

Section A
Bahagian A

[60 Markah]
[60 marks]

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

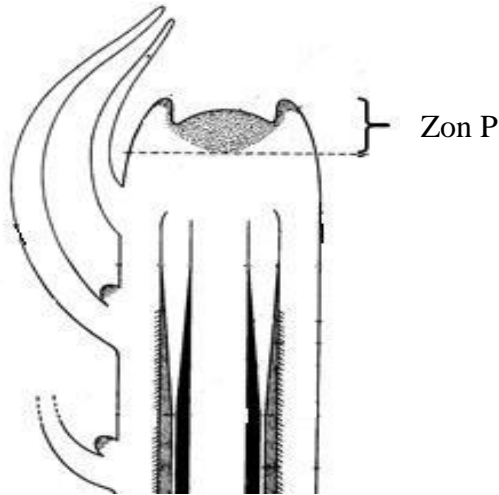
1 .

Rajah 1.1 (a) menunjukkan keratan memanjang suatu hujung pucuk.

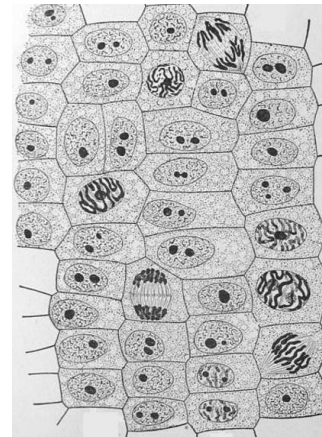
Rajah 1.1 (b) menunjukkan suatu proses yang berlaku di zon P.

Diagram 1.1 (a) shows a longitudinal section of a plant shoot tip.

Diagram 1.1(b) shows a process which takes place in zone P.



Rajah 1.1(a)
Diagram 1.1 (a)



Rajah 1.1(b)
Diagram 1.1 (b)

(a) (i)

Namakan zon P yang ditunjukkan dalam rajah 1.1(a)

Name zon P in Diagram 1.1 (a)

.....

(ii)

Nyatakan **satu** organel yang padat di zon P
*State **an** organel that is abundantly found in zone P*

[1 markah]
[1 mark]

.....

[1 markah]
[1 mark]

[Lihat halaman sebelah]

SULIT

1(a)(i)

	1
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1(a)(ii)

	1
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- (iii) Terangkan kepentingan proses yang berlaku di zon P ini..
Explain the importance of the process that occurs in zon P.

.....

.....

[2 markah]
[2 marks]

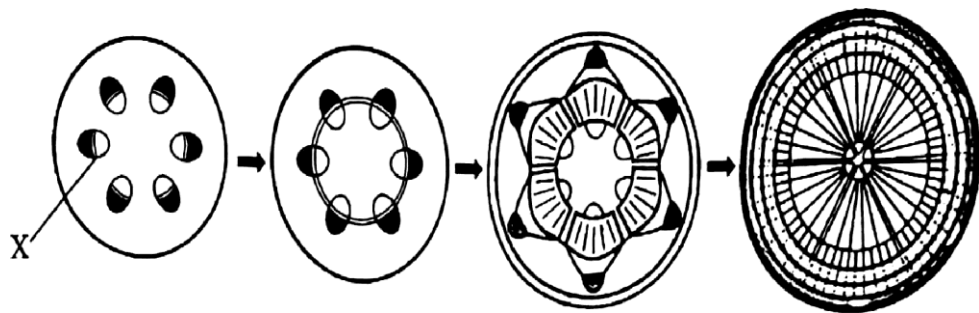
Untuk
Kegunaan
Pemeriksa

1(a)(iii)

	2
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Rajah 1.2 menunjukkan peringkat-peringkat pertumbuhan dalam batang eudikot.

Diagram 1.2 shows the stages of growth in eudicot stem.



Rajah 1.2
Diagram 1.2

- (b) Terangkan apa yang akan berlaku kepada tumbuhan tersebut jika tisu X gagal terbentuk
Explain What will happen to the plant if tissue X fails to form.

.....

.....

.....

[2 markah]
[2 marks]

[Lihat halaman sebelah]
SULIT

1(b)

	2
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**Total
A1**

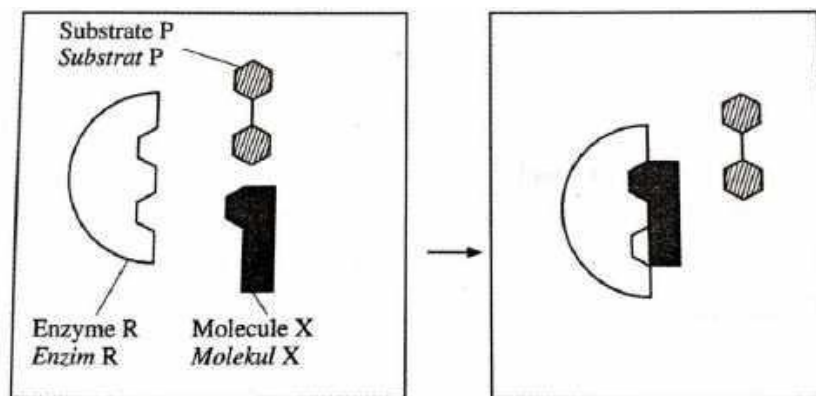
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Examiner's
Use

2.

Rajah 2 menunjukkan mekanisme tindakan enzim di antara molekul X ke atas enzim R.

Diagram 2 shows the mechanism of action of the enzyme between molecules X on the enzyme R.



