Reproduction – 2023 November IGCSE 0610

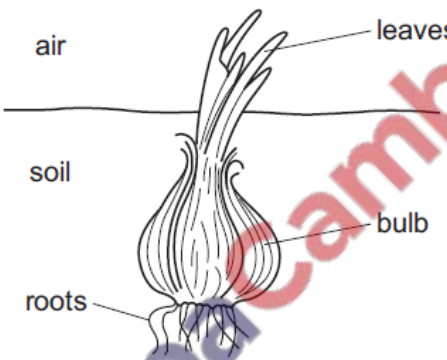
1. Nov/2023 /Paper_ 0610/11/No.28

The diagram shows a human sperm cell.

Which structure digests the egg cell membrane?

2. Nov/2023 /Paper_ 0610/11/No.30

Some species of plants can reproduce by producing bulbs. The diagram shows a bulb.



The bulb is produced by one parent plant and will grow into a new plant.

Which statement about the new plant is correct?

A It is genetically different from its parent and is produced by asexual reproduction.

B It is genetically different from its parent and is produced by sexual reproduction.

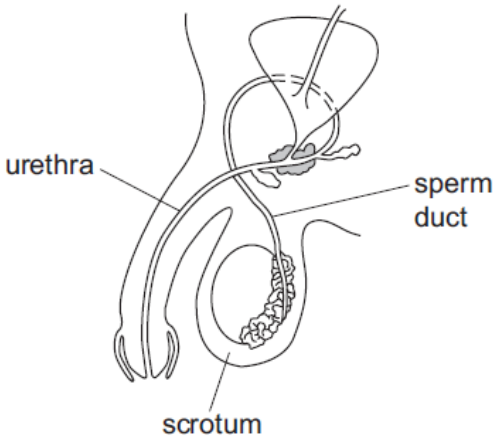
C It is genetically identical to its parent and is produced by asexual reproduction.

D It is genetically identical to its parent and is produced by sexual reproduction.

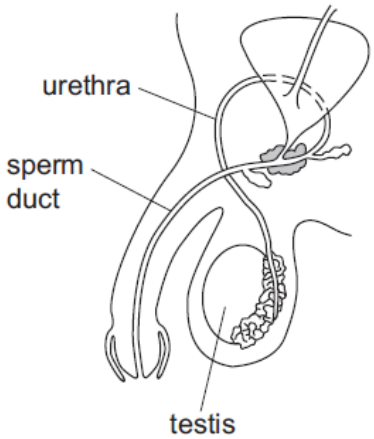
3. Nov/2023 /Paper_ 0610/11/No.31

Which diagram of the male reproductive system is correctly labelled?

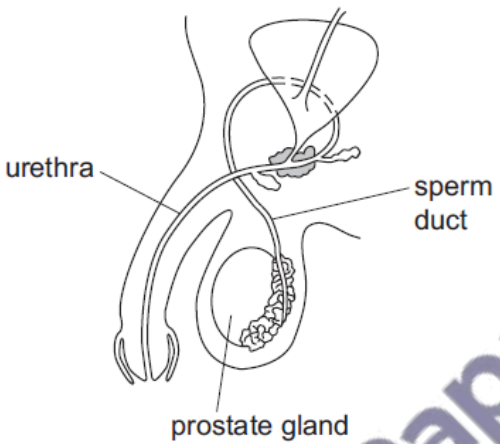
A



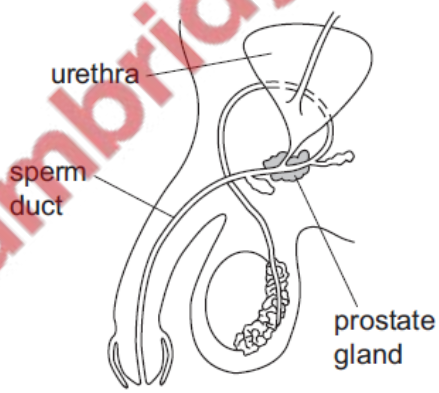
B



C



D



4. Nov/2023 /Paper_ 0610/13/No.24

What is described as a ball of cells that implants into the lining of the uterus?

A acrosome

B embryo

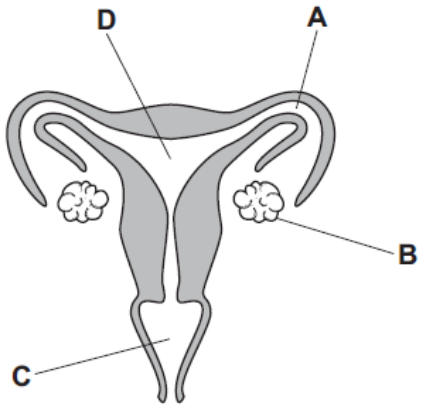
C fetus

D zygote

5. Nov/2023 /Paper_ 0610/13/No.33

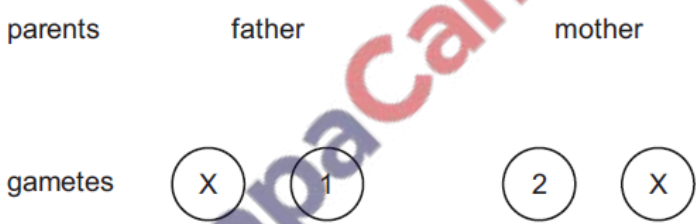
The diagram shows a human female's reproductive organs.

