Reproduction – 2022 June IGCSE 0610

1. June/2022/Paper_ 11/No.30

What is an example of sexual reproduction?

A one bacterial cell dividing to produce two daughter bacterial cells

B one banana plant being divided into two banana plants

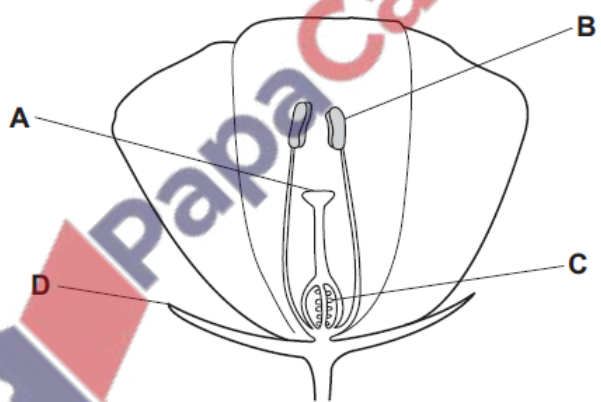
C one pollen grain nucleus fusing with one ovule nucleus in a flower

D one yeast cell producing buds which separate to become new yeast cells

2. June/2022/Paper_ 11/No.31

The diagram shows a cross-section of an insect-pollinated flower.

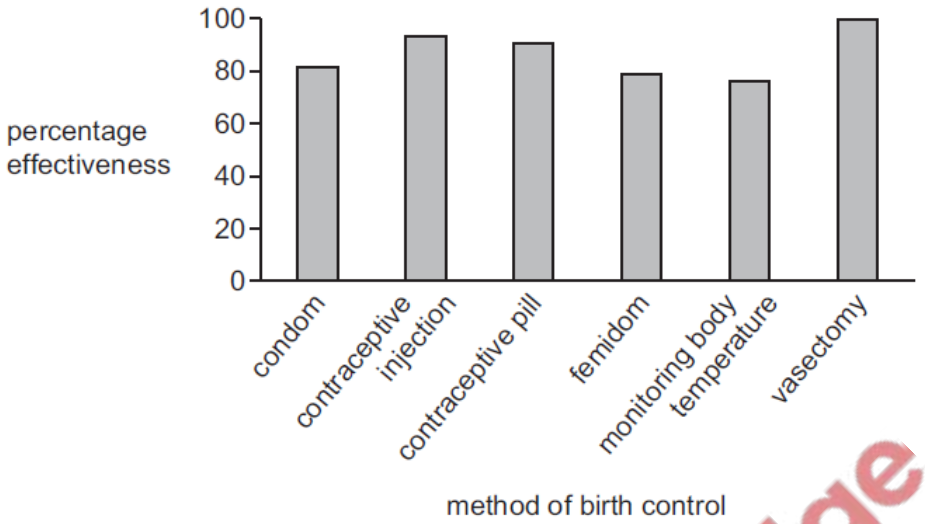
Which label is the stigma?



3. June/2022/Paper_ 11/No.32

The effectiveness of different methods of birth control were studied in one country.

The graph shows the results of the study.



Which type of birth control is the most effective in this study?

A barrier

B chemical

C natural

D surgical

4. June/2022/Paper_ 12/No.30

The statements refer to reproduction.

1 A zygote is formed.

2 Offspring are genetically identical to the parent.

3 Two gamete nuclei fuse together.

Which statements refer to sexual reproduction?

A 1, 2 and 3 **B** 1 and 3 only **C** 1 only **D** 2 and 3 only

5. June/2022/Paper_ 12/No.31

What is the name of the ball of cells that forms soon after fertilisation in humans?

A embryo

B ovum

C placenta

D fetus

6. June/2022/Paper_ 13/No.31

Four processes involved in labour and birth are shown.

1 cutting the umbilical cord

2 contraction of muscles in the uterus wall

3 delivery of the afterbirth

4 dilation of the cervix

5 passage of the baby through the vagina

In which sequence do these events normally occur?