Rajah 2
Diagram 2

- (a) Berdasarkan rajah 2, terangkan bagaimana kehadiran molekul X mempengaruhi mekanisme tindak balas enzim R dengan substrat P.
Based on the diagram 2, explain how molecule X influence the mechanism of enzyme reaction between enzyme R and substrate P.

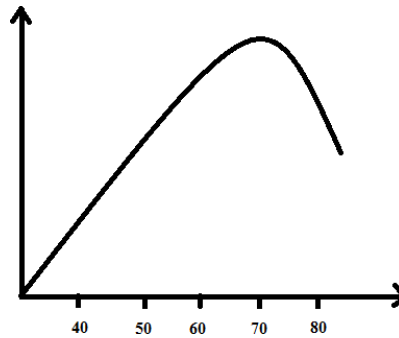
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..

[3 markah]
[3 marks]

[Lihat halaman sebelah]
SULIT

2(a)

3



(b) (i) Graf menunjukkan tenaga pengaktifan untuk tindak balas biokimia dalam satu organisma dalam satu persekitaran khusus. Sekiranya suhu diturunkan ke suhu bilik, ramalkan apa yang akan berlaku pada mikroorganisma.

The graph shown of activation energy for biochemical reaction in one organism in one specifically environment.

If the temperature is decreased to room temperature, predict what will happen to the microorganism.

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

2(b)(i)

1

(ii) Berikan sebab berdasarkan jawapan anda di (b) (i).
Give your reason based on your answer in (b)(i)

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

[2 markah]
[2 marks]

2(b) (ii)

2

[Lihat halaman sebelah]
SULIT

Total
A2

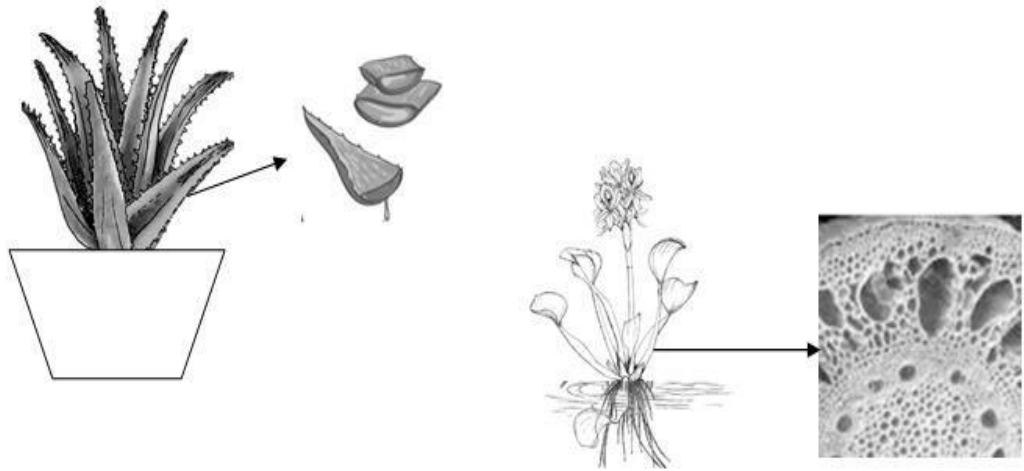
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For
examiner's
use

3

Rajah di bawah menunjukkan dua jenis tumbuhan X dan Y.

The diagram below shows two types of plants, X and Y.



Plant X

Plant Y

Tissue Z

(a)

Tumbuhan Y hidup di habitat berair. Namakan jenis tumbuhan Y berdasarkan habitatnya.

Plant Y lives in aquatic habitats. Name the type of plant Y based on its habitat.

.....

[1 markah]
[1 mark]

3 (a)

(b)

Tisu Z mempunyai ciri yang membolehkan tumbuhan Y dapat hidup di habitatnya. Terangkan.

Tissue Z has characteristics that allow plant Y to live in its habitat. Explain.

.....

.....

[2markah]
[2 marks]

3(b)

[Lihat halaman sebelah]

SULIT

1
2

- (c) (i) Berdasarkan rajah, nyatakan **dua** ciri yang dapat anda perhatikan pada tumbuhan X.

*Based on diagram, state **two** features that you can observe plant X.*

1)

2)

[2 markah]
[2 mark]

- (ii)

Daripada ciri yang anda nyatakan pada soalan 3I (i), namakan jenis tumbuhan ini berdasarkan habitat yang sesuai didudukinya dan kaitkan dengan ciri itu.

From the characteristics you mentioned in question 3I (i), name this type of plant based on the appropriate habitat it can occupies and associate it with that feature.

.....

.....

.....

[2 markah]
[2 marks]

3(c)(i)

2

3(c)(ii)

2

**Jumlah
A3**

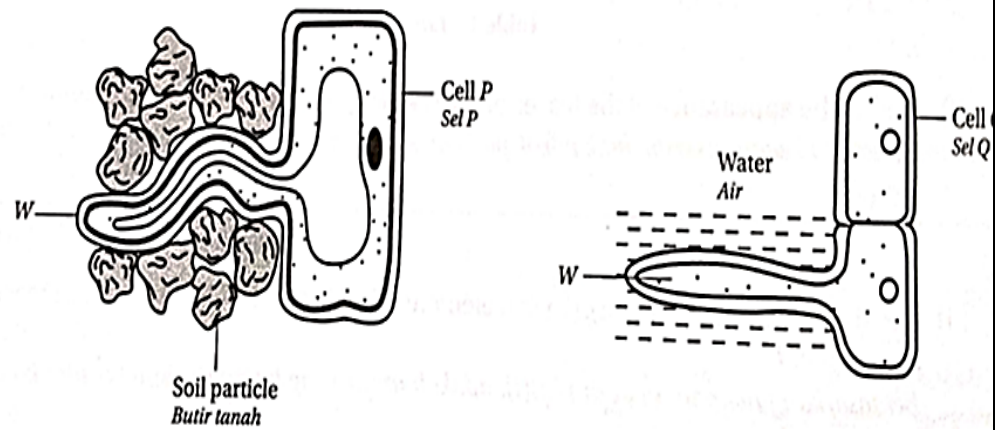
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SULIT

