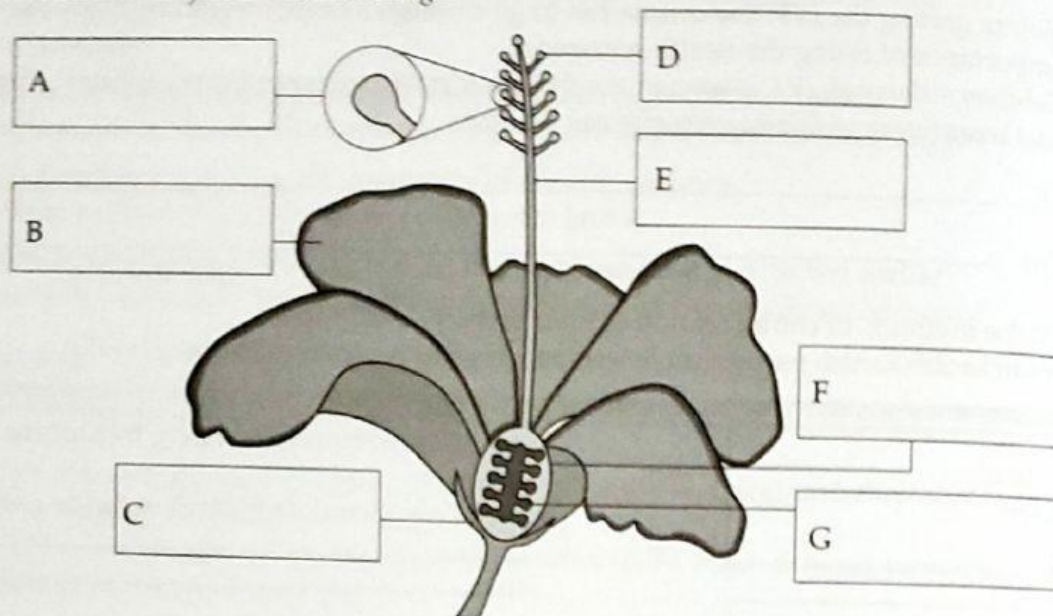


4.7.1 Structure and function of each part of a flower
Struktur dan fungsi setiap bahagian bunga

Example 18

Diagram below shows a section of a flower.
Rajah di bawah menunjukkan keratan bunga.



- (a) Name the labelled parts of the flower
Namakan bahagian-bahagian bunga yang berlabel.
- (b) Based on your answer in (a), which part is a male reproductive organ?
Berdasarkan jawapan anda di (a), bahagian yang manakah merupakan organ pembiakan jantan?
- (c) Based on your answer in (a), which part is a female reproductive organ?
Berdasarkan jawapan anda di (a), bahagian yang manakah merupakan organ pembiakan betina?

Answer/Jawapan

- (a) A: Stamen/ Stamen
B: Petal/ Rangi
C: Sepal/ Sepal
D: Stigma/ Stigma
E: Style/ Stil
F: Ovary/ Ovari
G: Ovule/ Ovul
- (b) Stamen/ Stamen
- (c) Stigma, style, ovary and ovule
Stigma, stil, ovari dan ovul

Practise Now 12

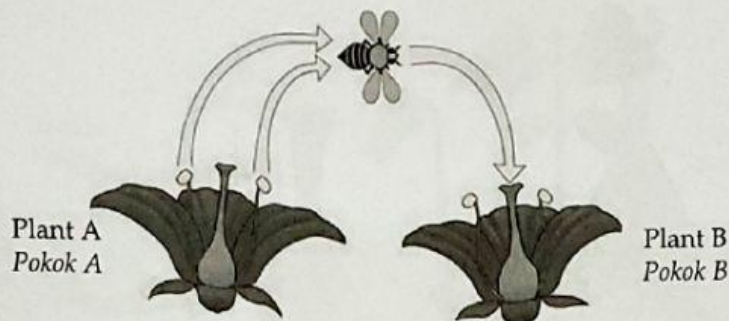
Name the parts of a flower based on the following functions.
Namakan bahagian bunga berdasarkan fungsi-fungsi berikut.

Protects flower during the bud stage Melindungi bunga pada peringkat kuduk	(a)
Male reproductive organ Organ pembiakan jantan	(b)
Female reproductive organ Organ pembiakan betina	(c)

4.7.2 Pollination process
Proses pendebungaan

Example 19

Diagram below shows a type of pollination.
Rajah di bawah menunjukkan satu jenis pendebungaan.



