

Name:.....

Form:.....

Biology
Ting 5
August
2021
2½ hour

SEKOLAH MENENGAH KEBANGSAAN SUNGAI PASIR
SUNGAI PETANI, KEDAH DARULAMAN

PEPERIKSAAN PERTENGAHAN TAHUN 2021

BIOLOGY

Tingkatan 5

Two hour and thirty minutes

PAPER 2

DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO

1. *This paper consists of 8 structural questions, and three essay questions*
 2. *Answer **all** structural questions and **two** essay questions*
 3. *The diagrams in the questions provide you with useful information.
The diagrams are not drawn to scale unless stated*
 4. *You may use a non-programmable scientific calculator*
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- 1 Diagram 1 shows a leaf.
Rajah 1 menunjukkan sehelai daun.

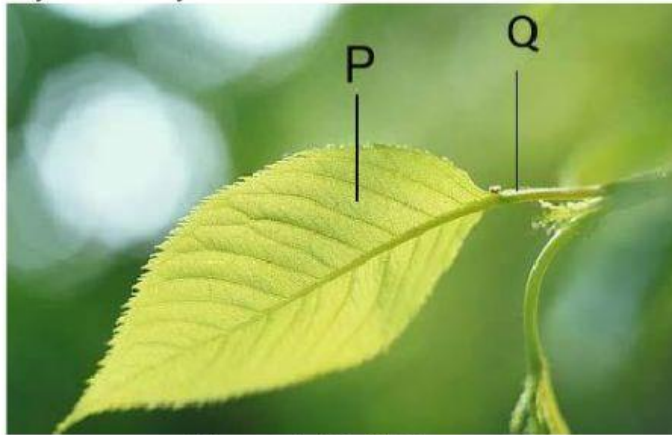


Diagram 1 / Rajah 1

- (a) Name the structures of P and Q.
Namakan struktur P dan Q.

P:

Q:

[2 marks/markah]

- (b) Explain how structure P is adapted for the following functions:
Terangkan bagaimana struktur P disesuaikan untuk fungsi-fungsi berikut:

- (i) Photosynthesis
Fotosintesis

- (ii) Gaseous exchange
Pertukaran gas

[2 marks/markah]

- (c) What is the function of structure Q to a plant?
Apakah fungsi struktur Q kepada tumbuhan?

[1 mark /markah]

- (d) Explain how a wide surface help a leaf to carry out its functions.
Terangkan bagaimana permukaan yang luas membantu daun untuk menjalankan fungsinya.

[1 mark/ markah]

- 2 Diagram 2 shows cell P growing through the soil particles and another cell Q of an aquatic plant growing in a pond. Cell P and cell Q are adapted from root epidermal cells.
Rajah 2 menunjukkan sel P tumbuh melalui butir-butir tanah dan sel Q pada tumbuhan akuatik yang tumbuh di dalam kolam. Sel P dan sel Q diadaptasi daripada sel-sel epidermis akar.

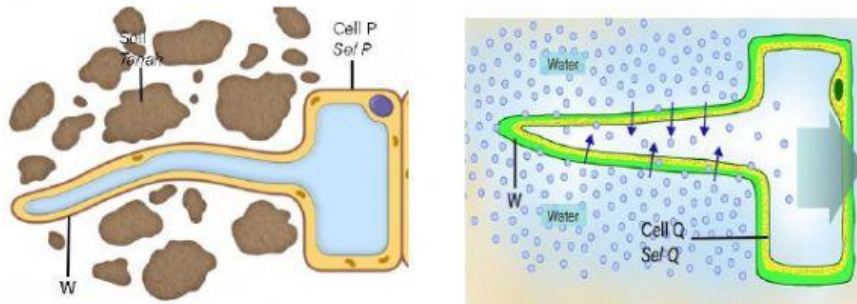


Diagram 2 / Rajah 2

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

W:

[1 mark /markah]

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

- (i) Cell P/Sel P:
 (ii) Cell Q/Sel Q:

[2 marks/markah]

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

[2 marks / markah]

- (ii) How do these substances that are stated in 2(c)(i) enter into structure W? Elaborate your answers.
Bagaimana bahan-bahan yang dinyatakan di 2(c)(i) memasuki struktur W? Huraikan jawapan anda.

