

SULIT

NO. KAD PENGENALAN

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ANGKA GILIRAN

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NAMA : TINGKATAN :



MAJLIS PENGETUA SEKOLAH MALAYSIA NEGERI SELANGOR



PENILAIAN INTERVENSI TERBILANG AKADEMIK SELANGOR (PINTAS) 2026 BIOLOGI TINGKATAN 5

Kertas 2

2 jam 30 minit

4551/2

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. Tulis nama dan kelas anda pada ruangan yang disediakan.
2. Kertas soalan ini adalah dalam dwibahasa.
3. Soalan dalam bahasa Melayu mendahului soalan yang sepadan dalam bahasa Inggeris.
4. Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Melayu atau bahasa Inggeris.

Untuk Kegunaan Pemeriksa			
Kod Pemeriksa:			
Bahagian	Soalan	Markah penuh	Markah Diperoleh
A	1		
	2		
	3		
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	5		
	6		
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	8		
B	9		
	10		
C	11		
Jumlah			

Kertas peperiksaan ini mengandungi 28 halaman bercetak

Bahagian A
Section A

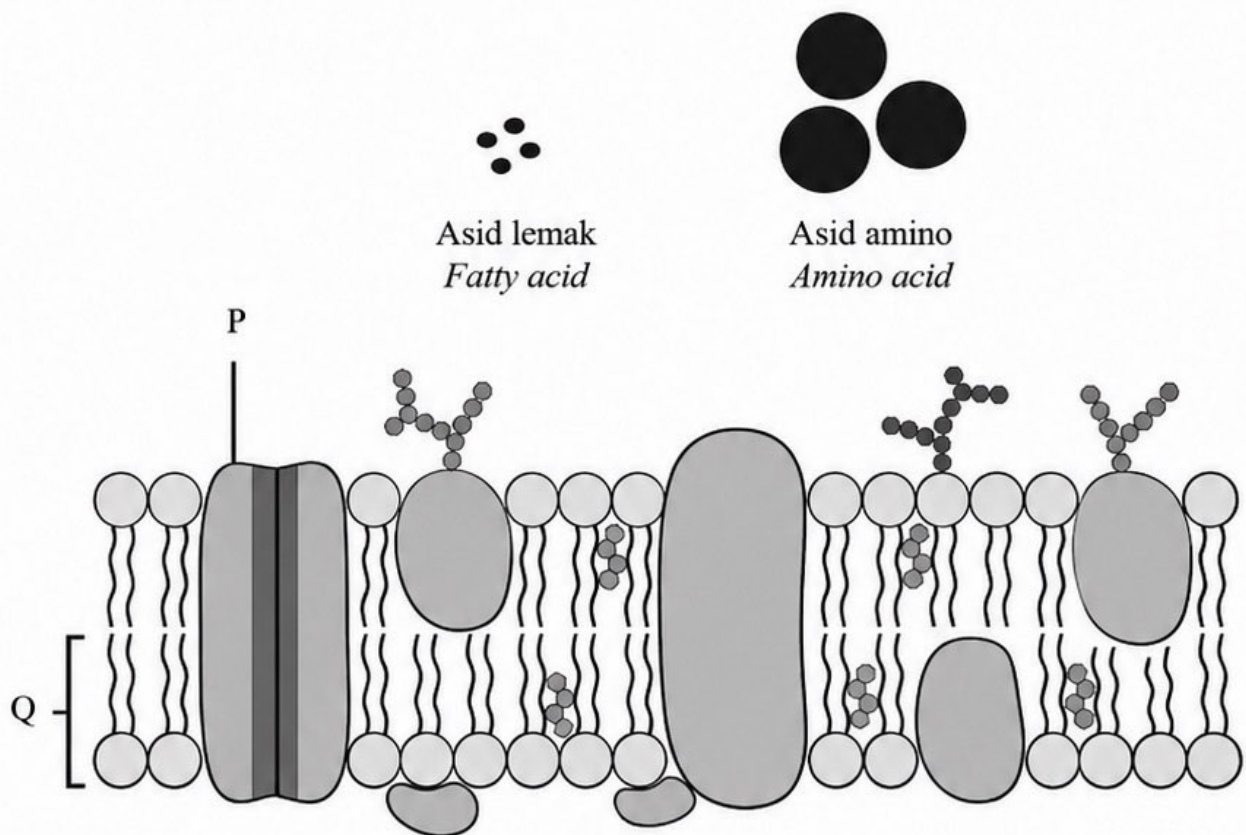
[60 markah]

[60 marks]

Jawab **semua** soalan dalam bahagian ini.

Answer all questions in this section.

1. Rajah 1.1 menunjukkan struktur membran plasma dan dua bahan yang boleh merentasinya.
Diagram 1.1 shows the structure of plasma membrane and two substances that can cross it.



Rajah 1.1
Diagram 1.1

- (a) (i) Lukis menggunakan anak panah laluan pergerakan dua bahan tersebut merentasi membran plasma.
Draw using arrow the path of movement of the two substances across the plasma membrane.

[2 markah]

[2 marks]



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- (ii) Namakan struktur Q.
Name structure Q.

.....
[1 markah]

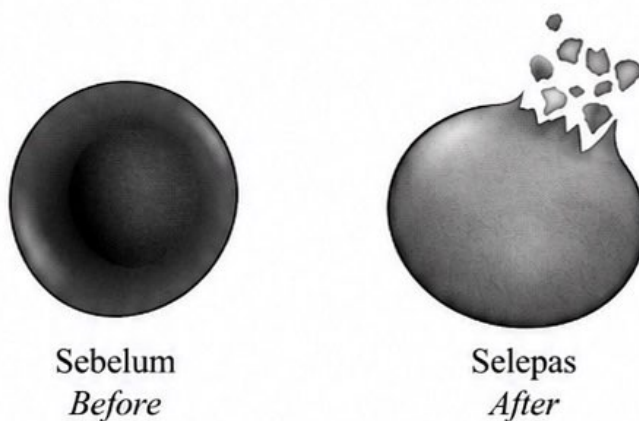
[1 mark]

- (b) Nyatakan jenis pengangkutan bahan yang melalui struktur P.
State the type of transport of substances that passes through structure P.

.....
[1 markah]

[1 mark]

- (c) Rajah 1.2 menunjukkan keadaan satu sel haiwan yang direndam dalam air suling.
Diagram 1.2 shows the condition of an animal cell immersed in distilled water.



Rajah 1.2
Diagram 1.2

Terangkan bagaimana perubahan keadaan sel tersebut berlaku.
Explain how the change in the condition of the cell occurs.