4

Rajah 4.1 menunjukkan sel P tumbuh melalui butir-butir tanah dan sel Q pada tumbuhan akuatik yang tumbuh di dalam kolam. Sel P dan sel Q diadaptasikan daripada sel-sel epidermis akar

Diagram 4.1 shows cell P growing through the soil particle and another cell Q of an aquatic plant growing in a pond. Cell P and cell Q are adapted from root epidermal cells



Rajah 4.1 / Diagram 4.1

- (a) Kedua-dua sel P dan Q mempunyai struktur W. Namakan struktur W.
Both cells P and Q have structure W. Name structure W.

.....
..

[1 markah]
[1 marks]

4(a)

1

[Lihat halaman sebelah]
SULIT

(b) Terangkan perbezaan bentuk W pada sel P dan sel Q
Explain the difference about the shapes of W on cell P and Q.

*Untuk
Kegunaan
Pemeriksa*

Sel P / Cell P

(i)
 ..

Sel Q / Cell Q

(ii)
 ..

[2 markah]
 [2 marks]

4 (b)

	2
--	---

(c) (i) Nyatakan **dua** bahan yang masuk ke dalam struktur W dan terangkan kegunaan bahan itu.
*State **two** substances that enter into structure W and explain their uses.*

.....

[2 markah]
 [2 marks]

4(c) (i)

	2
--	---

(ii) Bagaimana bahan-bahan yang dinyatakan di 4(c) (i) memasuki struktur W?
 Huraikan jawapan anda.
How do these substances that are stated in 4(c)(i) enter into structure W?
Elaborate your answers.

.....

[2 markah]
 [2 marks]

4 (c) (ii)

	2
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**Total
A4**

[Lihat halaman sebelah]
 SULIT

	7
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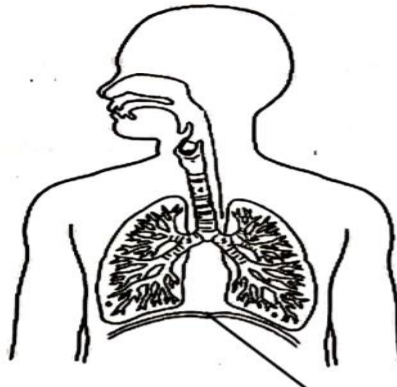
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Use*

*For
Examiner's
Use*

5

Rajah 5.1 (a) dan Rajah 5.1(b) menunjukkan organ respirasi bagi dua organisma, P dan Q.

Diagram 5.1(a) and Diagram 5.1(b) show the respiratory organs of two organisms, P and Q.



Diaphragm
Diafragma

Organism P
Organisma P

2



Organism Q
Organisma Q

2

Namakan organ respirasi bagi organisma P dan organisma Q.

Name the respiratory organs for organism P and organism Q

(a)

Organisma P

Organism P

Organisma Q

Organism Q

[2 markah]
[2 marks]

5(a)

2

[Lihat halaman sebelah]

SULIT

- (b) (i) Pertukaran gas berlaku merentasi permukaan alveolus bagi organisma P.
Terangkan kepentingan pertukaran gas pada manusia.
*Gaseous exchange takes place across the surface of alveoli of organism P.
Explain the importance of gaseous exchange in humans.*

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

[2 markah]
[2 marks]

5(b)(i)

2

- (ii) Nyatakan **dua** perbezaan antara 10 eniti respirasi organisma P dan organisma Q.
*State **two** different between respiratory system of organism P and organism Q.*

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

[2 markah]
[2 marks]

5(b)(ii)

2

[Lihat halaman sebelah]
SULIT

(c) Rajah 5.1(a) menunjukkan diafragma yang memisahkan rongga toraks daripada abdomen. Diafragma tersebut memainkan peranan penting dalam mekanisme pernafasan manusia.

Diagram 5.1(a) shows a diaphragm that separates the thoracic cavity from the abdomen. The diaphragm plays important roles in the breathing mechanism of humans.

Jika diafragma itu tidak dapat berfungsi, terangkan bagaimana keadaan ini memberi kesan kepada mekanisme pernafasan manusia.

If the diaphragm is unable to function, explain how this affects the breathing mechanism of humans.

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.....

.....

.....

[2 markah]
[2 marks]

5(c)

2

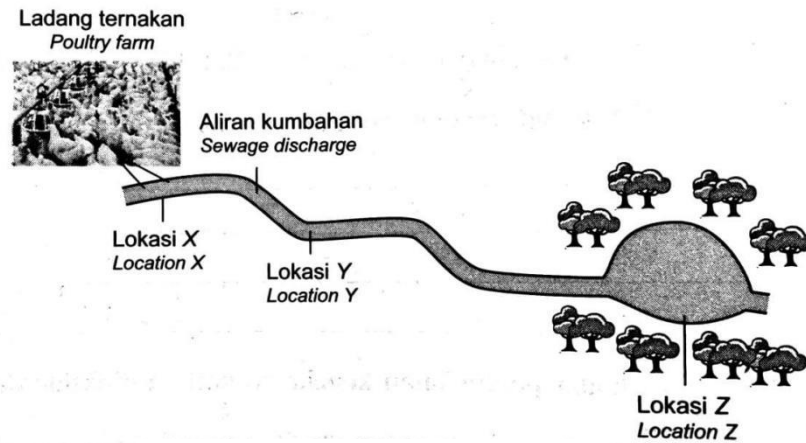
**Jumlah
A5**

8

[Lihat halaman sebelah]
SULIT

6

Rajah 1 menunjukkan sebuah kawasan ternakan yang terletak di hulu saliran air. Kumbahan dibuang tanpa kawalan ke dalam saliran
Diagram 1 shows a poultry farm located in the upper course of a freshwater stream.