[2 marks/markah]

- 3 Diagram 3 shows the apparatus set-up of an experiment to show guttation in a potted plant.
Rajah 3 menunjukkan susunan radas eksperimen untuk menunjukkan gutasi pada tumbuhan di dalam pasu.

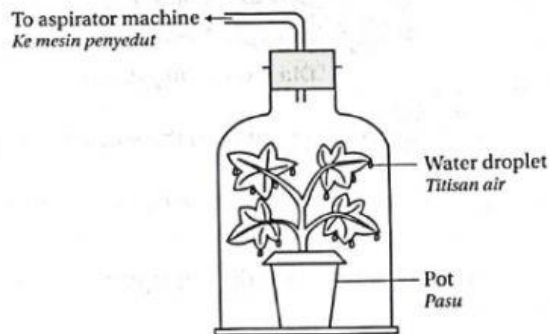


Diagram 3 / Rajah 3

- (a) Suggest one potted garden plant suitable for this experiment.
Cadangkan satu tumbuhan kebun berpasu yang sesuai untuk eksperimen ini.
- [1 mark/ markah]
- (b) The plant is copiously watered. Then, where must the experiment be carried out?
Tumbuhan itu disiram dengan banyak. Oleh itu, di manakah eksperimen mesti dijalankan?
- [1 mark /markah]
- (c) After three hours, predict what will be observed. |
Selepas tiga jam, ramalkan apa yang akan diperhatikan.
- [2 marks/markah]
- (d) What are the conditions in favour of the occurrence of guttation?
Apakah keadaan yang mendorong berlakunya gutasi?

[2 marks/markah]

- 4 Diagram 4 shows the longitudinal section of a pea flower.
Rajah 4 menunjukkan keratan membujur sekuntum bunga kacang pis.

