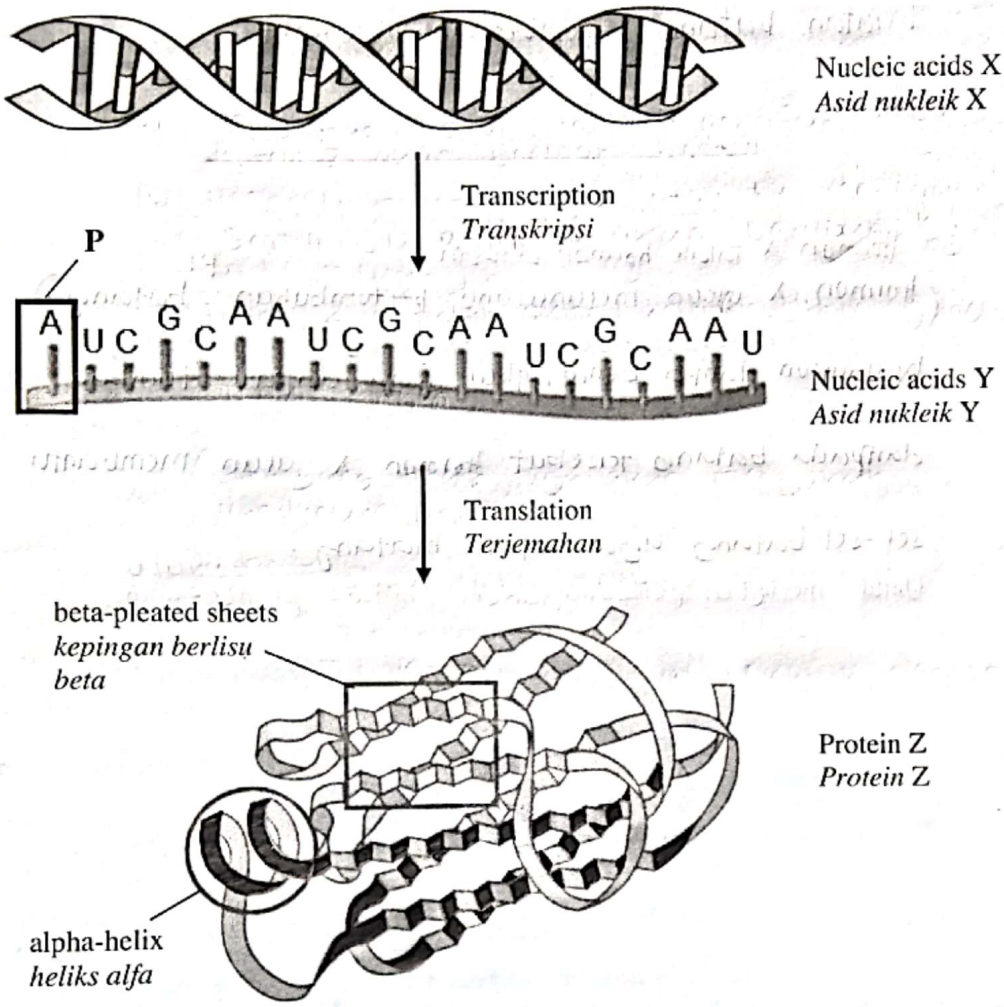



Diagram 3
*Rajah 3*

(a) Name nucleic acids X and Y.
*Namakan asid nukleik X dan Y.*

X : .. .....

Y : .. .....

2

[2 marks]
[2 *markah*]

For Examiner's Use

(b) P is a basic unit of nucleic acids.
Draw the structure of P
P *merupakan unit asas asid nukleik.*
*Lukiskan struktur* P

[2 marks]
[2 *markah*]

2

(c) Give **two** differences between nucleic acids X and Y.
*Berikan* ***dua*** *perbezaan antara asid nukleik* X *dan* Y.

.....

.....

[2 marks]
[2 *markah*]

2

(d) (i) State the level of protein structure for protein Z.
*Nyatakan aras struktur protein bagi protein* Z.

.....

[1 mark]
[1 *markah*]

1

(ii) Explain the role of protein Z in the chocolate manufacturing industry.
*Terangkan peranan protein* Z *dalam industri pembuatan coklat.*

.....

.....

.....

.....

[2 marks]
[2 *markah*]

2

For Examiner's Use

(iii) An employee in the chocolate factory set the temperature at $56^0$C during the chocolate manufacturing process involving protein Z.
Predict what will happen.
*Seorang pekerja dalam kilang coklat tersebut telah menetapkan suhu pada* $56^0$C *ketika proses pembuatan coklat yang melibatkan protein* Z.
*Ramalkan apa yang akan berlaku.*

.....

.....