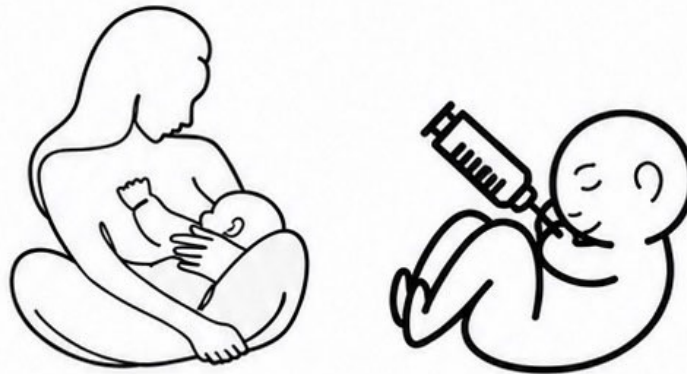
1.
2.
3.

[2 markah]

[2 marks]

2. (a) Rajah 2 menunjukkan dua kaedah bagaimana bayi memperoleh keimunan terhadap penyakit.

Diagram 2 shows two methods on how babies can obtain immunity against diseases.



Kaedah 1
Method 1

Kaedah 2
Method 2

Rajah 2
Diagram 2

- (i) Namakan jenis keimunan yang diperolehi melalui kaedah 1 dan kaedah 2.
Name the type of immunity obtained through method 1 and method 2.

Kaedah 1:

Method 1:

Kaedah 2:

Method 2:

[2 markah]

[2 marks]



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- (ii) Nyatakan **satu** persamaan antara kedua-dua jenis keimunan tersebut.
*State **one** similarity between the two types of immunity.*

.....
[1 markah]

[1 mark]

- (b) Nyatakan **dua** kebaikan susu ibu dari aspek keimunan.
*State **two** advantages of breast milk in term of immunity.*

1.

.....

2.

.....

[2 markah]

[2 marks]

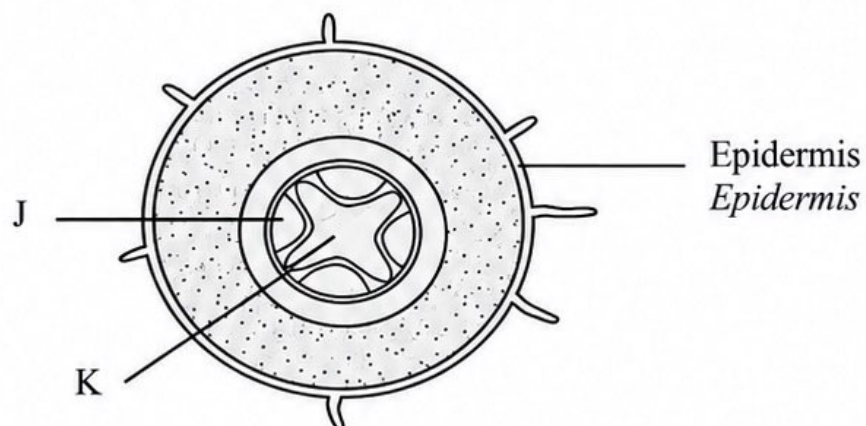
- (c) Cadangkan **satu** cara lain untuk mendapat keimunan seperti kaedah 1.
*Suggest **one** other way of obtaining immunity as method 1.*

.....

[1 markah]

[1 mark]

3. Rajah 3 menunjukkan keratan rentas akar tumbuhan eudikot.
Diagram 3 shows a cross section of an eudicot root.



Rajah 3
Diagram 3

- (a) Namakan tisu J dan K.
Name tissue J and K.

J :

K :

[2 markah]

[2 marks]

- (b) Maklumat berikut adalah tentang bahan L.
The following information is about substance L.

Lapisan paling luar pada batang, daun dan akar diliputi dengan bahan
berlilin dan kalis air.

*The outermost layer of the stems, leaves and roots are covered by a
waxy and waterproof coating substance.*

- (i) Namakan bahan L.
Name substance L.

.....

[1 markah]

[1 mark]

- (ii) Berikan **satu** sebab mengapa tumbuhan memerlukan bahan L.
*Give **one** reason why the plants need substance L.*

.....

.....

[1 markah]

[1 mark]

- (c) Tisu K penting untuk memberi sokongan mekanikal kepada tumbuhan berkayu. Terangkan bagaimana tisu ini disesuaikan bagi fungsi tersebut.
Tissue K is also important for mechanical support in woody plant. Explain how this tissue is adapted for the function.

.....

.....

.....

.....

[3 markah]
 [3 marks]

4. Jadual 1 menunjukkan heirarki taksonomi bagi kuda.
Table 1 shows the taxonomic hierarchy for horse.

Peringkat <i>Level</i>	Takson <i>Taxon</i>
Alam <i>Kingdom</i>	(a)(i)
Filum <i>Phylum</i>	Chordata
Kelas <i>Class</i>	Mamalia
Order <i>Order</i>	Perissodactyla
Famili <i>Family</i>	Equidae
Genus <i>Genus</i>	<i>Equus</i>
(a)(ii)	<i>Caballus</i>

Jadual 1
 Table 1



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SULIT

- (a) Lengkapkan maklumat (a)(i) dan (a)(ii) di dalam Jadual 1.
Complete the information of (a)(i) and (a)(ii) in Table 1.

[2 markah]
[2 marks]

- (b) (i) Berdasarkan Jadual 1, nyatakan nama saintifik bagi kuda.
Based on Table 1, state the scientific name for horse.

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

- (ii) Terangkan sistem tatanama binomial untuk menulis nama saintifik kuda.
Explain the binomial nomenclature system to write the scientific name of horse.

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

- (c) Rajah 4 menunjukkan satu organisma yang dikelaskan dalam alam fungi.
Diagram 4 shows an organism that is classified in kingdom fungi.



Rajah 4
Diagram 4

Bandingkan ciri bagi kuda dan organisma dalam Rajah 4.