Rajah 1 / Diagram 1

Untuk mengkaji kesan pembuangan kumbahan, sampel air dan organisma akuatik dikumpulkan dari kawasan berhampiran Lokasi X dan Lokasi Y (50 m dari X).

To investigate the impact of sewage discharge water samples and aquatic organisms were collected from upstream near Location X and Y (50 m from X)

Jadual 1 menunjukkan data yang dikumpulkan di Lokasi X dan Y

Table 1 shows the data collected at Location X and Y

	Lokasi X / Location X	Lokasi Y / location Y
Oksigen terlarut (%) <i>Dissolved oxygen (%)</i>	95	22
Organisma akuatik <i>Aquatic organisms</i>	Spesis siput A / <i>Snail species A</i> Spesis ikan A / <i>Fish species A</i> Spesis ikan B / <i>Crab species A</i>	Larva spesis serangga A <i>Larvae of insect species A</i> Spesis ikan C / <i>Fish species C</i>

[Lihat halaman sebelah]
SULIT

(a) (i) Terangkan perbezaan organisma akuatik di Lokasi Y berbanding lokasi X.
Explain the differences in the aquatic organisms at Y as compared to location X.

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

[2 markah]
[2 marks]

Untuk
kegunaan
pemeriksa

6(a)(i)

2

(ii) Terangkan perubahan aras oksigen terlarut bagi air yang mengalir dari Lokasi X ke Lokasi Y.
Explain the change in the level of dissolved oxygen as water flows from Location X to Location Y.

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

[2 markah]
[2 marks]

6(a)(ii)

2

(b) (i) Didapati bahawa aras oksigen terlarut di Lokasi Z telah dipulihkan kepada 95%,
It was found that level of dissolved oxygen at Location Z had been restored to 95%

Cadangkan bagaimana aras oksigen terlarut dapat dipulihkan di lokasi Z
Suggest how the level of dissolved oxygen was restored at Location Z

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

[2 markah]
[2 marks]

6(b)(i)

2

[Lihat halaman sebelah]

SULIT

(ii) Walaupun aras oksigen terlarut telah dipulihkan di Lokasi Z organisma akuatik adalah berbeza berbanding Lokasi X. Cadangkan mengapa ?

Although the level of dissolved oxygen had recovered, the aquatic organisms found at Location Z were different from that at Location X. Suggest why?

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

[2 markah]
[2 marks]

6(b)(ii)

2

**Total
A6**

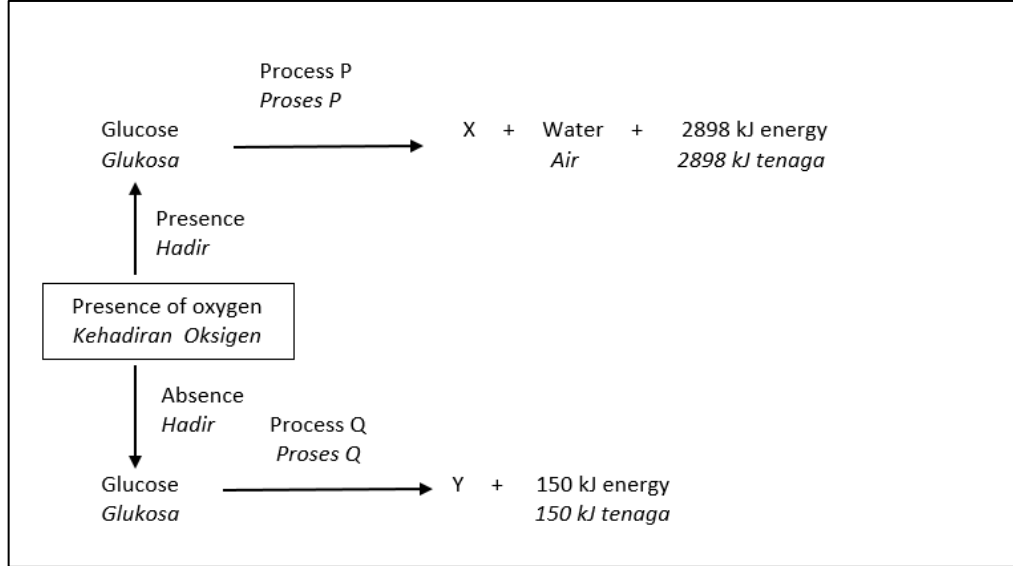
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SULIT

7

Rajah 7.1 menunjukkan bagaimana molekul glukosa diuraikan di dalam sel badan manusia.

Diagram 7.1 shows how the glucose molecule is broken down in human body cell.



Rajah 7.1/ Diagram 7.1

(a)

Namakan / Name :

Proses P / Process P :

Proses Q / Process Q :

[2 markah]
[2 marks]

7(a)

(b)

Terangkan mengapa tenaga yang dihasilkan melalui proses P lebih tinggi berbanding proses Q.

Explain why the energy produced by process P is higher than process Q.