[3 marks]
[3 *markah*]

3

**Total**

12

For Examiner's Use

4 Diagram 4.1 shows pathway of nerve impulses in an action.
*Rajah* 4.1 *menunjukkan laluan impuls saraf dalam satu tindakan.*

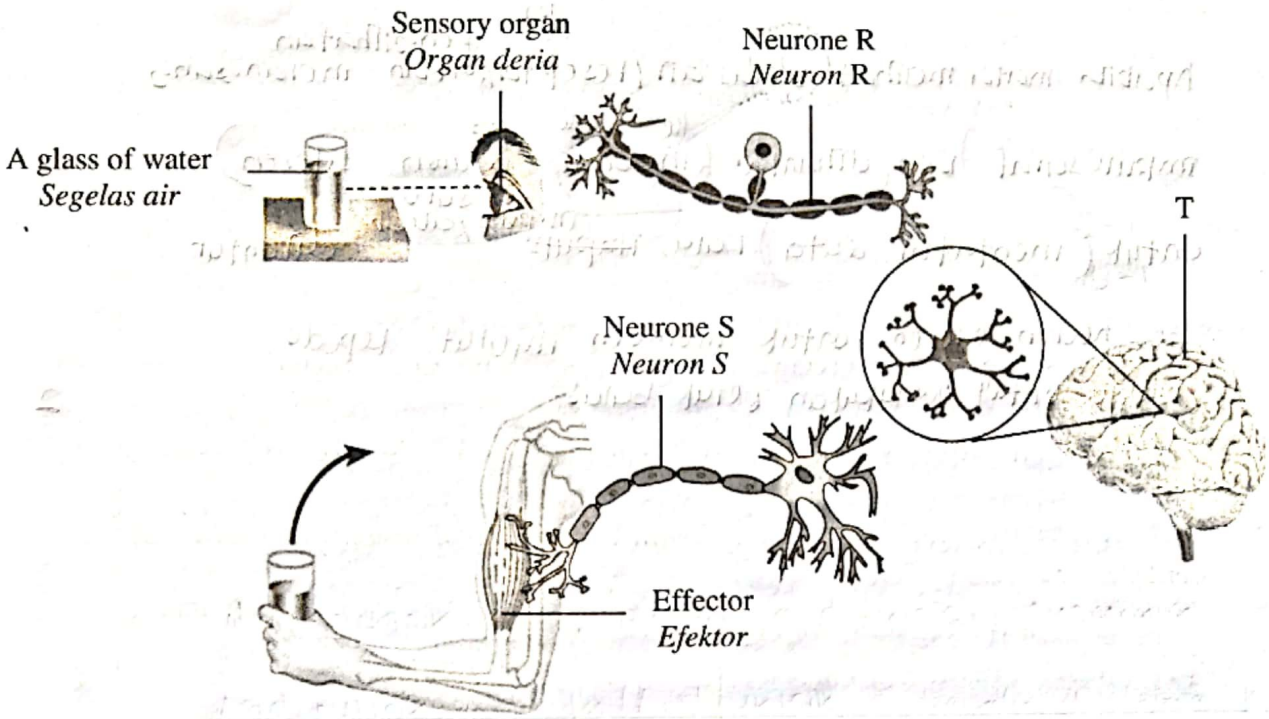



Diagram 4.1
*Rajah* 4.1

(a) (i) Name neurone R.
*Namakan neuron* R.

R .... .....

[1 mark]
[1 *markah*]

1

(ii) State the function of the neurone stated in 4 (a)(i).
*Nyatakan fungsi neuron yang dinyatakan dalam* 4 (a)(i).

Function R : ..
*Fungsi* R

[1 mark]
[1 *markah*]

1

For Examiner's Use

(b) Based on Diagram 4.1, explain the pathway of nerve impulse from sensory organ to T in that action.
*Berdasarkan Rajah* 4.1, *terangkan laluan impuls saraf dari organ deria ke* T *dalam tindakan tersebut.*

.....

....

.....

[3 marks]
[3 *markah*]

3

(c) Describe what would happen to the action in Diagram 4.1 if neurone S is damaged during an accident.
*Terangkan apa yang akan berlaku kepada tindakan dalam Rajah* 4.1 *sekiranya neuron* S *cedera semasa kemalangan.*

.....

.....

.....

.....

.....

[2 marks]
[2 *markah*]

2

For Examiner's Use

(d) Diagram 4.2 shows an action in esophagus.
*Rajah* 4.2 *menunjukkan satu tindakan di esophagus.*