A 2 → 4 → 5 → 1 → 3

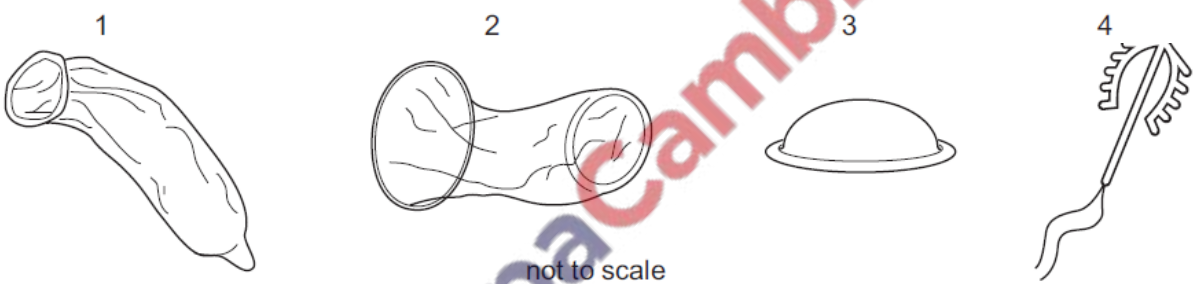
B 2 → 4 → 3 → 1 → 5

C 4 → 3 → 2 → 5 → 1

D 4 → 3 → 2 → 1 → 5

7. June/2022/Paper_ 13/No.32

The diagram shows four types of birth control device.



Which methods of birth control offer protection against sexually transmitted infections (STIs)?

	1	2	3	4
A	✓	✓	✗	✗
B	✗	✓	✓	✗
C	✗	✗	✓	✗
D	✗	✗	✓	✓

key

✓ = yes

✗ = no

8. June/2022/Paper_ 13/No.33

The table shows the percentage of pregnancies in four groups of women. Each group used a different method of birth control.

method of birth control	percentage of pregnancies
the contraceptive pill	1
monitoring body temperature	14
diaphragm	7
vasectomy	0

Which type of birth control was the **most** effective?

A barrier

B chemical

C natural

D surgical

9. June/2022/Paper_ 21/No.27

An advisor was presented with a list of statements for a discussion group with potential parents who were considering using *in vitro* fertilisation (IVF) to start a family.

Which statements about IVF are correct?

1 IVF is available to everyone.

2 IVF is 100% successful and therefore always leads to pregnancy.

3 IVF provides an opportunity for single parents to have a family.

4 IVF is not expensive and everyone can afford it.

5 Sperm or egg donation may be involved which means the couple are not always the biological parents.

A 1, 3 and 4 **B** 1, 2 and 4 **C** 2 and 5 **D** 3 and 5

10. June/2022/Paper_ 21/No.28

Which sequence of structures does a pollen tube grow through in a flower?

A ovary → ovule → stigma → style

B ovary → stigma → ovule → style

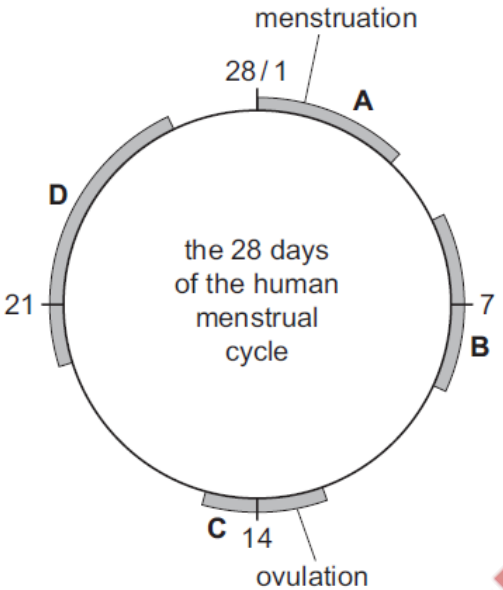
C stigma → style → ovary → ovule

D stigma → ovary → style → ovule

11. June/2022/Paper_ 21/No.29

The diagram shows some of the events of the menstrual cycle.

In which shaded zone of the cycle would progesterone levels be the highest?



12. June/2022/Paper_ 23/No.27

Which statement about asexual reproduction would be a disadvantage for a farmer growing crop plants?

A Desirable qualities are shown throughout the crop.

B No pollinators are required.

C Only one parent plant is required so growth is rapid.

D All of the crop plants have the same risk of disease.

13. June/2022/Paper_ 23/No.28

The diagram shows an abnormal sperm cell.

Why would the abnormal sperm cell be unable to fertilise an egg?

A It has no acrosome so is unable to digest the jelly coat of the egg.

B It has no mitochondria so lacks energy to swim to the egg.

C It has no flagellum so cannot swim to the egg.