- (a) What is pollination?
Apakah itu pendebungaan?
- (b) What is the type of pollination shown above? Give reason for your answer.
Apakah jenis pendebungaan yang ditunjukkan di atas? Berikan sebab bagi jawapan anda.

Answer/Jawapan

- (a) Pollination is a process of transferring matured pollen grains from anther to stigma.
Pendebungaan ialah proses pemindahan butir debunga dari anter ke stigma.
- (b) Cross-pollination. The pollen grains are transferred to the stigma of another flower on a different plant of the same species.
Pendebungaan kacuk. Butir debunga dipindahkan ke stigma bunga yang lain dan pokok yang lain tetapi daripada spesies yang sama.

Practise Now 13

Complete the table below with the comparison between self-pollination and cross-pollination.
Lengkapkan jadual di bawah dengan perbandingan antara pendebungaan sendiri dengan pendebungaan kacuk.

Similar Questions

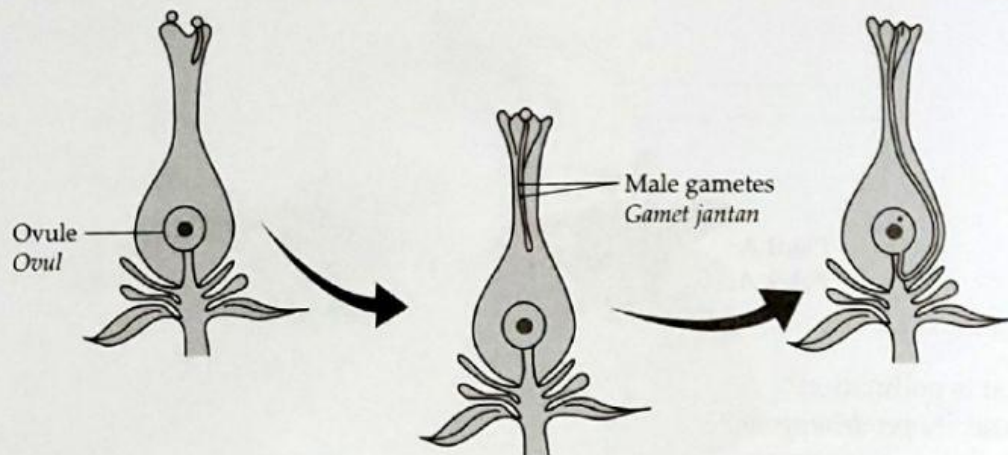
Exercise 4.7:
[Question 1(b)]

	Self-pollination Pendebungaan sendiri	Cross-pollination Pendebungaan kacuk
Produces variation Menghasilkan variasi		
Produces good quality seed Menghasilkan biji benih berkualiti tinggi		
Involve same species Melibatkan spesies yang sama		

4.7.3 The process of fertilisation and the formation of seeds and fruits in plants
Proses persenyawaan dan pembentukan biji benih dan buah pada tumbuhan

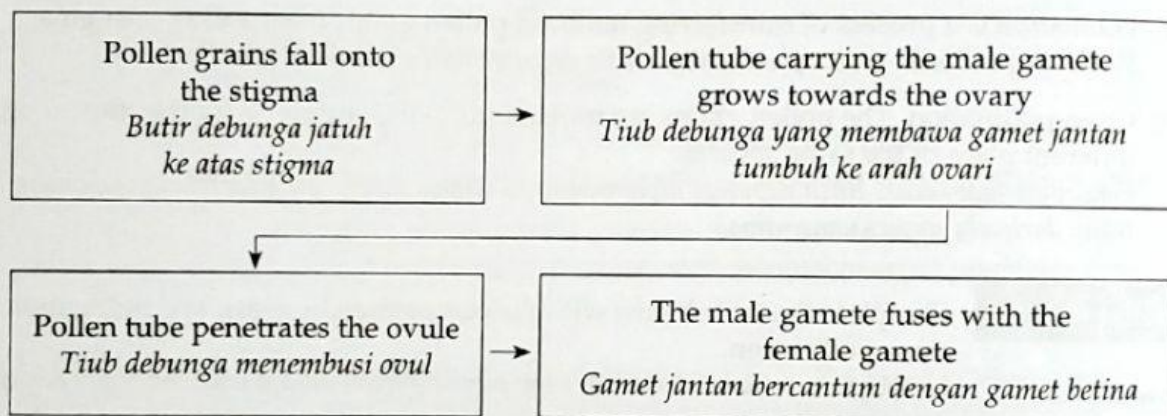
Example 20

Diagram below shows a fertilisation of male and female gametes in plants after pollination.
 Rajah di bawah menunjukkan persenyawaan gamet jantan dan gamet betina selepas pendebungaan.