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

[2 markah]
[2 marks]

7(b)

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SULIT

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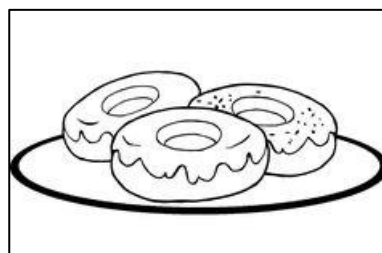
- (c) Proses Q menyebabkan pengumpulan Y dalam sel otot manusia.
 Terangkan kesan pengumpulan Y terhadap sel otot manusia.
Process Q causes the accumulation of Y in human muscle cells.
Explain the effect of Y accumulation human muscle cells

.....

7(c)

2

[2 markah]
[2 marks]



Rajah 7.2/ Diagram 7.2

- (d) Rajah 7.2 menunjukkan sejenis makanan. Puan Sarah cuba membuat makanan di Rajah 7.2 dengan menggunakan yis kering yang dibelinya dari kedai. Apabila beliau mencampurkan yis kering dengan tepung gandum, beliau mendapati adunannya tidak naik selepas satu jam.

Jelaskan bagaimana anda dapat membantu Puan Sarah menyelesaikan masalah.

Puan Sarah try to makes food in Diagram 7.2 using dry yeast she bought from the store. When she mixed dry yeast with wheat flour, she found the dough didn't rise after an hour. Explain how you can help Puan Sarah solve her problem.

.....

7(d)

3

[3 markah]
[3 marks]

Total
9

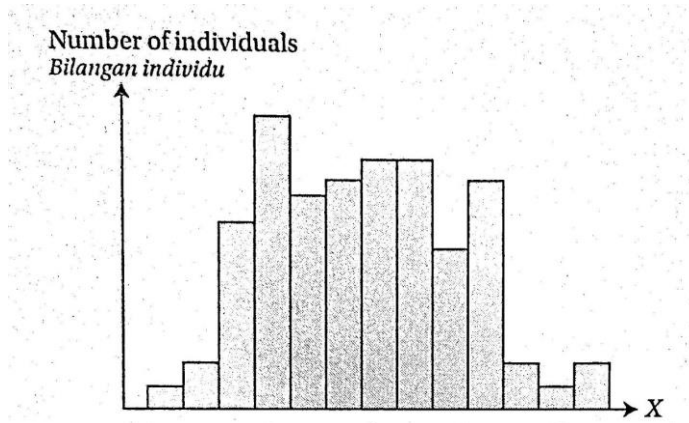
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SULIT

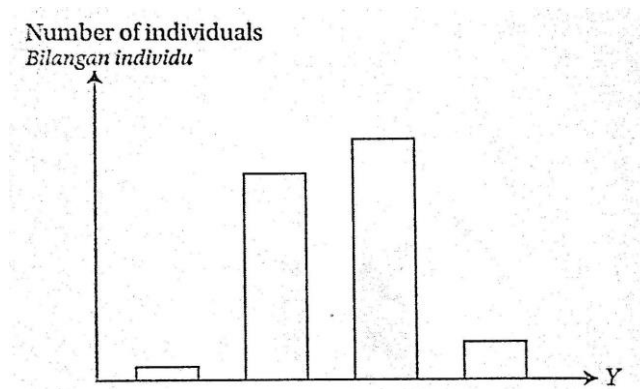
8

Rajah 8.1 dan Rajah 8.2 menunjukkan dua jenis histogram mengenai taburan variasi genetik dalam kalangan manusia.

Diagram 8.1 and 8.2 shows two types of histogram about the distribution of genetic variation among human.



Rajah 8.1/ Diagram 8.1



Rajah 8.2/ Diagram 8.2

- (a)
(i) Nyatakan satu contoh yang sesuai bagi setiap jenis variasi itu
State one suitable example for each type of variation

Rajah 8.1 / Diagram 8.1 :

Rajah 8.2 / Diagram 8.2 :

8(a)(i)

[2 markah]
[2 marks]

[Lihat halaman sebelah]
SULIT

2

Nyatakan dua perbezaan antara variasi yang dinyatakan di 8(a)(i)

State two differences between the variations state in 8(a)(i)

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

8(a)(ii)

[2 markah]
[2 marks]

(b)

Rajah 8.3 menunjukkan mutasi X

Diagram 8.3 shows mutation X

Urutan asal T G G C A G

Original sequence

Urutan termutasi T G G T A G

Mutated sequence

Rajah 8.3 / *Diagram 8.3*

Namakan jenis mutasi X.

Name the type of mutation X

.....

8(b)(i)

[1 markah]
[1 marks]

Namakan **satu** contoh agen yang menyebabkan mutasi X berlaku.

*Name **one** example of agent that cause the mutation X occurs.*

.....

8(b)(ii)

[1 markah]
[1 marks]

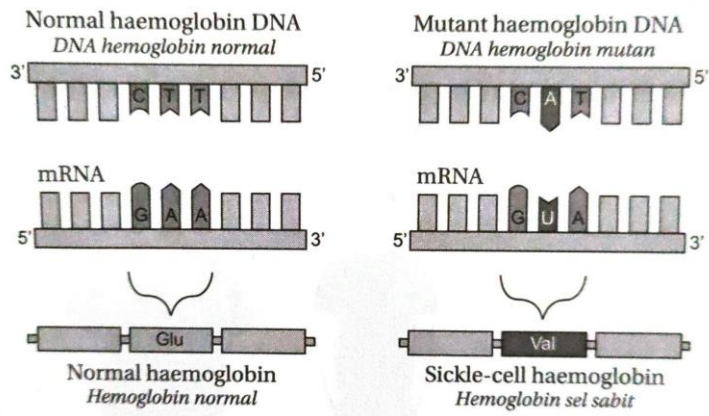
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1

1

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SULIT



Rajah 8.4 / Diagram 8.4

(c)

Berdasarkan Rajah 8.4, terangkan bagaimana mutasi tersebut boleh berlaku dan kesan terhadap pengidap penyakit tersebut.