D It has no nucleus so cannot fuse with the egg.

14. June/2022/Paper_ 23/No.29

One type of contraceptive pill contains progesterone and oestrogen. Some effects of the pill are listed.

1 inhibit FSH production

2 inhibit LH production

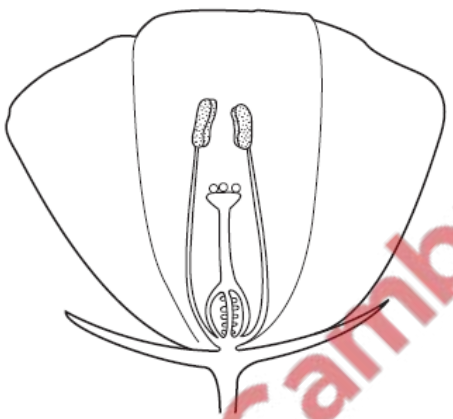
3 inhibit thickening of the uterus wall

Which prevent the development and the release of an egg cell?

A 1, 2 and 3 **B** 1 and 2 only **C** 2 and 3 only **D** 3 only

15. June/2022/Paper_ 23/No.31

The diagram shows a section of a flower that has been cross-pollinated.



Which statements about this flower are correct?

1 The pollen produced by this flower will be genetically different from the pollen on the stigma.

2 The pollen was carried to the stigma by wind.

3 This flower is insect-pollinated because the stigma is enclosed by the petals.

4 The pollen was produced by another flower on the same plant.

A 1, 2 and 4 **B** 1 and 3 **C** 3 only **D** 2 and 4 only

16. June/2022/Paper_ 42/No.2(a_ b)

(a) Fig. 2.1 is a pie chart showing the percentages of the different types of birth control that are used globally.