Based on the diagram, describe the process of fertilisation between male and female gametes.
 Berdasarkan rajah, huraikan proses persenyawaan antara gamet jantan dengan gamet betina.

Answer/Jawapan



Practise Now 14

Write the correct order of events in fertilisation process between male and female gametes in plant.

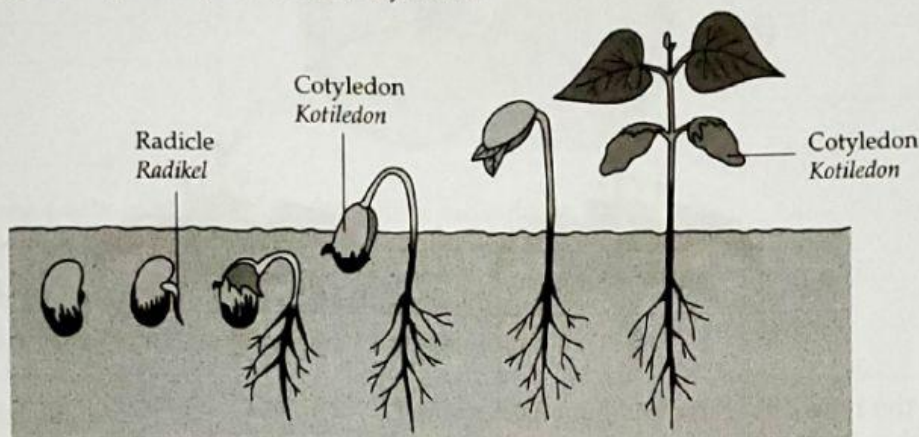
Tuliskan urutan yang betul bagi kejadian-kejadian dalam proses persenyawaan antara gamet jantan dengan gamet betina tumbuhan.

- ☐ Pollen tube carrying male gamete grows towards the ovary.
Tiub debunga yang membawa gamet jantan tumbuh ke arah ovari.
- ☐ The male gamete fuses with the female gamete.
Gamet jantan bercantum dengan gamet betina.
- ☐ The pollen tube penetrates the ovule.
Tiub debunga menembusi ovul.
- ☐ Pollen grains fall onto stigma.
Butir debunga jatuh ke atas stigma.

4.7.4 Germination process of a seed
Proses percambahan biji benih

Example 21

Diagram below shows a germination of seed.
Rajah di bawah menunjukkan percambahan biji benih.



- (a) What is type of germination shown above?
Apakah jenis percambahan yang ditunjukkan di atas?
- (b) Based on the diagram, describe the process of germination of seed.
Berdasarkan rajah, huraikan proses percambahan biji benih.

Answer/Jawapan

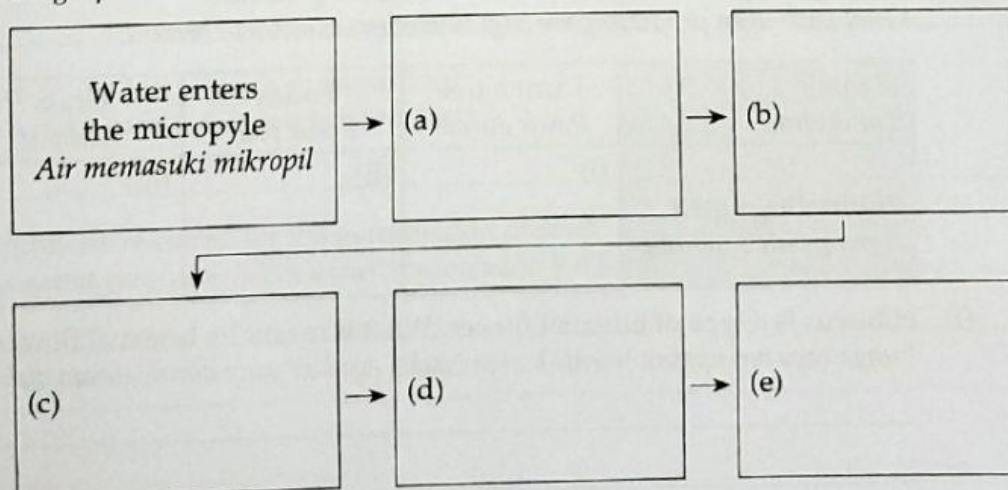
- (a) Epigeal germination
Percambahan epigeal
- (b) During germination, the testa bursts and the radicle starts to appear and grow downwards into the soil to form root. Meanwhile, the plumule grows upwards to form a new shoot. The cotyledon grows above the soil and form the first leaf.
Semasa percambahan, testa pecah dan radikel mula muncul dan tumbuh ke bawah ke dalam tanah membentuk akar. Pada masa yang sama, plumul tumbuh ke atas menjadi pucuk baharu. Kotiledon tumbuhan keluar atas tanah dan menghasilkan daun pertama.