Explain how the mutation can occur and the effect on the sufferer of the disease.

.....

.....

.....

.....

[3 markah]
[3 marks]

8(c)

3

Total

9

[Lihat halaman sebelah]

SULIT

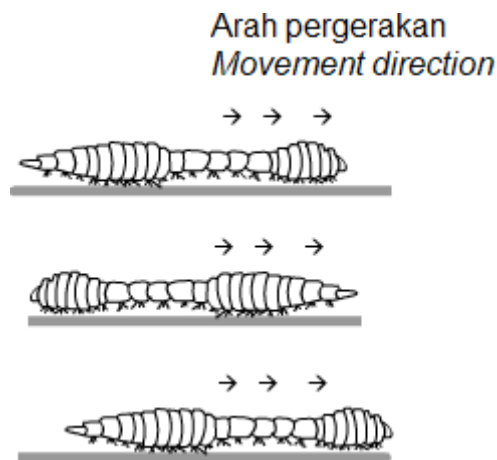
Bahagian B
Section B

[20 Markah]
[20 marks]

Jawab mana-mana **satu** soalan daripada bahagian ini
*Answer any **one** question in this section*

9

Rajah 1(a) menunjukkan seekor cacing tanah yang sedang bergerak.
Diagram 1(a) shows an earthworm that is moving.



Rajah 9.1(a)
Diagram 9.1(a)

- (a) (i) Namakan jenis rangka yang menyokong cacing tanah.
Name the type of skeleton that supports an earthworm?

[1 markah]

- (ii) Terangkan bagaimana otot antagonis membolehkan cacing tanah tersebut bergerak ke hadapan.
Explain how antagonistic muscles enable the earthworm to move forward.

[1 mark]

[2 markah]

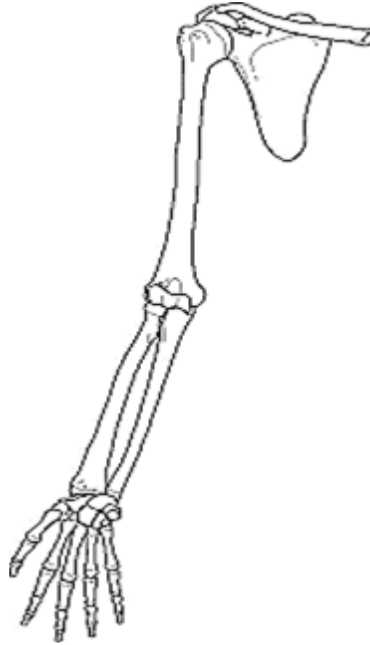
[2 marks]

[Lihat halaman sebelah]

SULIT

- (b) Rajah 9.1 (b) menunjukkan tulang lengan dan lengkungan pectoral.

Diagram 1(b) shows the upper limb bones and pectoral girdle.



Rajah 9.1(b)
Diagram 9.1(b)

- (i) Pada rajah 9.11(b), lukis dan labelkan otot yang menyebabkan lengan diluruskan dengan menunjukkan dengan jelas tindakan otot pada tulang yang betul.

In diagram 9.11(b), draw the muscle that causes the arm to be straighten by clearly showing the action of the muscle on the correct bone.

[3 markah]

[3 marks]

- (ii) Terangkan mengapa pengecutan otot memerlukan bekalan darah yang mencukupi.

Explain why muscle contraction requires sufficient blood supply.

[3 markah]

[3 marks]

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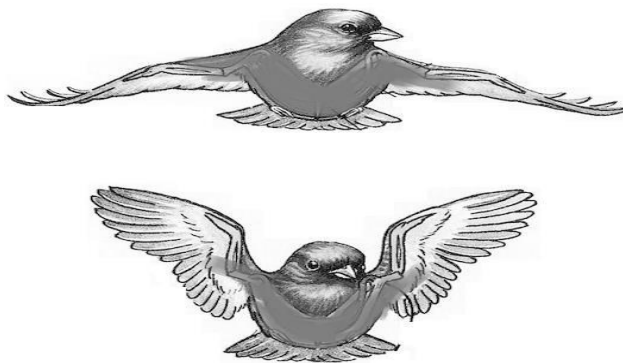
SULIT

- (c) (i) Terangkan bagaimana tindakan otot pada rangka boleh menyebabkan pergerakan haiwan berangka dalam.
Explain how muscle actions on the bones can cause movement in animals with endoskeleton.

[3 markah]

[3 marks]

- (ii) Rajah 9.2 menunjukkan seekor burung yang sedang terbang.
Diagram 9.22 shows a bird that is flying.
Berdasarkan Rajah 9.2, huraikan mekanisme tindakan otot sayap yang membantupergerakan burung tersebut.
Based on Diagram 9. 2, describe the mechanism of the wing muscles that help in The locomotion of the bird.