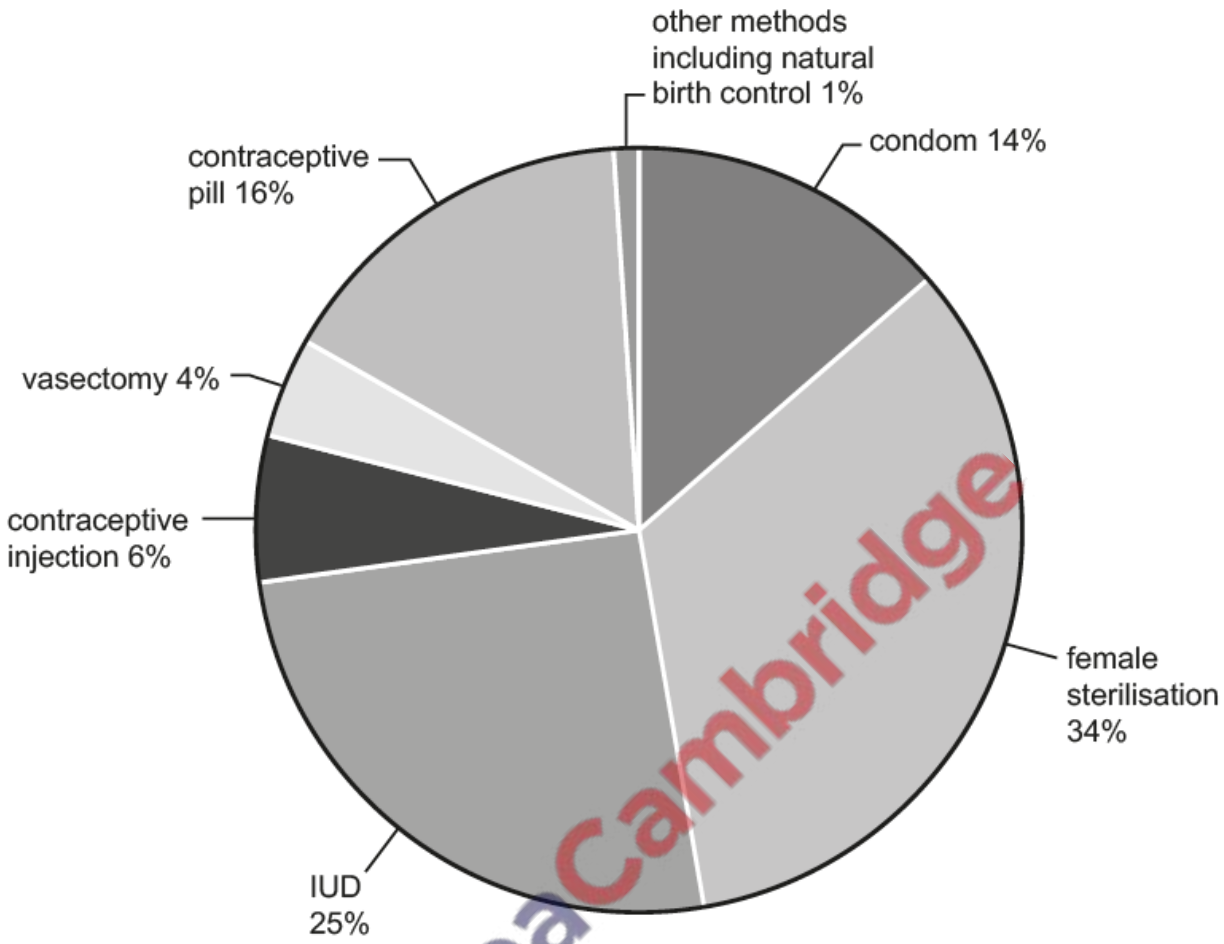


Fig. 2.1

(i) State the most commonly used form of birth control shown in Fig. 2.1.

..... [1]

(ii) State the total percentage using surgical methods of birth control in Fig. 2.1.

..... % [1]

(iii) State **two** forms of natural birth control.

1 .....

2 .....

[2]

(iv) State the type of contraception shown in Fig. 2.1, that also protects against the spread of sexually transmitted infections (STIs).

..... [1]

(b) HIV infection is an example of an STI.

(i) State the name of the type of pathogen that causes an HIV infection.

..... [1]

(ii) Describe how HIV can be transmitted.

.....

.....

.....

.....

.....

.....

..... [3]

17. June/2022/Paper_ 42/No.4(a_ c)

(a) Fig. 4.1 is a diagram of the female reproductive system in humans.

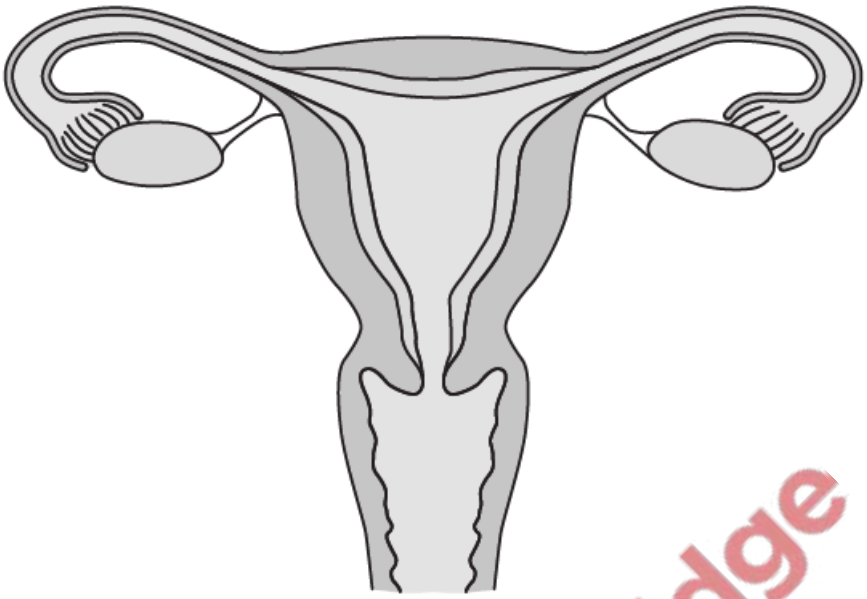


Fig. 4.1

(i) On Fig. 4.1:

- Circle a part that releases egg cells.
- Draw a label line and the letter **W** to show where fertilisation occurs.
- Draw a label line and the letter **X** to show where the fetus develops.

[3]

(ii) State the name of the process that produces egg cells.

..... [1]

(iii) State the names of **two** parts of the female reproductive system that sperm must pass through to reach the egg cell.

1 .....

2 .....

[2]

(b) Fig. 4.2 is a graph showing the changes in the thickness of the uterus lining during a menstrual cycle.