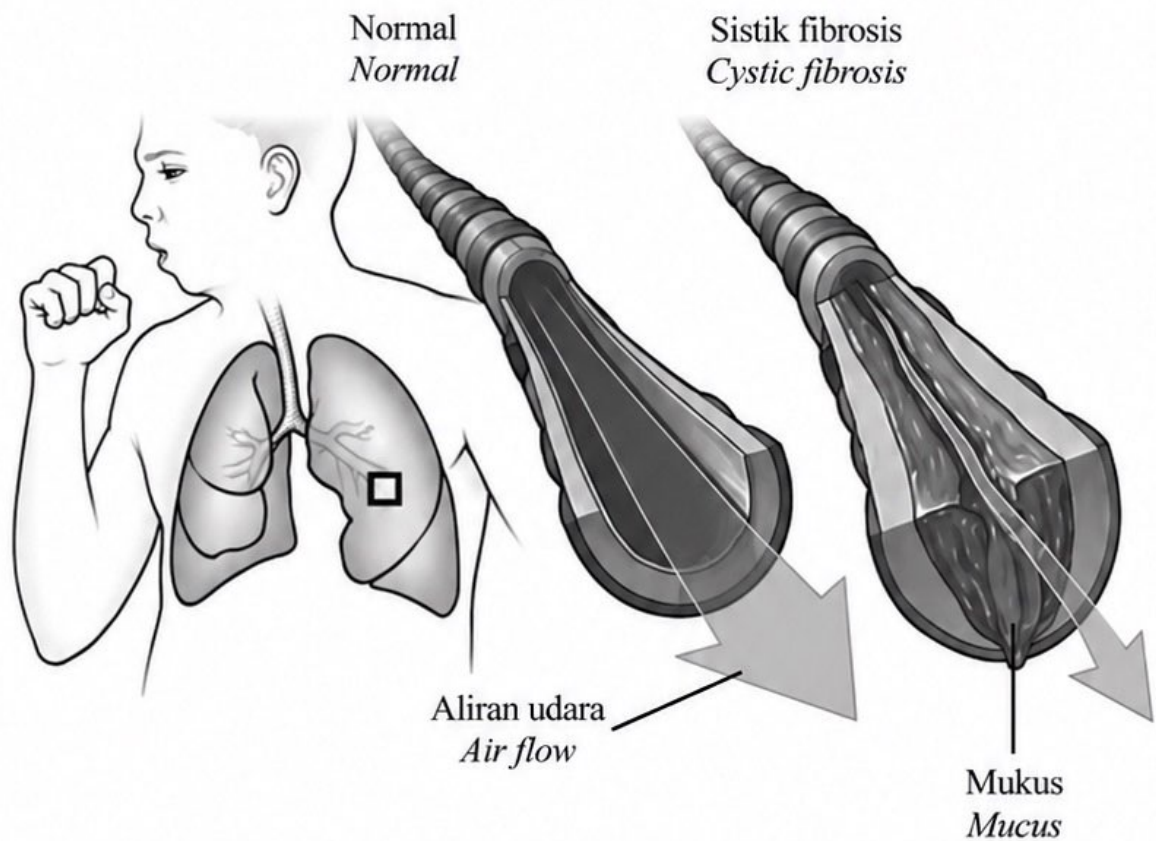
Compare the characteristics of horse and organism in Diagram 4.

1.
2.
3.
4.

[2 markah]

[2 marks]

5. Rajah 5.1 menunjukkan sistik fibrosis yang merupakan penyakit genetik.
Diagram 5.1 shows cystic fibrosis, which is a genetic disease.



Rajah 5.1
Diagram 5.1

- (a) (i) Nyatakan **satu** kaedah bioteknologi untuk merawat penyakit tersebut.
*State **one** biotechnology method to treat the disease.*

.....
[1 markah]

[1 mark]

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

.....
.....
.....
[3 markah]

[3 marks]

- (b) Maklumat berikut ialah petikan berita berkaitan satu kes pencemaran.
The following information is the news article about a pollution case.

**TUMPAHAN MINYAK SUDAH MEREBAK KE
PERAIRAN JOHOR
*OIL SPILL HAS SPREAD TO JOHOR WATERS***

Johor Bahru: Insiden tumpahan minyak yang berlaku susulan perlanggaran kapal di Terminal Pasir Panjang, Singapura pada Jumaat lalu dikesan sudah merebak ke perairan negeri ini.

Johor Bahru: The oil spill incident that occurred following a ship collision at the Pasir Panjang Terminal, Singapore last Friday has been detected to have spread to the state's waters.

Sumber : Berita Harian

Source : Berita Harian

Tarikh : 24 Jun 2024

Date : 24 June 2024



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- (c) Cadangkan **satu** langkah menggunakan bioteknologi untuk mengatasi masalah tersebut. Terangkan cadangan anda.
*Suggest **one** step using biotechnology to overcome the problem.*
Explain your suggestion.

.....

.....

[2 markah]

[2 marks]

- (c) Berikan **satu** kebaikan dan **satu** keburukan makanan terubah suai genetik (GMF) kepada kehidupan manusia.
*Give **one** advantage and **one** disadvantage of genetically modified food (GMF) towards human lives.*

.....

.....

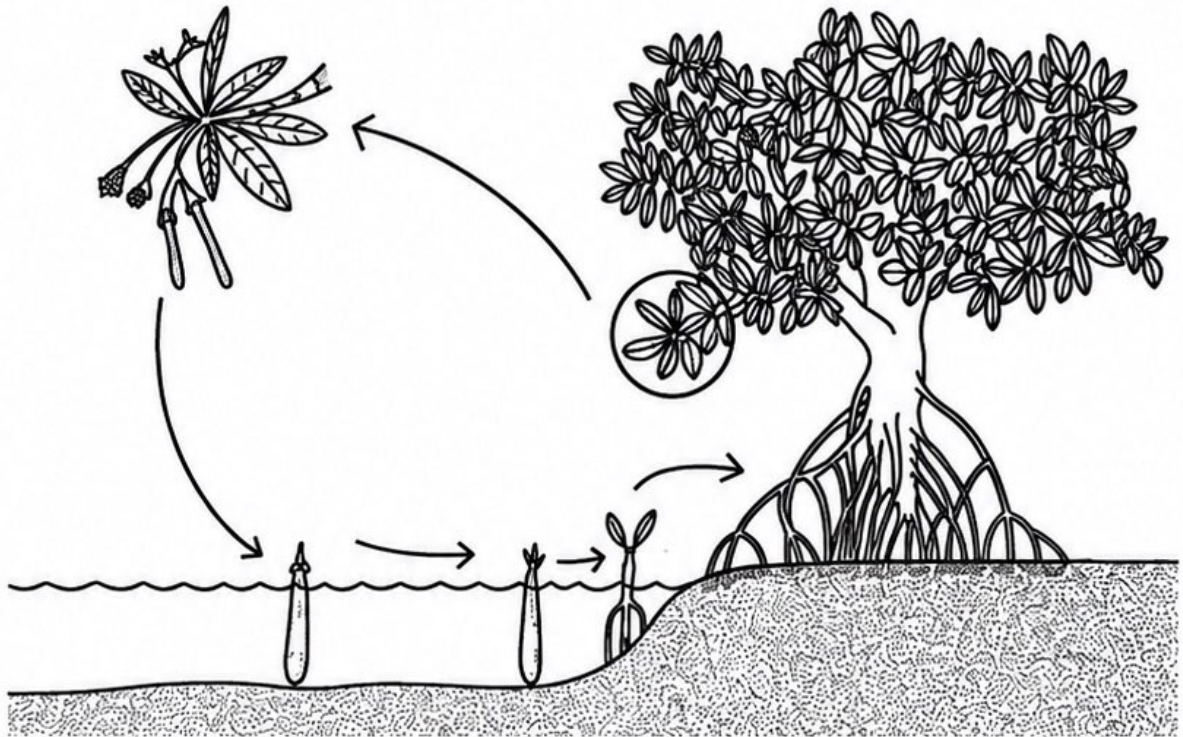
.....