Rajah 9.2
Diagram 9.2

[8 markah]

[8 marks]

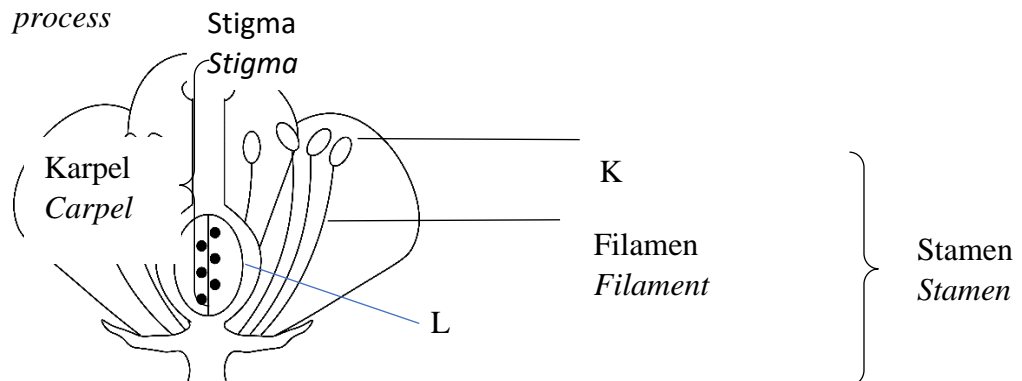
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SULIT

10

Rajah 10.1 menunjukkan struktur bunga yang terlibat dalam proses pembiakan tumbuhan

Diagram 10.1 shows the flower structure involved in the plant reproduction process



Rajah 10.1

Diagram 10.1

- (i) Namakan K dan L

Name K and L

[2 markah]

[2 marks]

- (ii) Terangkan mengapa bunga dalam Rajah 10.1 mempunyai stamen dan karpel pada bunga yang sama

Explain why the flowers in Diagram 10.1 have stamens and carpels on the same flower

[2 markah]

[2 marks]

[Lihat halaman sebelah]

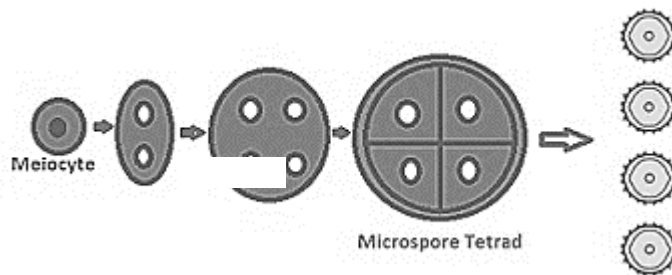
SULIT

Rajah 10.2(a) menunjukkan perkembangan yang berlaku di dalam K pada Rajah 10.1

Rajah 10.2(b) menunjukkan perkembangan yang berlaku di dalam L pada Rajah 10.1

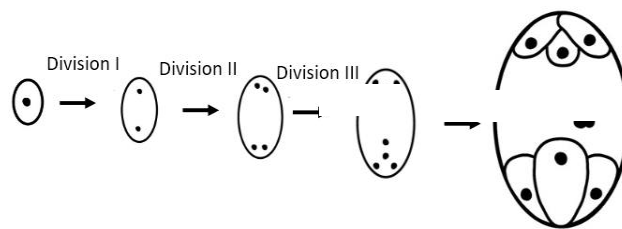
Diagram 10.2(a) shows the development that took place in K in Diagram 10.1

Diagram 10.2(b) shows the development that took place in L in Diagram 10.1



Rajah 10.2(a)

Diagram 10.2(a)



Rajah 10.2(b)

Diagram 10.2(b)

Huraikan proses perkembangan yang berlaku pada K dalam Rajah 10.2(a) dan proses perkembangan yang berlaku pada L dalam Rajah 10.2(b).

Explain the development processes in K in Diagram 10.2(a) and the development processes in L in Diagram 10.2(b).

[10 markah]

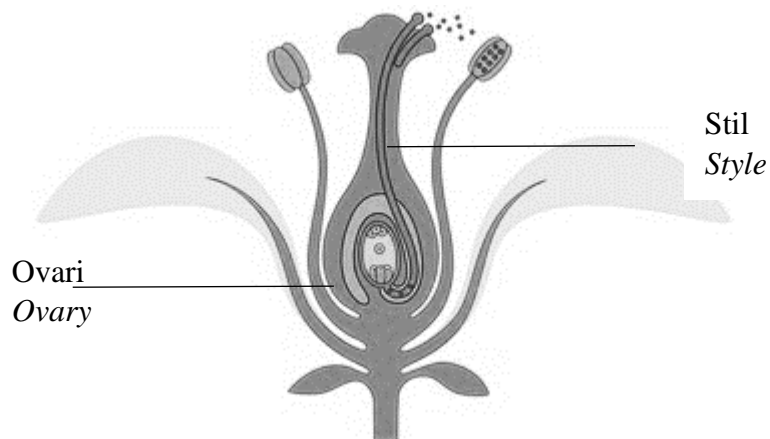
[10 marks]

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SULIT

Rajah 10.3 menunjukkan karpel yang matang

Diagram 10.3 shows a mature carpel



Rajah 10.3

Diagram 10.3

Huraikan proses persenyawaan ganda dua yang berlaku.

Describe the double fertilization process that takes place.