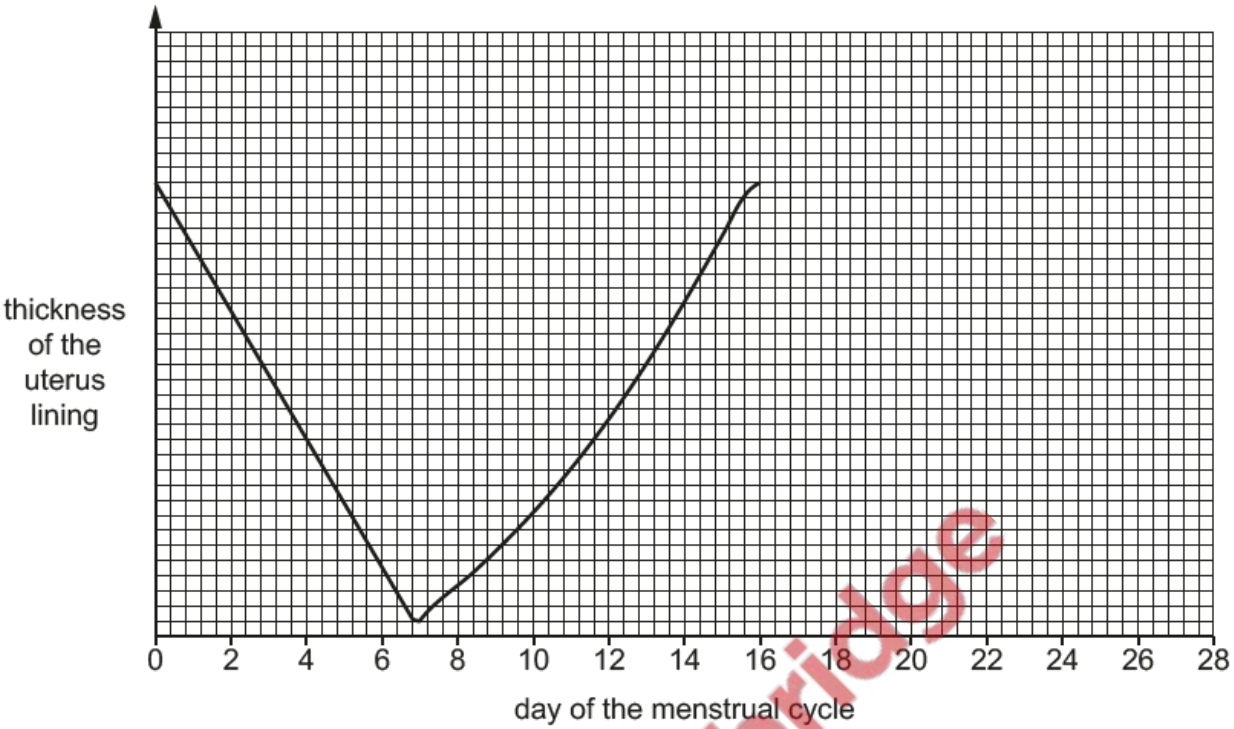


Fig. 4.2

(i) Use the information in Fig. 4.2 to state the number of days during which the uterus lining is shed.

..... [1]

(ii) Draw a line to complete the graph in Fig. 4.2 to show the thickness of the uterus lining between day 16 and 28. [1]

(iii) State the day of the menstrual cycle when eggs are released.

..... [1]

(c) The menstrual cycle is one of the changes that happens to girls during puberty.

Describe the changes that occur in boys during puberty.

.....

.....

.....

.....

.....

.....

..... [3]

18. June/2022/Paper_ 42/No.6

Fig. 6.1 is a photograph of a section through a flower.

Fig. 6.1

(a) **(i)** State the names of the parts labelled **A**, **C** and **E** in Fig. 6.1.

A .....

C .....

E .....

[3]

(ii) State the function of the part labelled **B** in Fig. 6.1.

.....

..... [1]

(iii) State the letter of the part in Fig. 6.1 where pollination occurs.

..... [1]

(b) State **one** piece of evidence from Fig. 6.1 that shows this is an insect-pollinated flower.

.....

.....

..... [1]

(c) Describe the adaptations of the flower structure **and** pollen in a wind-pollinated flower.

.....

.....

.....

.....

.....

.....

..... [3]

(d) Living organisms are classified into kingdoms. The organism shown in Fig. 6.1 belongs to the plant kingdom.

State the name of **one** other kingdom.

..... [1]

19. June/2022/Paper_ 33/No.3

During puberty, the hormones oestrogen and testosterone are involved in the development of the secondary sexual characteristics.