Practise Now 15

Complete the flowchart below regarding the germination of seed.
Lengkapkan carta alir di bawah mengenai percambahan biji benih.

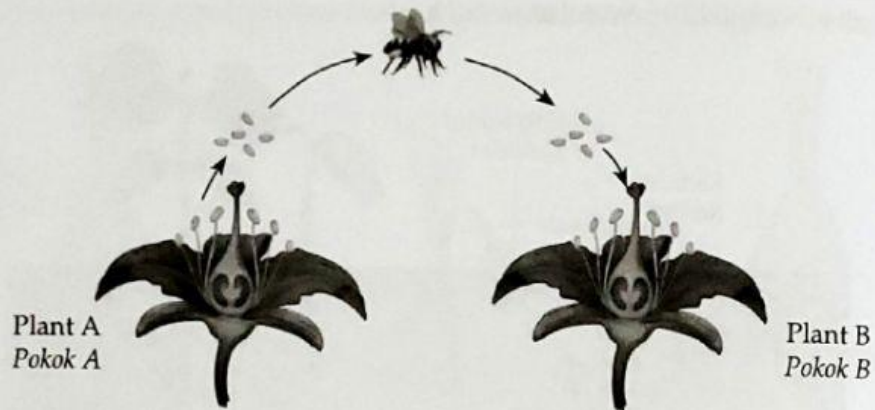
Similar Questions

Exercise 4.7:
[Question 2(d)(e)]



Exercise 4.7

- 1 Diagram below shows a pollination process carried out by pollinating agent.
Rajah di bawah menunjukkan proses pendebungaan yang dijalankan oleh agen pendebungaan.

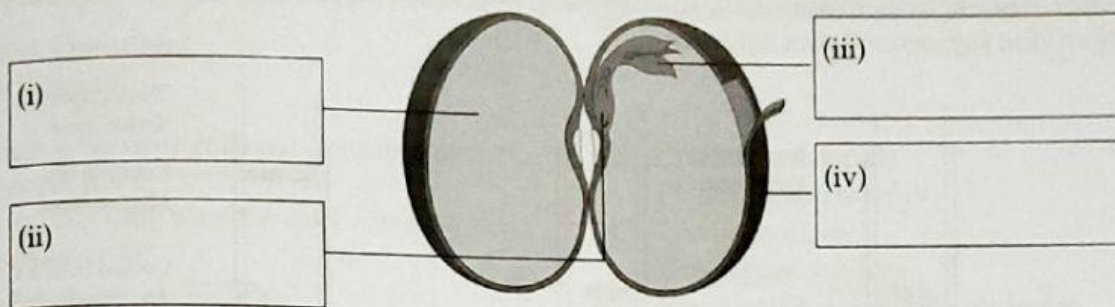


- (a) State the type of pollination shown above.
Nyatakan jenis pendebungaan yang ditunjukkan di atas.
- (b) State two advantages of the pollination named in 1(a).
Nyatakan dua kebaikan pendebungaan yang dinamakan di 1(a).
- (i) _____
- (ii) _____
- (c) What is the pollinating agent involved in the above process?
Apakah agen pendebungaan yang terlibat dalam proses di atas?
- (d) Give two characteristics of the flower above.
Berikan dua ciri bunga di atas.
- (i) _____
- (ii) _____
- (e) Identify the pollinating agent for the following plants.
Kenal pasti agen pendebungaan bagi tumbuhan-tumbuhan berikut.