[6 markah]

[6 marks]

[Lihat halaman sebelah]

SULIT

Bahagian C
Section C

[20 markah]

[20 marks]

Jawab **semua** soalan di bahagian ini

Answer all questions in this section

- 11 (a) Cadangkan satu cara untuk menghasilkan racun kimia yang dapat menghapuskan anai-anai tanpa membunuh serangga berfaedah yang lain

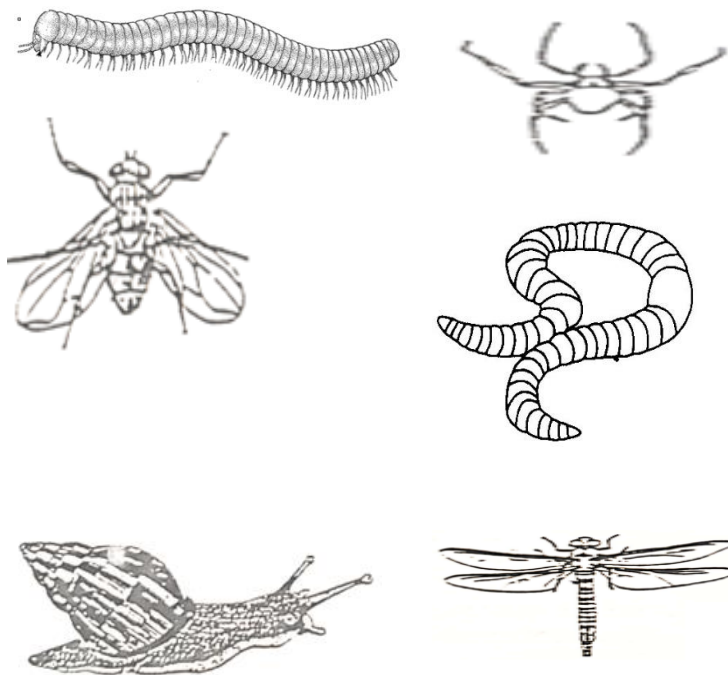
Suggest a way to produce a chemical pesticide that can kill termites without killing other beneficial insects

[5 markah]

[5 marks]

- (b) Rajah 11.1 menunjukkan haiwan yang terdapat di taman herba disekolah anda.

Diagram 11.1 shows the animals found in the herb garden at your school.



Rajah 11.1
Diagram 11.1

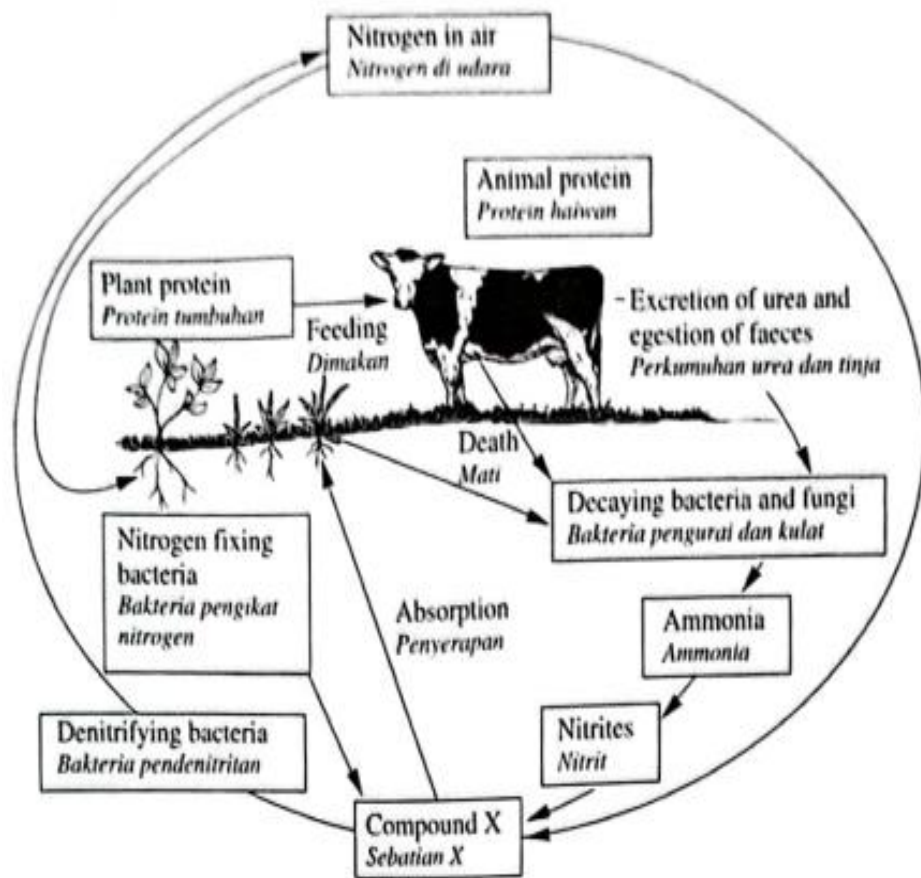
[Lihat halaman sebelah]

SULIT

Berdasarkan organisma dalam Rajah 11.1 , binakan kekunci dikotomi dengan menggunakan kekunci pengenalan yang mudah.
Based on the organism in Figure 11.1, construct a dichotomy key with use a simple identification key.

[5 markah]
 [5 marks]

- (c) (i) Rajah 11.2 menunjukkan peranan mikroorganisma dalam suatu ekosistem
Diagram 11.2 shows the roles of useful microorganisms in an ecosystem



Rajah 11.2
 Diagram 11.2

Berdasarkan Rajah 11.1 ,terangkan bagaimana mikroorganisma mengekalkan kandungan sebatian X dalam tanah.
Based on Diagram 11.1 ,explain how the microorganisms maintain the content of compound X in the soil.

[7 markah]
 [7 marks]
 [Lihat halaman sebelah]

- (ii) Terangkan apa yang akan berlaku kepada ekosistem jika semua bakteria dan kulai mati.

Explain what will happen to the ecosystem if all the decayong bacteria and fungi die

[3 markah]

[3 marks]

KERTAS SOALAN TAMAT
END OF QUESTIONS