.....

[2 markah]

[2 marks]

6. Rajah 6 menunjukkan proses pembiakan satu tumbuhan di tepi laut.
Diagram 6 shows the reproduction process of a plant at the seaside.



Rajah 6
Diagram 6

- (a) Namakan pengelasan tumbuhan tersebut berdasarkan habitatnya.
Name the classification of the plant based on its habitat.

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

- (b) Berdasarkan Rajah 6,
Based on the Diagram 6,

- (i) Nyatakan adaptasi biji benih tumbuhan tersebut.
State the adaptation of seed of the plant.

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

- (ii) Terangkan kepentingan adaptasi tersebut kepada kemandirian tumbuhan.
Explain the importance of the adaptation to the survival of the plant.

.....

.....

.....

[2 markah]

[2 marks]

- (c) Terangkan bagaimana sistem akar tumbuhan tersebut membolehkan tumbuhan hidup di habitat tersebut.

Explain how the root system of the plant enable the plant to live in the habitat.

.....

.....

.....

[2 markah]

[2 marks]

- (d) Ramalkan apa yang berlaku kepada sel akar jika tumbuhan tersebut dipindahkan ke kawasan yang banyak air.

Predict what will happen to the root hair cell if the plant is transferred to an area with a lot of water.

.....

.....

.....

[2 markah]

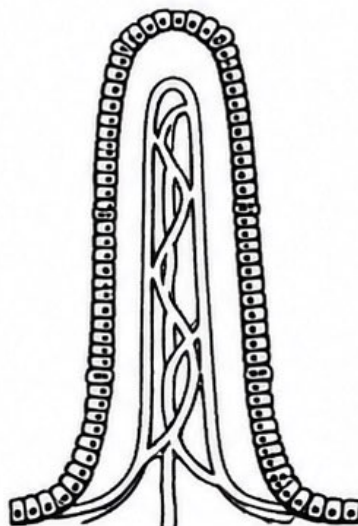
[2 marks]



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7. Rajah 7.1 menunjukkan sebahagian daripada keratan membujur vilus dalam usus kecil manusia.

Diagram 7.1 shows part of a longitudinal section of a villus in the human small intestine.



Rajah 7.1
Diagram 7.1

- (a) (i) Pada Rajah 7.1, lukis dan label struktur lakteal dan jaringan kapilari darah.
At Diagram 7.1, draw and label the structure of lacteal and network of blood capillary.

[2 markah]

[2 marks]

- (ii) Terangkan **satu** ciri penyesuaian vilus untuk menjalankan fungsinya dengan cekap.

*Explain **one** adaptation of the villus to carry out its function efficiently.*

Penyesuaian:

Adaptation:

.....
.....

[1 markah]

[1 mark]

Penerangan:

Explanation:

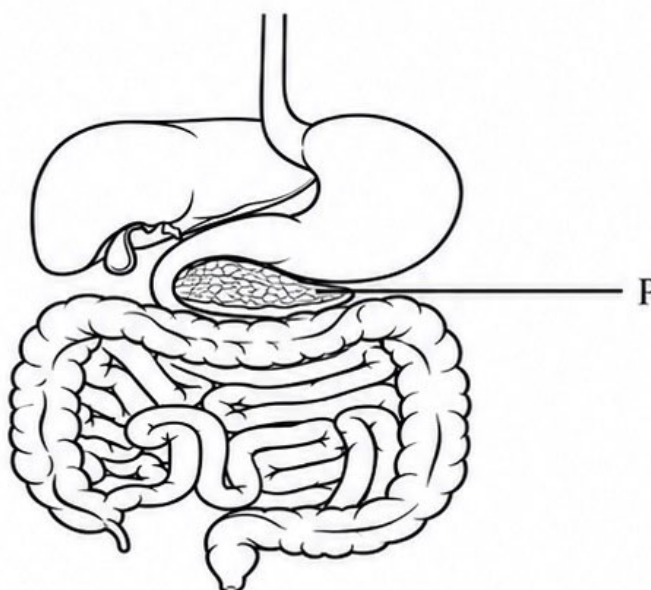
.....
.....

[2 markah]

[2 marks]

- (b) Rajah 7.2 menunjukkan sistem pencernaan manusia.

Diagram 7.2 shows the human digestive system.



Rajah 7.2
Diagram 7.2

- (i) Terangkan kesan ke atas pencernaan lipid jika organ P terpaksa dibuang akibat tumor.

Explain the effect on lipid digestion if organ P has to be removed due to tumour.

.....
.....
.....
.....

[3 markah]

[3 marks]

- (ii) Cadangkan satu diet yang sesuai untuk individu dengan organ P yang telah dibuang.

Terangkan cadangan anda.

Suggest a suitable diet for the individual who has removed organ P.

Explain your suggestion.

.....

.....

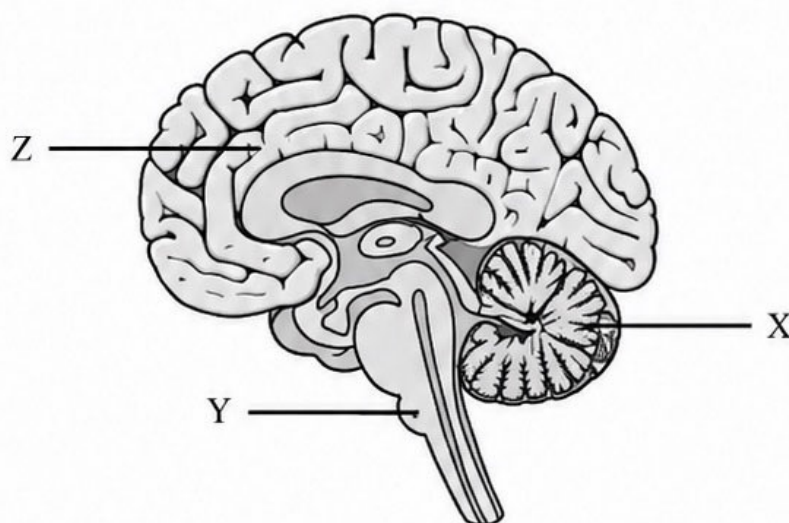
.....