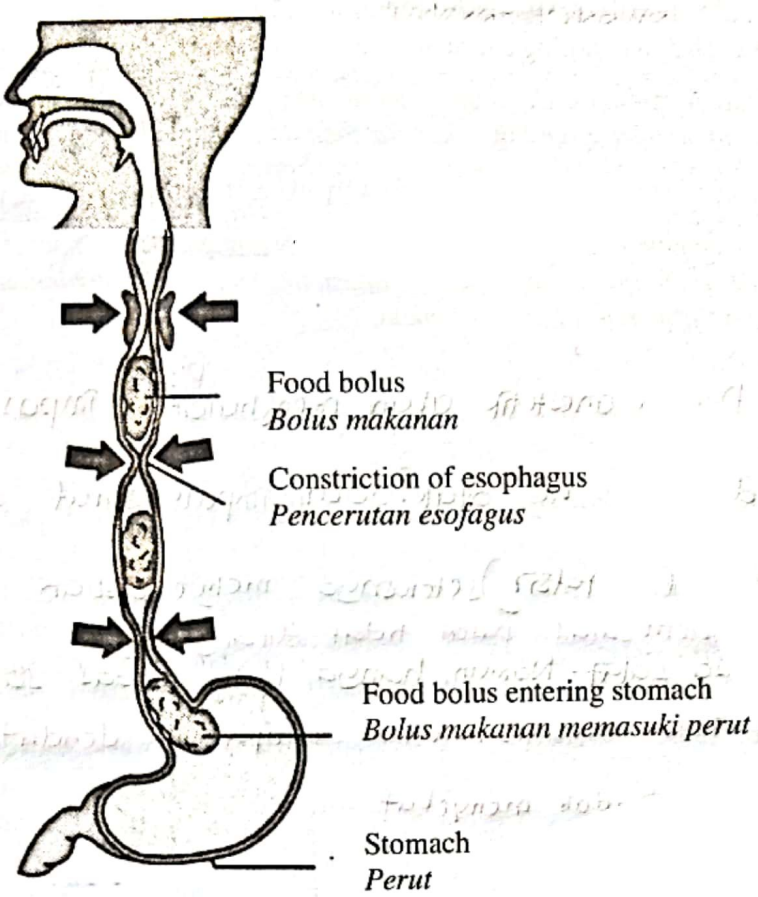



Diagram 4.2
*Rajah* 4.2

State **two** differences between action in Diagram 4.2 and action in Diagram 4.1.
*Nyatakan* ***dua*** *perbezaan di antara tindakan dalam Rajah* 4.2 *dan tindakan dalam Rajah* 4.1.

.....

.....

2/2

[2 marks]
[2 *markah*]

For Examiner's Use

(e)

Anaesthetic drug is used to block transmission of impulses in nerve fibres, to eliminate pain sensation by giving numb feelings to specific part of the body. This prevents pain during surgical procedures.

*Dadah anestetik digunakan untuk menyekat penghantaran impuls pada gentian saraf, untuk menghilangkan rasa sakit dengan memberikan kesan kebas di bahagian tubuh tertentu. Ini mengelakkan kesakitan semasa prosedur pembedahan dijalankan.*

Explain how anaesthetic drug help to prevents pain during surgical procedures.
*Terangkan bagaimana dadah anestetik membantu mencegah rasa sakit semasa prosedur pembedahan dijalankan.*

.....

.....

.....

.....

[3 marks]
[3 *markah*]

3

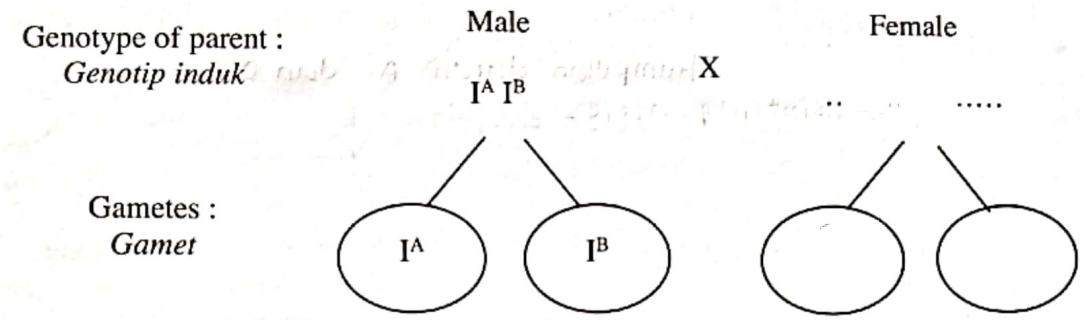
**Total**

12

For Examiner's Use

5 Diagram 5.1 shows a crossed between a man blood group AB and a female heterozygous blood group B.

*Rajah 5.1 menunjukkan kacukan antara seorang lelaki kumpulan darah* AB *dan seorang wanita heterozigot kumpulan darah* B.




Random fertilisation :
*Persenyawaan rawak*

| Female gamete / *Gamet betina* \ Male gamete / *Gamet jantan* | $I^A$ | $I^B$ |
|---|---|---|
| $I^B$ | | |
| $I^o$ | | |

Diagram 5.1
*Rajah 5.1*

(a) (i) Complete the schematic genetic diagram.
*Lengkapkan rajah skema pewarisan.*

[4 marks]
[4 *markah*]

4

(ii) The couple already has four children. Her two offspring have blood group AB and the rest are blood group A.
Explain why.
*Pasangan tersebut telah mempunyai empat orang anak. Dua orang anaknya mempunyai kumpulan darah* AB *dan selebihnya kumpulan darah* A.
*Terangkan mengapa.*

[3 marks]
[3 *markah*]

3

For Examiner's Use

(b) Madam Sue has blood group A. She has an accident and need blood transfusion immediately.
*Puan Sue mempunyai kumpulan darah* A. *Dia terlibat dengan satu kemalangan dan memerlukan pemindahan darah dengan segera.*

(i) State what blood group of donor she can receives.
*Nyatakan apakah kumpulan darah penderma yang boleh diterima oleh beliau.*

Donor blood group: .....
*Kumpulan darah penderma* :

[1 mark]
[1 *markah*]

1

(ii) Predict what happen if the blood received is not compatible with her blood.
*Ramalkan apa yang terjadi jika darah yang diterima tidak sesuai dengan darah beliau.*

.....