(a) (i) State the name of the gland that produces each hormone.

oestrogen .....

testosterone .....

[2]

(ii) Complete Table 3.1 by placing ticks (✓) in the boxes to show which hormones are involved in the development of each secondary sexual characteristic.

Table 3.1

secondary sexual characteristic	testosterone	oestrogen
body shape changes		
breast development		
facial hair		
voice deepening		

[4]

(b) Fig. 3.1 is a diagram of the uterus during pregnancy.

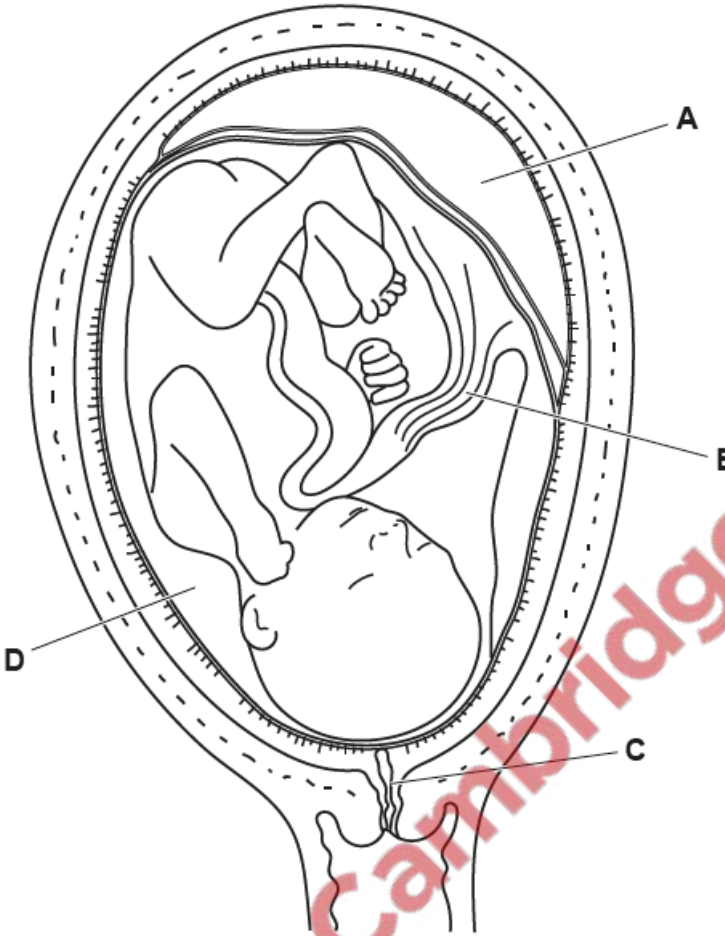


Fig. 3.1

State the letter on Fig. 3.1 that identifies the structure which performs each of these functions.

- exchange of substances between the fetus and the mother .....
- protects the fetus from mechanical shock .....
- transfers blood between the fetus and the placenta .....

[3]

(c) Outline the processes involved in labour and birth.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(d) The birthweights of 75 rats were measured and recorded within different birthweight ranges.

The number of rats in each birthweight range is recorded in Table 3.2.

Table 3.2

birthweight / g	number of rats
5.5–5.9	8
6.0–6.4	11
6.5–6.9	13
7.0–7.4	18
7.5–7.9	15
8.0–8.4	8
8.5–8.9	2

(i) State the most common birthweight range in Table 3.2.

..... [1]

(ii) State the number of rats that are heavier than 6.9 g at birth in Table 3.2.

..... [1]

(iii) State the type of variation shown by the data in Table 3.2.

..... [1]

20. June/2022/Paper_ 33/No.7(c)

(c) Gametes are involved in sexual reproduction.

Fig. 7.2 is a diagram of human gametes.