[2 markah]

[2 marks]

8. Rajah 8.1 menunjukkan keratan rentas otak manusia.

Diagram 8.1 shows cross section of the human brain.



Rajah 8.1

Diagram 8.1

- (a) (i) Namakan bahagian X dan Y.

Name part X and Y.

X :

Y :

[2 markah]

[2 marks]



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- (ii) Terangkan fungsi bahagian Z.
Explain the function of part Z.

.....

.....

.....

[2 markah]

[2 marks]

- (b) Satu kemalangan telah menyebabkan seorang individu mengalami kecederaan di bahagian hipotalamus otak.

Terangkan kesan kecederaan tersebut ke atas koordinasi homeostasis suhu badan.

An accident caused an individual to have injury at the hypothalamus part of the brain.

Explain the effect of the injury on coordination of the body temperature homeostasis.

.....

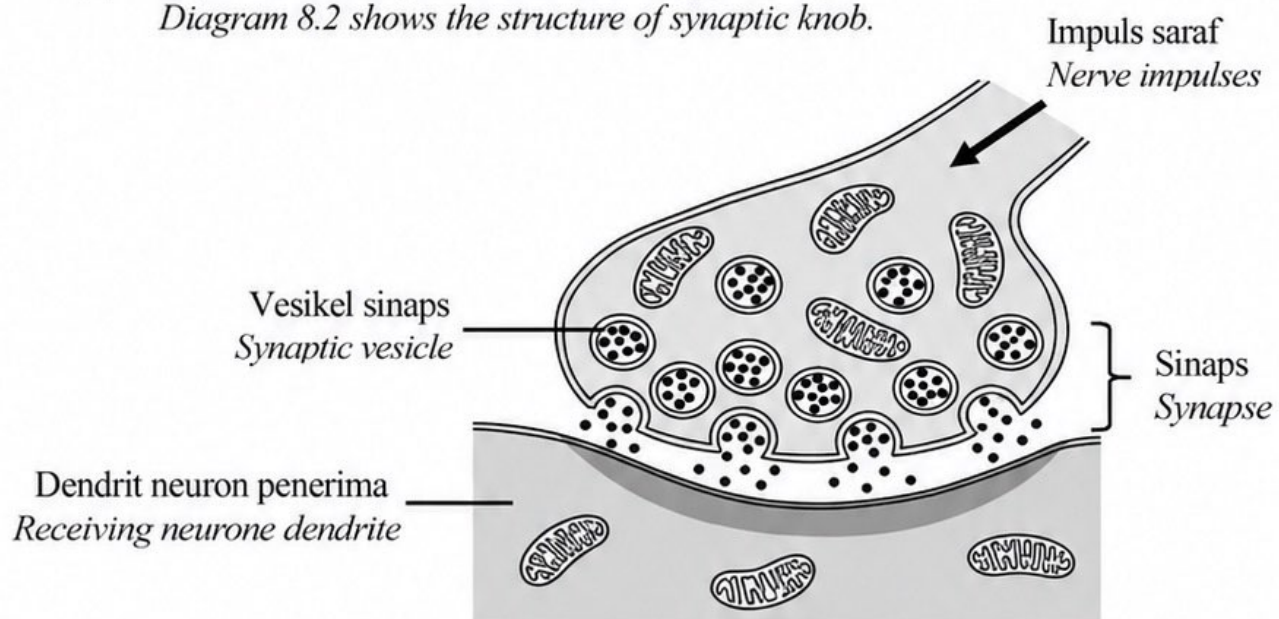
.....

.....

[2 markah]

[2 marks]

- (c) Rajah 8.2 menunjukkan struktur bonggol sinaps.
Diagram 8.2 shows the structure of synaptic knob.



Rajah 8.2
Diagram 8.2

Seorang pendaki telah dipatuk ular. Bisa ular tersebut mengandungi neurotoksin. Terangkan bagaimana neurotoksin tersebut mempengaruhi penghantaran impuls saraf merentasi sinaps.

A climber has been bitten by snake. The venom of the snake contains neurotoxin.

Explain how the neurotoxin affects the transmission of nerve impulses across the synapse.

.....

.....

.....

.....

[3 markah]

[3 marks]

Bahagian B
Section B

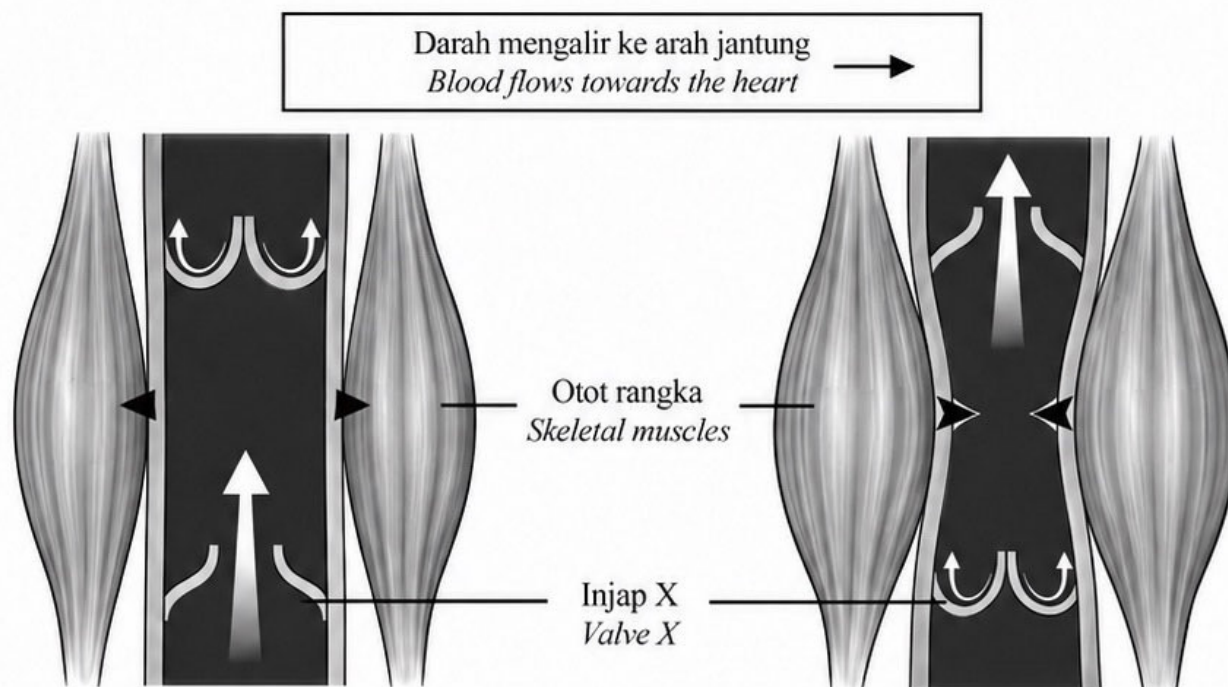
[20 markah]

[20 marks]

Jawab **satu** soalan daripada bahagian ini.*Answer **one** question from this section.*

9. Rajah 9.1 menunjukkan proses yang berlaku pada otot rangka. Proses ini penting bagi memastikan pengaliran dan peredaran darah dalam vena dibantu kembali ke jantung menentang graviti.