[1 mark]
[1 *markah*]

1

(c) A woman managed to give birth to her first child safely but this woman suffered a miscarriage during the subsequent pregnancies. After a doctor's consultation, it was found that the woman had a Rhesus negative factor and all her foetus were Rhesus positive.
Explain why the subsequent pregnancies are miscarried.

*Seorang wanita berjaya melahirkan anak pertamanya dengan selamat tetapi wanita ini mengalami keguguran pada kehamilan berikutnya. Selepas membuat konsultasi doktor, didapati wanita itu mempunyai faktor Rhesus negative dan semua fetusnya dengan Rhesus positif.*
*Terangkan mengapa kehamilan berikutnya mengalami keguguran.*

.....

.....

.....

.....

[3 marks]
[3 *markah*]

3

**Total**

12

## Section B
## *Bahagian* B

[40 marks]
[40 *markah*]

Answer any **two** questions in this section.
*Jawab mana-mana* ***dua*** *soalan dalam bahagian ini.*

6 (a) Fever is the second line of defence mechanism that fights infections. Fever increases the activity of phagocyte to fight against microorganisms that infect the body.
*Demam adalah barisan mekanisme pertahanan kedua yang melawan jangkitan. Demam meningkatkan aktiviti sel fagosit untuk melawan mikroorganisma yang menjangkiti badan.*

Explain the activity of phagocyte.
*Terangkan aktiviti sel fagosit.*

[4 marks]
[4 *markah*]

(b) Muthu and Basir went to visit Soong who was suffering chickenpox. Three days later, Muthu had symptoms of chickenpox but Basir had no symptom. This was the first time Muthu had suffered from the disease while Basir had experienced it during his childhood. Explain why Muthu and Basir experienced these conditions.
*Muthu dan Basir pergi melawat Soong yang mengidap penyakit cacar air. Tiga hari selepas itu, Muthu telah mengalami simptom cacar air tetapi Basir tiada simptom tersebut. Ini adalah kali pertama Muthu mengalami penyakit tersebut manakala Basir pernah mengalaminya semasa kanak-kanak.*
*Terangkan mengapa Muthu dan Basir mengalami keadaan ini.*

[6 marks]
[6 *markah*]

(c) Diagram 6 shows two positions of human leg, position P and Q.
*Rajah 6 menunjukkan dua posisi* P *dan* Q *pada kaki manusia*..

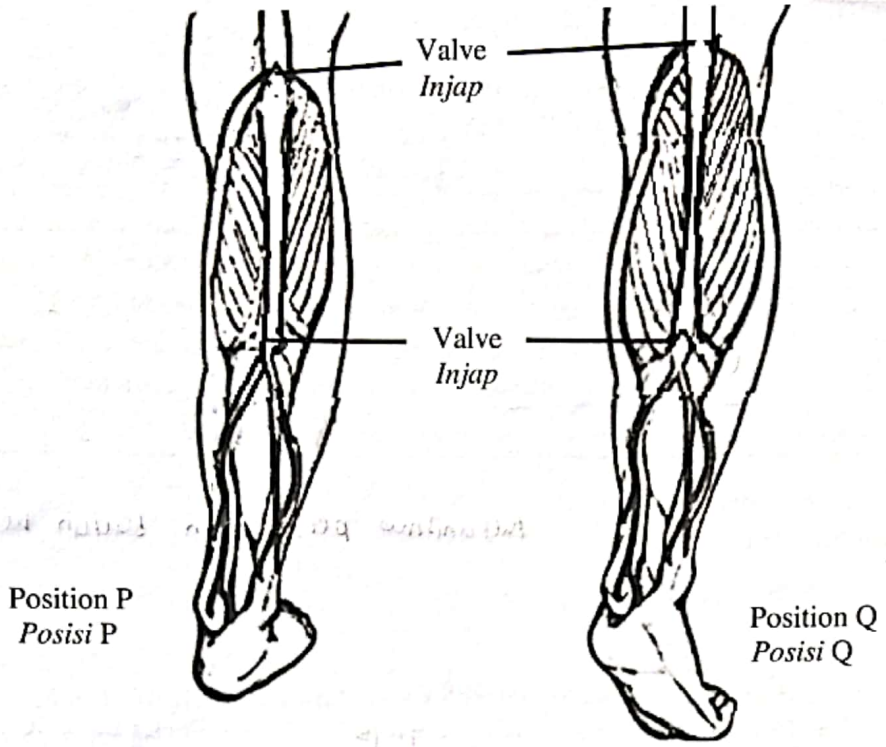



Diagram 6
*Rajah* 6

(i) Explain how position P and Q help the blood return to the heart.
*Terangkan bagaimanakah posisi* P *dan* Q *membantu darah kembali semula ke jantung*.

[8 marks]
[8 *markah*]

(ii) Explain what would happen if someone stood in P position for too long.
*Terangkan apa yang akan berlaku jika seseorang berdiri dalam posisi* P *terlalu lama*.