Plants Tumbuhan	Durian tree Pokok durian	Paddy Pokok padi	Grass Rumput	Rose Bunga mawar
Pollinating agent Agen pendebungaan	(i)	(ii)	(iii)	(iv)

- (f) Hibiscus is a type of bisexual flower. What is meant by bisexual flower?
Bunga raya merupakan sejenis bunga biseks. Apakah yang dimaksudkan oleh bunga biseks?
- _____
- _____

- 2 Diagram below shows a longitudinal section of dicotyledonous seed.
Rajah di bawah menunjukkan keratan membujur biji benih dikotiledon.

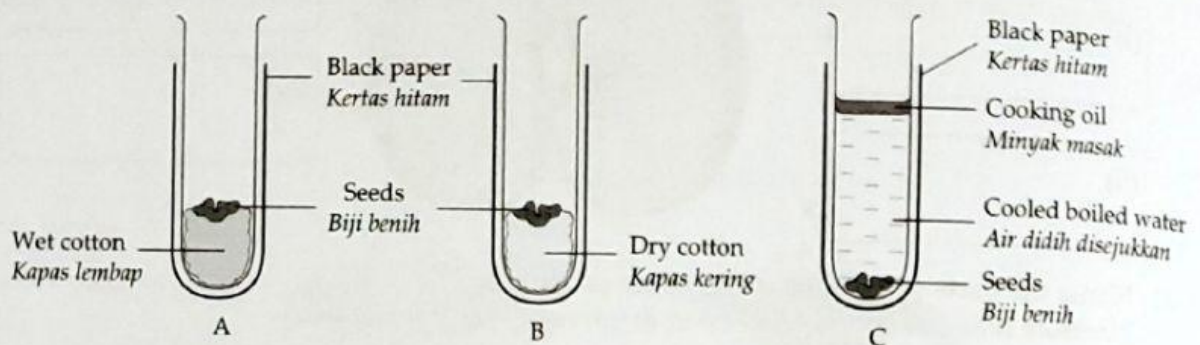


- (a) Name the parts of the seed in the space provided.
Namakan bahagian-bahagian biji benih dalam ruang yang disediakan.
- (b) Match the parts of the seed to their correct functions.
Padankan bahagian biji benih dengan fungsinya yang betul.

Radicle <i>Radikel</i>	Protects the seed <i>Melindungi biji benih</i>
Testa <i>Testa</i>	Develops into the root <i>Berkembang menjadi akar</i>
Endosperm <i>Endosperma</i>	Develops into a new shoot <i>Berkembang menjadi pucuk baharu</i>
Plumule <i>Plumul</i>	Stores and provides food for the seed <i>Menyimpan dan membekalkan makanan untuk biji benih</i>

- (c) What part of the flower develops to become the seed?
Apakah bahagian bunga yang berkembang menjadi biji benih?
-
- (d) Name the part in seed that allows the entry of water and air.
Namakan bahagian biji benih yang membenarkan kemasukan air dan udara.
-
- (e) What happens to the testa during germination?
Apakah yang berlaku pada testa semasa percambahan?
-
- (f) State two conditions required for the germination of seed.
Nyatakan dua syarat yang diperlukan untuk percambahan biji benih.
- (i) _____
- (ii) _____

- 3 Diagram below shows the apparatus set-up of an experiment to determine the conditions required for seed germination.
Rajah di bawah menunjukkan susunan radas suatu eksperimen bagi menentukan syarat-syarat yang diperlukan bagi percambahan biji benih.



- (a) Predict which seed(s) will germinate.
Ramalkan biji benih yang manakah akan bercambah.
- _____
- (b) Give an inference for your answer in 3(a).
Berikan inferens bagi jawapan anda di 3(a).
- _____
- (c) Predict which seed(s) will not germinate.
Ramalkan biji benih yang manakah tidak akan bercambah.
- _____
- (d) Give an inference for your answer in 3(c).
Berikan inferens bagi jawapan anda di 3(c).
- _____
- (e) State the constant variable in this experiment.
Nyatakan pemboleh ubah dimalarkan dalam eksperimen ini.
- _____
- (f) What is the purpose of using cooking oil in this experiment?
Apakah tujuan menggunakan minyak masak dalam eksperimen ini?
- _____
- (g) Give a conclusion for this experiment.
Berikan kesimpulan bagi eksperimen ini.
- _____