Diagram 9.1 shows the process that occurs in skeletal muscles. This process is important to ensure that the flow and circulation of blood in the veins is assisted back to the heart against gravity.



Rajah 9.1
Diagram 9.1

- (a) (i) Nyatakan **dua** cara yang menyebabkan peredaran darah berlaku.
*State **two** ways that causes blood circulation to occur.*

[2 markah]

[2 marks]



- (ii) Terangkan fungsi injap X.
Explain the function of valve X.

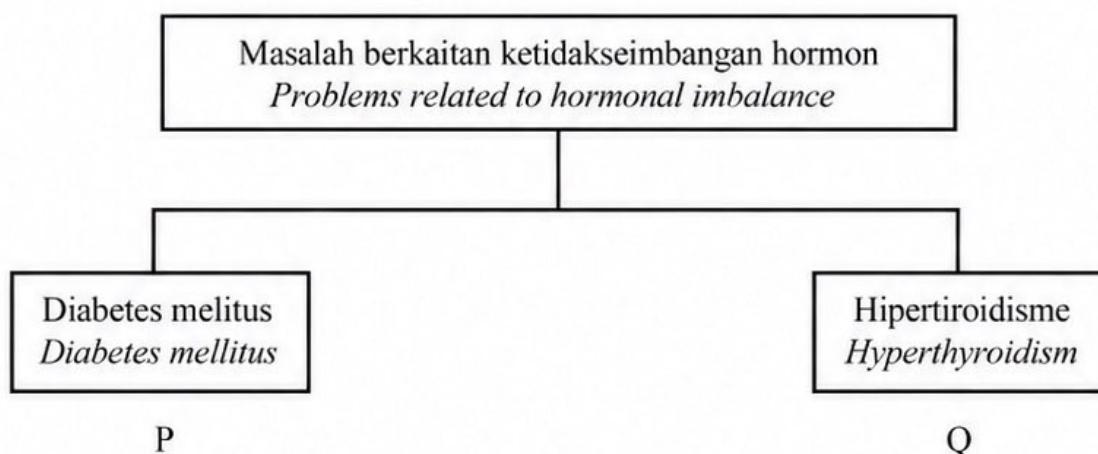
[2 markah]
[2 marks]

- (iii) Terangkan bagaimana tindakan otot rangka di sekeliling vena tersebut dapat mengembalikan darah ke jantung.
Explain how the action of skeletal muscles around the vein can return blood to the heart.

[6 markah]
[6 marks]

- (b) Rajah 9.2 menunjukkan dua isu kesihatan P dan Q yang berkaitan dengan ketidakseimbangan hormon.

Diagram 9.2 shows two health issues P and Q related to hormonal imbalance.

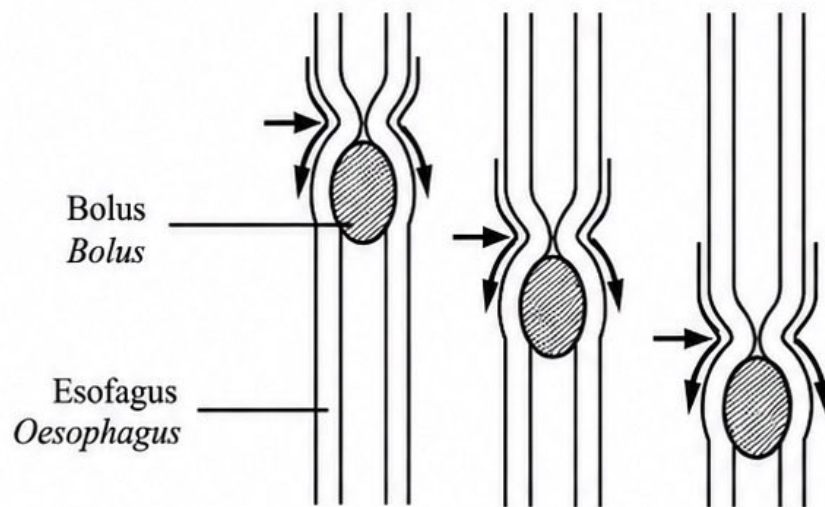


Rajah 9.2
Diagram 9.2

Terang punca dan cara-cara bagi mengatasi setiap masalah tersebut.
Explain the causes and ways to overcome each problem.

[4 markah]
[4 marks]

- (c) Rajah 9.3 menunjukkan dua jenis tindakan yang dikawal oleh sistem saraf.
Diagram 9.3 shows two types of actions controlled by the nervous system.



Tindakan R
Action R



Tindakan S
Action S

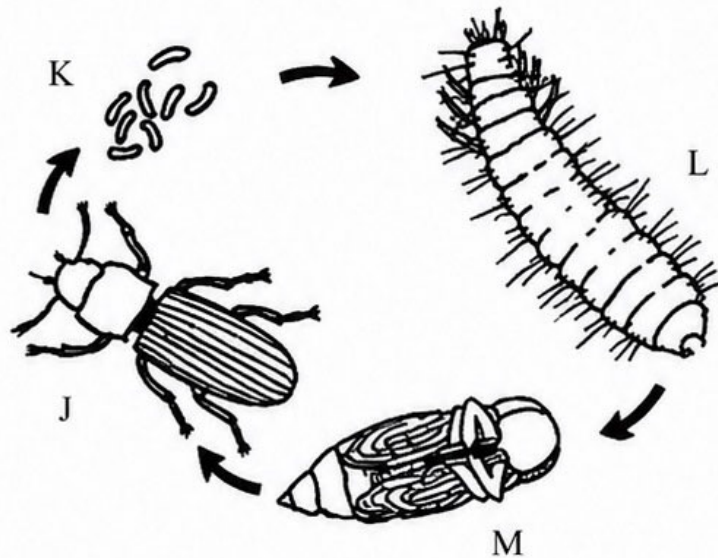
Rajah 9.3
Diagram 9.3

Banding dan bezakan antara tindakan R dan tindakan S.
Compare and contrast between action R and S.