[2 marks]
[2 *markah*]

7 (a) Diagram 7.1 shows the diagram of the formation of twins.
*Rajah* 7.1 *menunjukkan pembentukan kembar.*

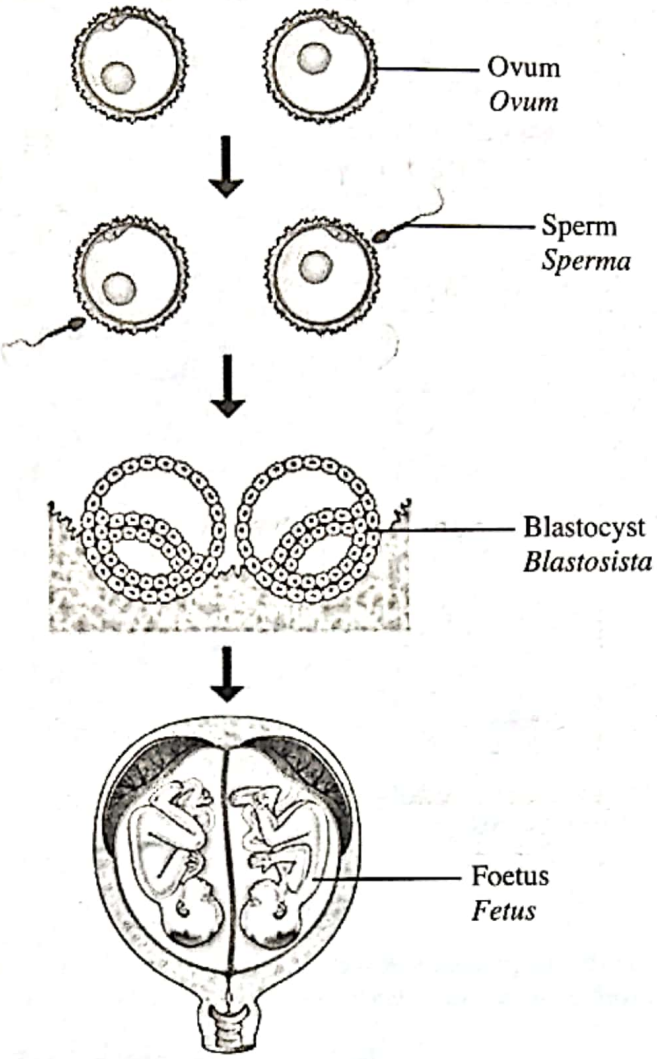



Diagram 7.1
*Rajah* 7.1

Explain the formation of the twins.
*Terangkan pembentukan kembar tersebut.*

[4 marks]
[4 *markah*]

(b) Diagram 7.2 shows a regular menstrual cycle.
*Rajah 7.2 menunjukkan kitar haid yang tetap*

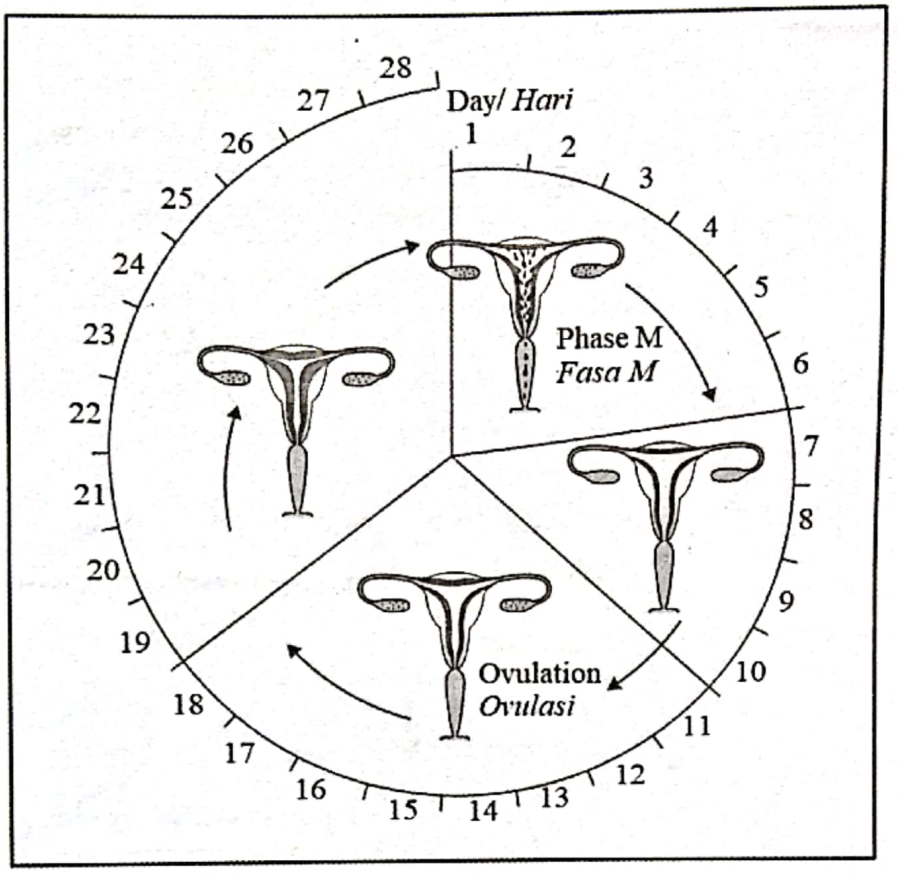



Diagram 7.2
*Rajah 7.2*

Describe the process that happens from phase M until ovulation.
*Huraikan proses yang berlaku dari fasa* M *sehingga ovulasi.*