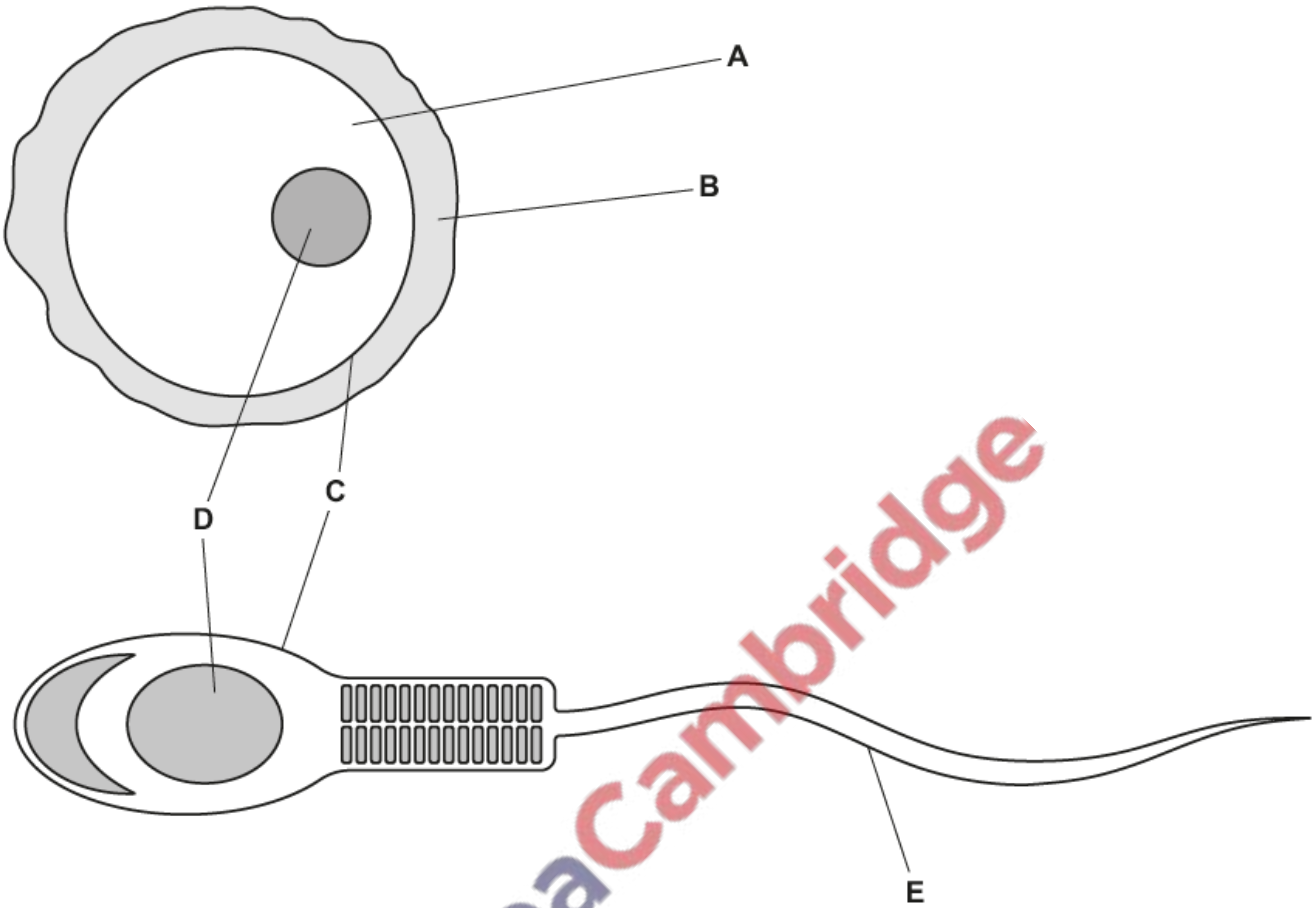


Fig. 7.2

(i) State the names of structures **A**, **B**, **C**, **D** and **E** shown in Fig. 7.2.

A .....

B .....

C .....

D .....

E .....

[5]

(ii) Suggest a type of biological molecule that could be used as an energy store in an egg cell.

..... [1]

21. June/2022/Paper_ 41/No.5(a_ c)

The Mulanje cedar, *Widdringtonia whytei*, is the national tree of Malawi. This species of tree grows naturally only on Mount Mulanje in Malawi. Many of the trees have been overharvested or destroyed by wildfires, resulting in deforestation, as shown in Fig. 5.1.

Fig. 5.1

(a) State the genus name of the Mulanje cedar tree.

..... [1]

(b) Explain the undesirable effects of deforestation on habitats that are on mountains, such as Mount Mulanje.

.....

.....

.....

.....

.....

.....

..... [3]

(c) Scientists in Malawi are working to prevent the extinction of the Mulanje cedar tree in its natural habitat.

Explain the benefits to other organisms on Mount Mulanje of conserving the Mulanje cedar tree in its natural habitat.

.....

.....

.....

.....

..... [2]