[6 markah]

[6 marks]

10. (a) Rajah 10.1 menunjukkan kitar hidup satu organisma.
Diagram 10.1 shows the life cycle of an organism.



Rajah 10.1
Diagram 10.1

- (i) Berdasarkan Rajah 10.1, terangkan jenis pertumbuhan bagi organisma tersebut.
Based on Diagram 10.1, explain the type of growth of the organism.

[2 markah]

[2 marks]

- (ii) Terangkan setiap peringkat dalam proses pertumbuhan organisma tersebut bagi melengkapkan satu kitar hidupnya.
Explain each stage in the growth process of the organism to complete one life cycle.

[4 markah]

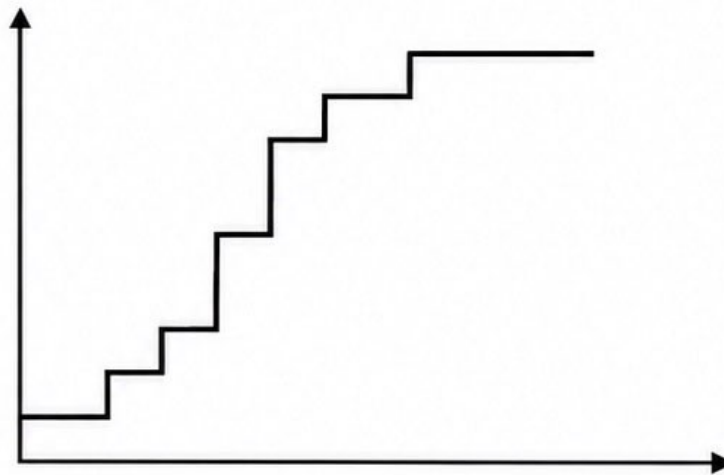
[4 marks]



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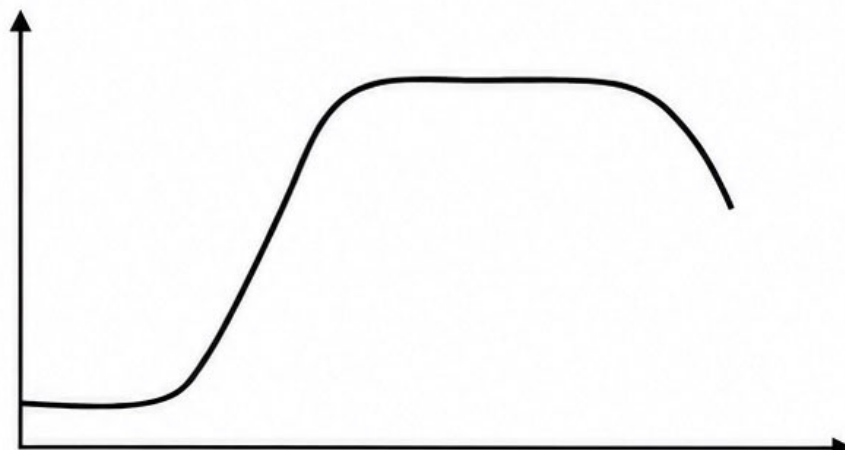
- (b) Rajah 10.2 menunjukkan dua lengkung pertumbuhan P dan Q. Lengkung pertumbuhan P adalah bagi satu haiwan dan lengkung pertumbuhan Q adalah bagi manusia.
Diagram 10.2 shows two growth curves P and Q. Growth curve P is for an animal and growth curve Q is for human.

Panjang badan (cm)
Length of body (cm)



Lengkung pertumbuhan P
Growth curve P

Pertumbuhan
Growth



Lengkung pertumbuhan Q
Growth curve Q

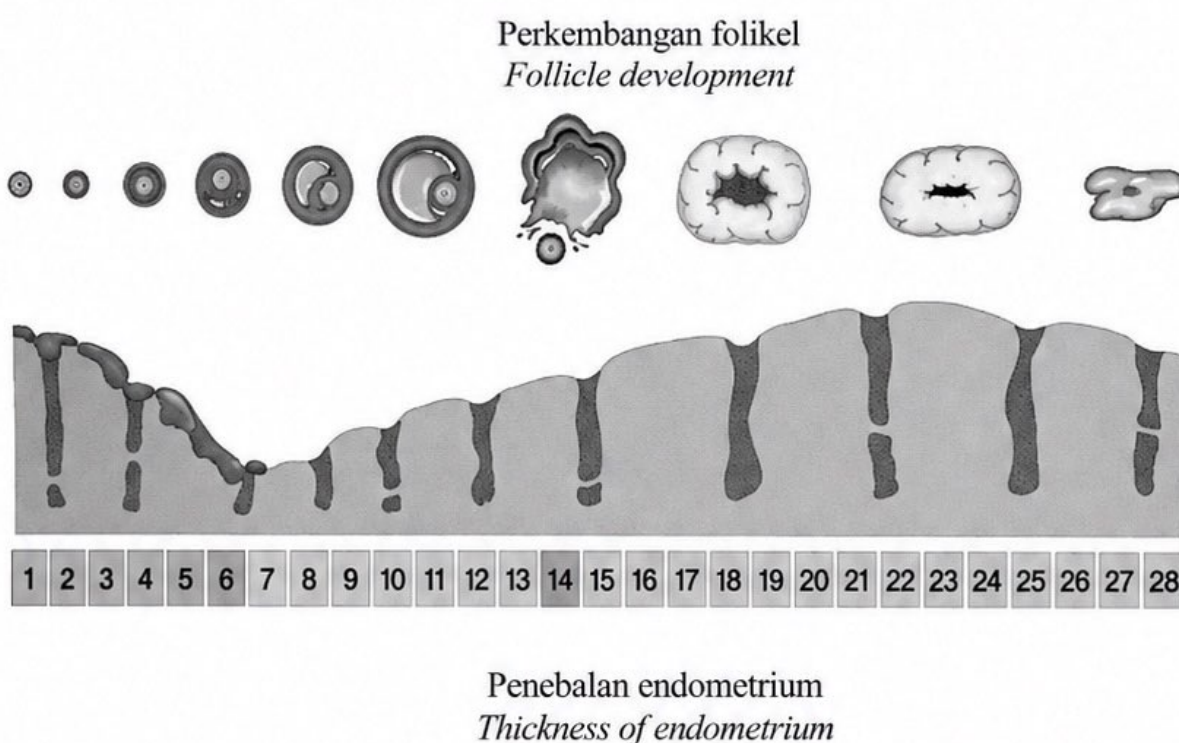
Rajah 10.2
Diagram 10.2

Banding dan bezakan antara lengkung pertumbuhan P dan lengkung pertumbuhan Q.
Compare and contrast between growth curve P and growth curve Q.