[6 marks]
[6 *markah*]

(c) Diagram 7.3 shows a cross section of a dicotyledonous stem P and Q which undergoes growth process.
*Rajah 7.3 menunjukkan keratan rentas batang dikotiledon* P *dan* Q *yang mengalami proses pertumbuhan.*

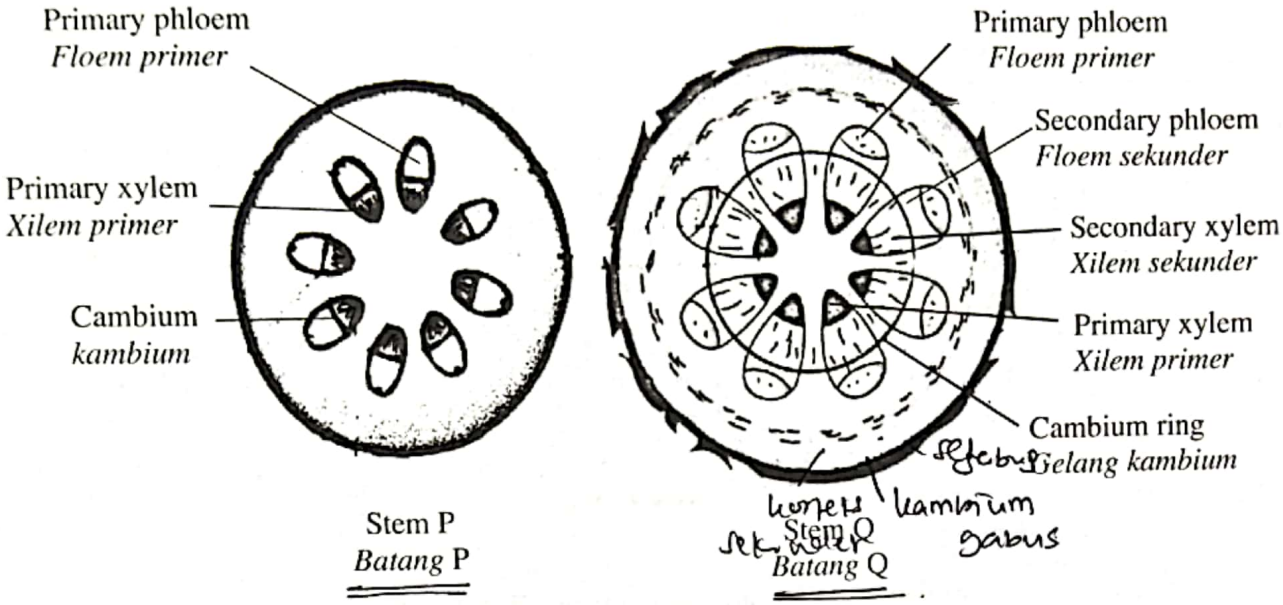
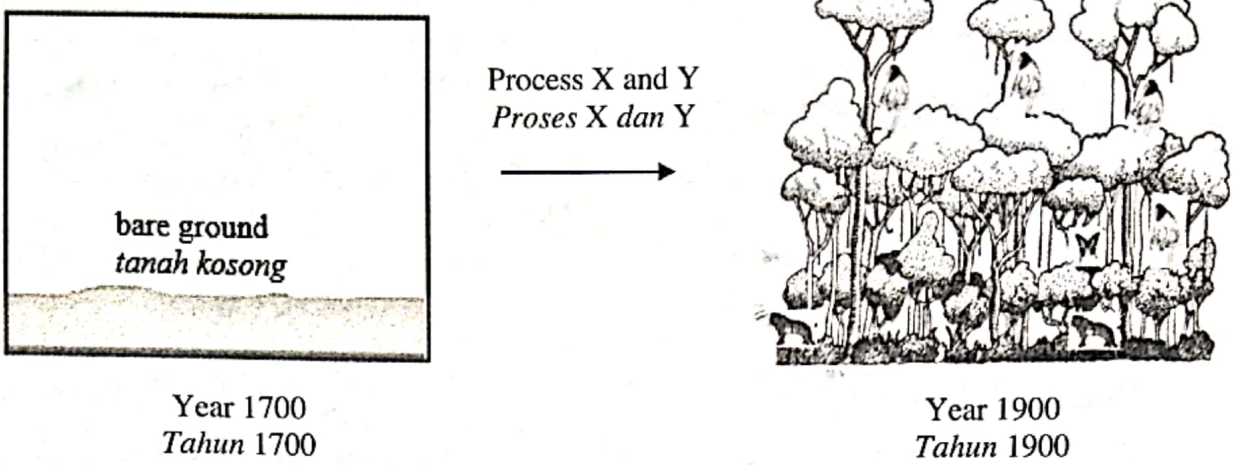



Diagram 7.3
*Rajah 7.3*

Based on Diagram 7.3, compare and contrast the growth process in stem P and Q.
*Berdasarkan Rajah 7.3, bandingkan dan bezakan proses pertumbuhan pada batang* P *dan* Q.