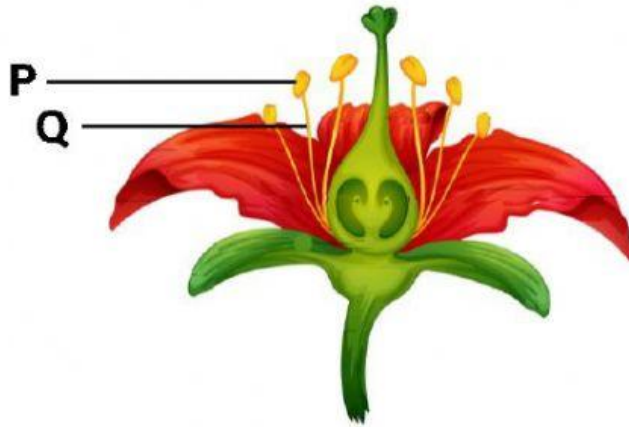


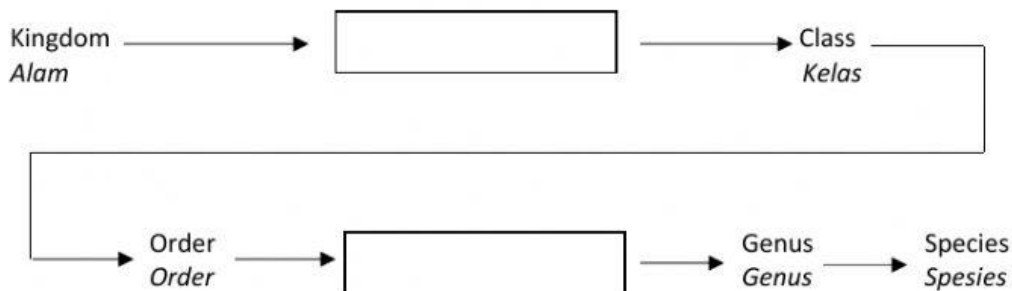
Diagram 4 / *Rajah 4*

- (a) Identify the parts of the flower, P and Q.
Kenal pasti bahagian bunga, P dan Q.
- (i) P
- (ii) Q
- [2 marks/markah]
- (b) P and Q form a type of reproductive organ. Name and state the function of the reproductive organ.
P dan Q membentuk sejenis organ pembiakan. Nama dan nyatakan fungsi organ pembiakan itu.
- [2 marks/markah]
- (c)(i) Name the part that will grow into seeds if double fertilisation occurs.
Namakan bahagian yang akan berkembang menjadi biji benih jika persenyawaan ganda dua berlaku.
- [1 mark /markah]
- (ii) Why are seeds important to a plant?
Mengapa biji benih penting untuk tumbuhan?

[2 marks/markah]

- 5 Scientists introduced the Linnaeus hierarchy system to classify organisms according to hierarchy, starting from the most specific to the most general.
 Saintis memperkenalkan sistem hierarki Linnaeus untuk mengelaskan organisma mengikut hierarki, bermula daripada yang paling khusus hingga ke yang paling umum.

- (a)(i) Fill in the blanks with the orders of hierarchy used to classify plants and animals.
 Lengkapkan ruang kosong dengan urutan hierarki yang digunakan untuk mengelaskan tumbuhan dan haiwan.



[2 marks/markah]

- (ii) Circle the level of hierarchy that has the most individual species.
 Bulatkan peringkat hierarki yang mempunyai spesies individu terbanyak.

Class/Kelas	Genus/Genus
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[1mark/markah]

- (iii) What are the purposes of classifying organisms using a more scientific approach?
 Apakah tujuan mengelaskan organisma dengan menggunakan pendekatan yang lebih saintifik?

[2 marks/markah]

- (b) Diagram 5 shows a lion and Table 1 shows some scientific and common names.
Rajah 5 menunjukkan seekor singa dan Jadual 1 menunjukkan beberapa nama saintifik dan nama biasa.

	Scientific name Nama saintifik	Common name Nama biasa
	Panthera onca	Jaguar/Jaguar
	Panthera pardus	Leopard/Harimau bintang
	Felis lybica	African wild cat/Kucing liar Afrika
	Panthera leo	Lion/Singa
	Felis catus	House cat/Kucing rumah
	Canis lupus	Wolf/Serigala
	Panthera tigris	Tiger / Harimau

Diagram 5 / Rajah 5

Table 1/Jadual 1

- (i) Based on Diagram 5 and Table 1, which two animals are closely related to lion? Why?
Berdasarkan Rajah 5 dan Jadual 1, apakah dua haiwan yang mempunyai perkaitan rapat dengan singa? Kenapa?

[2 marks/markah]

- (ii) Will an animal with the scientific name, *Panthera onca* look similar to a jaguar? Describe why.
*Adakah haiwan dengan nama saintifik, *Panthera onca* akan kelihatan serupa dengan jaguar? Huraikan mengapa.*

[2 marks/markah]

- 6(a) Diagram 6.1 shows an interaction between biotic and abiotic components in an ecosystem.
Rajah 6.1 menunjukkan interaksi antara komponen biosis dan abiosis dalam satu ekosistem.



Diagram 6.1 / Rajah 6.1

- (i) State two biotic components and two abiotic components in the ecosystem.
Nyatakan dua komponen biosis dan dua komponen abiosis yang terdapat dalam ekosistem tersebut.

Biotic component/Komponen biosis:

Abiotic component/Komponen abiosis:

[2 marks/markah]

- (b) Diagram 6.2 shows an example of energy flow in an ecosystem.
Rajah 6.2 menunjukkan satu contoh aliran tenaga dalam satu ekosistem.