[5 markah]
[5 marks]

- (c) Rajah 10.3 menunjukkan perkembangan folikel dan penebalan dinding endometrium dalam satu kitaran haid seorang wanita.

Diagram 10.3 shows follicle development and thickness of uterine lining in one menstrual cycle of a woman.



Rajah 10.3
Diagram 10.3

- (i) Terangkan perubahan yang berlaku di dalam perkembangan folikel dan penebalan endometrium sekiranya oosit sekunder disenyawakan.
Explain the changes in follicle development and thickness of endometrium if secondary oocyte is fertilised.

[5 markah]
[5 marks]

- (ii) Pernyataan berikut adalah mengenai satu masalah yang berlaku yang melibatkan kitar haid.

The following statement is about a problem that occurs that involved the menstrual cycle.

Sindrom prahaid atau gejala sebelum kedatangan haid biasanya dialami antara 7 hingga 14 hari sebelum hari pertama haid.

Premenstrual syndrome or symptoms that appear prior to a menstrual cycle usually manifests between 7 to 14 days before the first day of the menstrual cycle.

Cadangkan cara terbaik untuk seseorang individu mengatasi gejala sindrom tersebut.

Terangkan cadangan anda.

Suggest the best way to overcome the syndrome be used in the treatment.

Explain your suggestion.

[4 markah]

[4 marks]



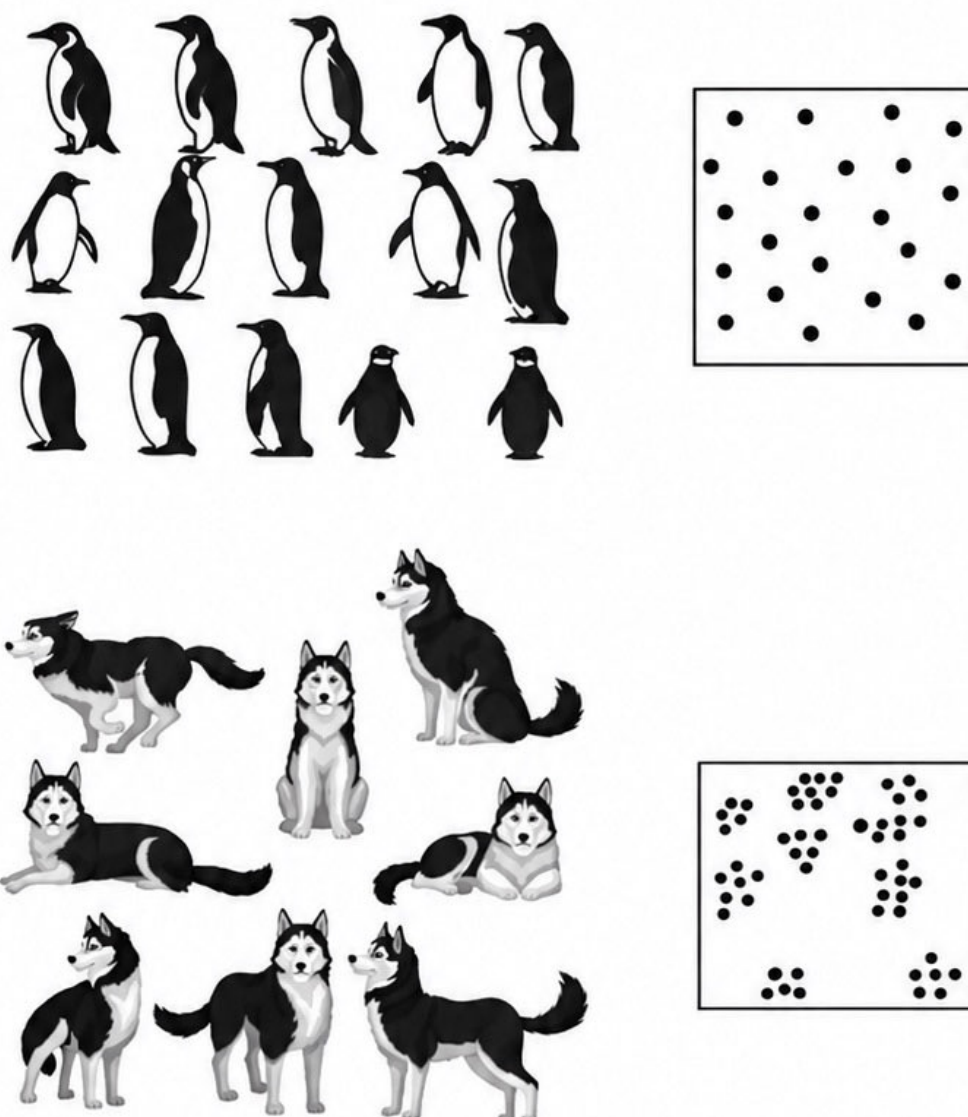
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Bahagian C
Section C

[20 markah]
[20 marks]

Jawab **semua** soalan daripada bahagian ini.
Answer all question from this section.

11. Rajah 11.1 menunjukkan corak taburan populasi bagi penguin dan anjing *Siberian Husky*.
Diagram 11.1 shows the pattern of population distribution of penguin and Siberian Husky dog.



Rajah 11.1
Diagram 11.1

- (a) Berdasarkan Rajah 11.1. terangkan corak taburan populasi bagi penguin dan anjing *Siberian Husky*.

Based on Diagram 11.1 explain the pattern of population distribution for penguin and Siberian Husky dog.

[4 markah]

[4 marks]

- (b) Anda sebagai ahli zoologi, huraikan satu kaedah untuk menganggarkan saiz populasi bagi anjing *Siberian Husky* di dalam satu kawasan.

You are as a zoologist, describe a method to estimate the population size of Siberian Husky dog in an area.

[6 markah]

[6 marks]

- (c) Rajah 11.2 menunjukkan satu fenomena yang berlaku kepada bumi akibat aktiviti manusia.

Diagram 11.2 shows a phenomenon that occurs on Earth as a result of human activities.



Rajah 11.2
Diagram 11.2

- (i) Bincangkan punca fenomena ini berlaku dan kesannya terhadap populasi penguin.
Discuss the causes of the phenomenon and the effects on the penguin population.

[6 markah]
[6 marks]

- (ii) Cadangkan amalan yang boleh dilakukan untuk mengurangkan kesan fenomena dalam Rajah 11.2.
Suggest the practices that can be carry out to reduce the effects of the phenomenon in Diagram 11.2.

[4 markah]
[4 marks]

KERTAS TAMAT
END OF PAPER



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