[10 marks]
[10 *markah*]

8 (a) Diagram 8.1 shows the change of an ecosystem from year 1700 to 1900.
*Rajah* 8.1 *menunjukkan perubahan ekosistem dari tahun* 1700 *sehingga* 1900.




Year 1700
*Tahun* 1700

Year 1900
*Tahun* 1900

Diagram 8.1
*Rajah* 8.1

The changes of the ecosystem are due to process X and Y. Explain.
*Perubahan ekosistem adalah disebabkan oleh proses* X *dan* Y. *Jelaskan*.

[10 marks]
[10 *markah*]

(b) Diagram 8.2 shows of two suggested activities that will be implemented by the local community near a lake.
*Rajah 8.2 menunjukkan dua cadangan aktiviti yang akan dijalankan oleh komuniti setempat berdekatan sebuah tasik.*

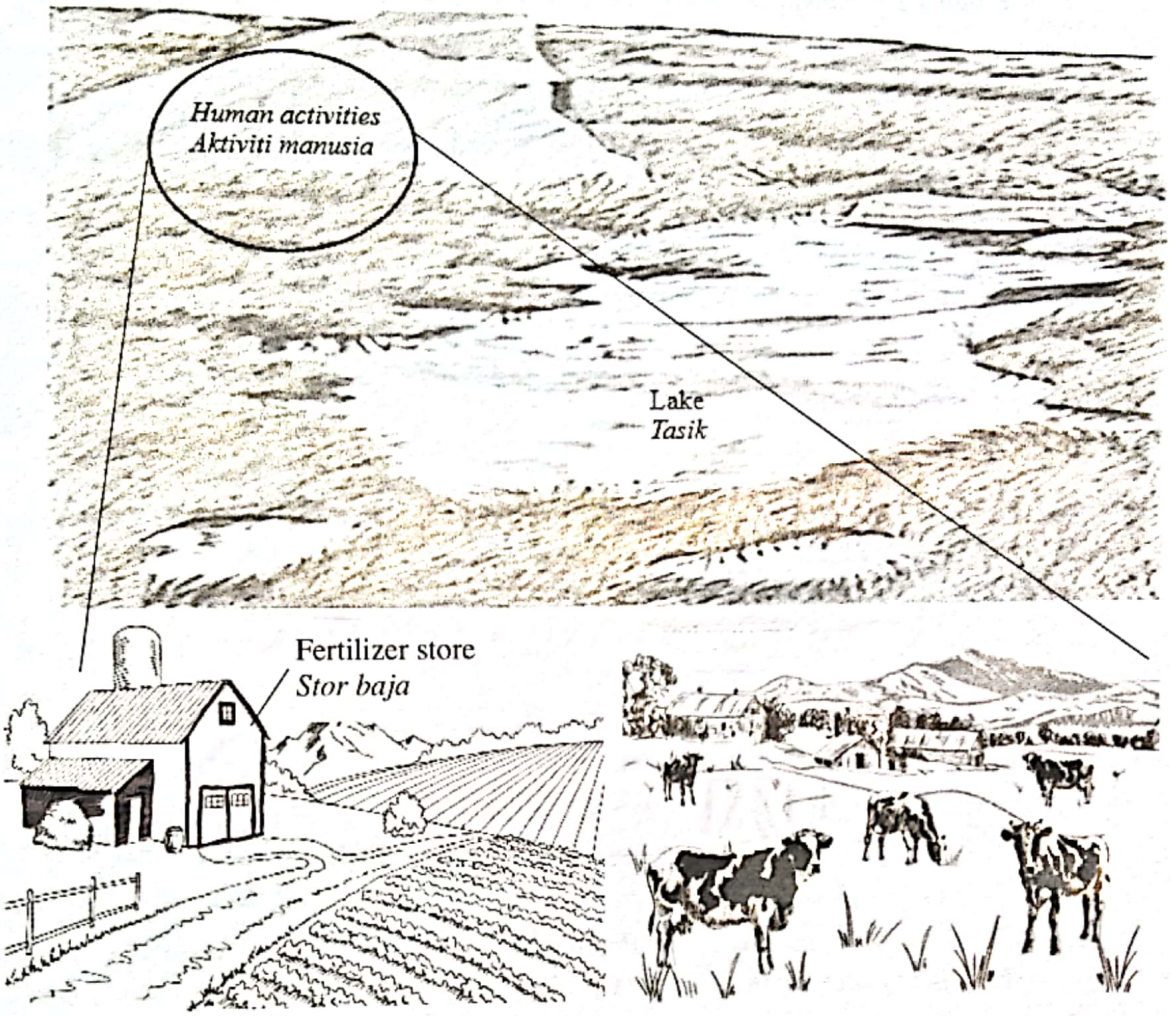



Diagram 8.2
*Rajah 8.2*

If the suggestion were implemented, discuss the good and the bad effects of the activities to human and ecosystem.