[2 marks/markah]

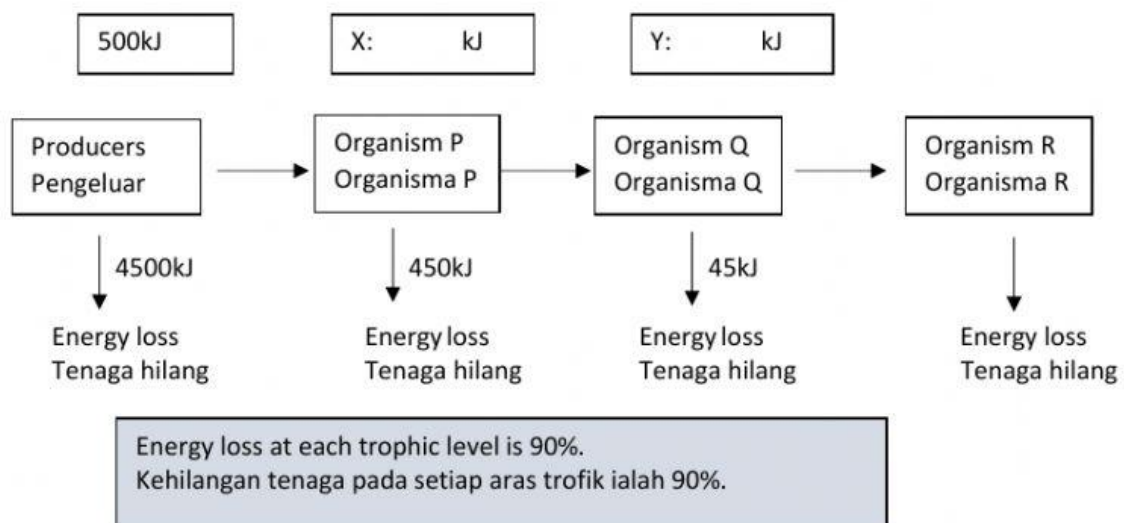


Diagram 6.2 / Rajah 6.2

Complete Diagram 1.2 by calculating the amount of energy transferred to organism Q and organism R.

Lengkapkan Rajah 1.2 dengan mengira jumlah tenaga yang dipindahkan ke organisma Q dan organisma R.

[2 marks/markah]

- (ii) Explain what happens to the 90% energy that is not transferred from one organism to the next organism.

Terangkan apa yang berlaku kepada 90% tenaga yang tidak dipindahkan daripada satu organisma ke organisma lain.

[2 marks/markah]

- 7 A study on rat population in an oil palm plantation was carried out. On the first day, a total of 100 rats were caught with rat traps. The rats were marked and then released. After two weeks, the traps were used again and 140 rats were caught. 40 out of the 140 rats caught were marked.

Satu kajian tentang populasi tikus di ladang kelapa sawit telah dijalankan. Pada hari pertama, sejumlah 100 ekor tikus ditangkap dengan menggunakan perangkap tikus. Tikus tersebut ditanda dan kemudiandilepaskan semula. Selepas dua minggu, perangkap tersebut digunakan semula dan 140 ekor tikus ditangkap. Sebanyak 40 daripada 140 ekor tikus yang ditangkap adalah bertanda.

- (a) Name the technique used in this study.
Namakan teknik yang digunakan dalam kajian ini.

[1 mark/markah]

- (b)(i) Suggest a suitable material which can be used to mark the rats.
Cadangkan satu bahan yang sesuai digunakan untuk menanda tikus.

[1 mark /markah]

- (ii) Give two reasons for your answer in 2(b)(i).
Berikan dua alasan bagi jawapan anda di 2(b)(i).

[2 marks/markah]

- (c) Calculate the population size of rat in the oil palm plantation.
Kira saiz populasi tikus di ladang kelapa sawit tersebut.

[2 marks/markah]

- (d) (i) Rats are pests at oil palm plantations. How can the population of rats be controlled?
Tikus merupakan haiwan perosak di ladang kelapa sawit. Bagaimanakah populasi tikus dapat dikawal?