*Jika cadangan tersebut dilaksanakan, bincangkan kesan baik dan buruk aktiviti-aktiviti tersebut kepada manusia dan ekosistem.*

[10 marks]
[10 *markah*]

9 (a) Diagram 9.1(a) shows food P which taken by a student during breakfast.
Diagram 9.1(b) shows the digestive system of human.
*Rajah* 9.1(a) *menunjukkan makanan* P *yang diambil oleh seorang pelajar semasa sarapan pagi.*
*Rajah* 9.1(b) *menunjukkan sistem pencernaan manusia.*

Food P
*Makanan* P

Diagram 9.1(a)
*Rajah* 9.1(a)

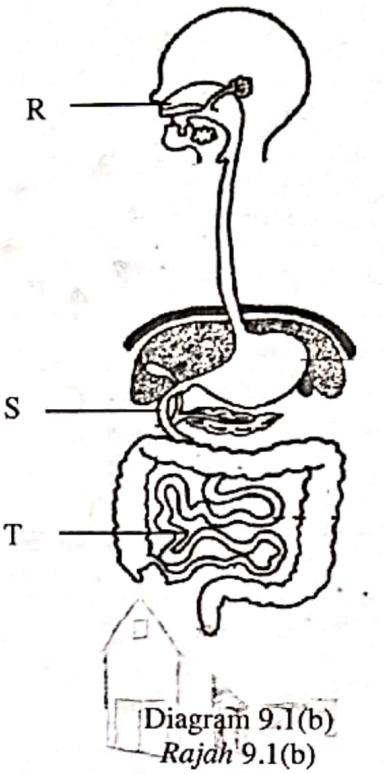



Diagram 9.1(b)
*Rajah* 9.1(b)

Describe the digestion of food P at R, S and T in order for the student to obtain the energy.
*Huraikan pencernaan makanan* P *di* R, S *dan* T *supaya tenaga diperolehi oleh pelajar itu.*

[10 marks]
[10 *markah*]

(b) Diagram 9.2(a) shows the balanced diet proportion for pregnant woman.
Diagram 9.2(b) shows table for the food intake by a pregnant woman for her dinner.
*Rajah* 9.2(a) *menunjukkan nisbah gizi seimbang untuk wanita hamil.*
*Rajah* 9.2(b) *menunjukkan jadual makanan yang diambil oleh seorang perempuan hamil untuk makan malam.*

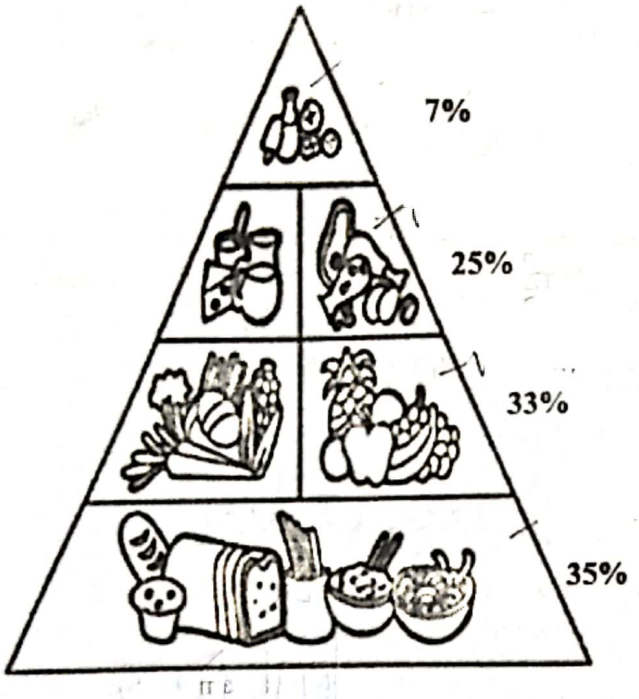



Diagram 9.2(a)
*Rajah* 9.2(a)

| Type of food *Jenis makanan* | Quantity taken (g) *Kuantiti yang diambil (g)* |
|---|---|
| Rice *Nasi* | 200 |
| Fried Potato chips *Kentang goreng* | 70 |
| Meat curry *Kari daging* | 70 |
| Fried egg *Telur goreng* | 30 |
| Carbonated drink *Minuman berkarbonat* | 180 |
| Chicken nugget *Nuget ayam* | 80 |
| Fresh Milk *Susu segar* | 70 |

Diagram 9.2(b)
*Rajah* 9.2(b)

Justify whether the menu in Diagram 9.2(b) is suitable for the pregnant woman.
Explain your answer.
*Justifikasi sama ada menu dalam Rajah* 9.2(b) *sesuai untuk perempuan hamil tersebut.*
*Terangkan jawapan anda.*

[10 marks]
[10 *markah*]

**END OF QUESTION PAPER**
***KERTAS SOALAN TAMAT***