Where does fertilisation usually occur?



6. Nov/2023 /Paper_ 0610/13/No.34

The diagram shows part of a genetic diagram for the inheritance of sex in humans. The sex chromosomes in two gametes are shown.



What are the sex chromosomes in gametes 1 and 2?

	gamete 1	gamete 2
A	X	Y
B	X	X
C	Y	Y
D	Y	X

7. Nov/2023 /Paper_ 0610/21/No.28

Which diseases can be successfully treated with antibiotics?

	diseases caused by bacteria	rickets	diseases caused by viruses
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

key

✓ = can be treated

✗ = cannot be treated

8. Nov/2023 /Paper_ 0610/21/No.29

Which statement about human sexual reproduction is correct?

A All gametes are haploid.

B Fertilisation occurs when two diploid nuclei fuse.

C The sperm is the male zygote.

D Sexual reproduction results in haploid offspring.

9. Nov/2023 /Paper_ 0610/21/No.30

Where is oestrogen produced?

A cervix

B ovaries

C oviducts

D uterus

10. Nov/2023 /Paper_ 0610/22/No.29

What is a disadvantage of sexual reproduction for a population in the wild?

A a reduction in genetic diversity

B a decreased ability to adapt to changes in the environment

C a reduction in reproduction if individuals are isolated

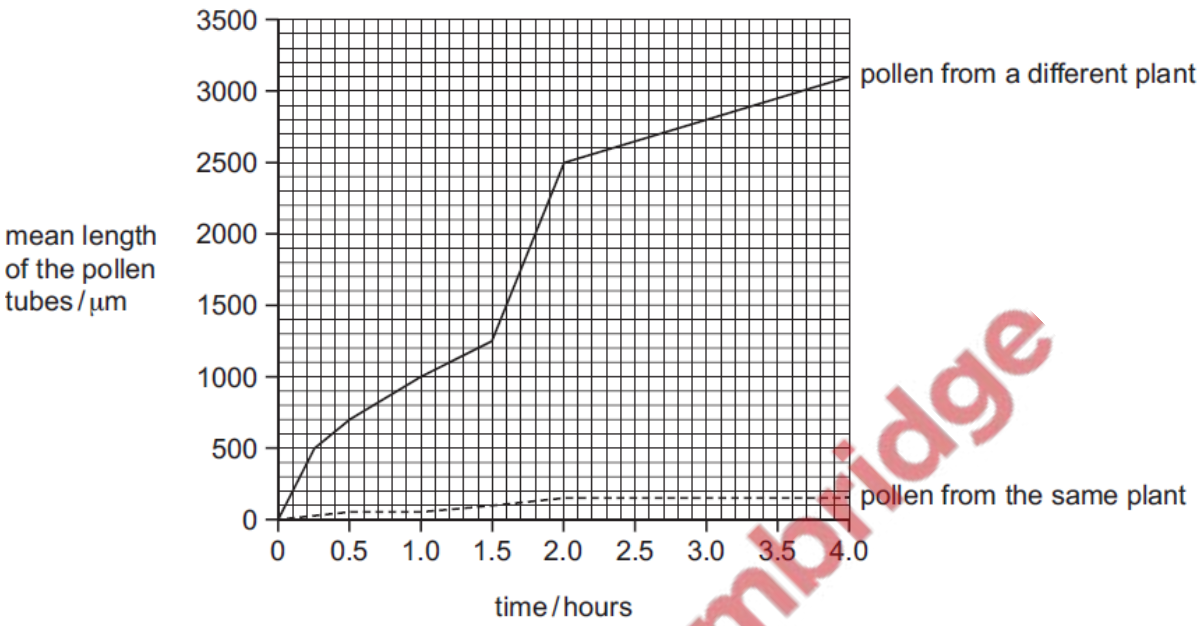
D an increased likelihood of a disease affecting all individuals

11. Nov/2023 /Paper_ 0610/22/No.30

Pollen grains from a plant were placed onto the stigma of a flower of the same plant. The lengths of the pollen tubes were measured for four hours. (The mean length of the style in this species of plant is 2 mm.)

This was repeated using pollen from a different plant.

The results are shown.



Which statements are correct?

1 Self-pollination does **not** lead to fertilisation.

2 The difference in growth of the two types of pollen is an adaptation to increase variation.

3 The pollen tubes from a different plant grew fastest between 2.0 hours and 4.0 hours.

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

12. Nov/2023 /Paper_ 0610/22/No.31

Which hormones are released by the placenta during pregnancy?

A FSH and LH

B FSH and progesterone

C oestrogen and LH

D progesterone and oestrogen

13. Nov/2023 /Paper_ 0610/23/No.30

Some descriptions of reproduction are listed.

1 formation of a zygote with a diploid nucleus

2 formation of a zygote with a haploid nucleus

3 fusion of diploid nuclei of two gametes

4 fusion of haploid nuclei of two gametes

Which are correct descriptions of sexual reproduction in humans?

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

14. Nov/2023 /Paper_ 0610/23/No.31

Which statement about pollination in plants is correct?

A Cross-pollination is the transfer of pollen from the anther of a flower to the style of the same flower.

B Cross-pollination is the transfer of pollen from the anther of a flower to the stigma of a flower on a different plant of the same species.

C Self-pollination is the transfer of pollen from the anther of a flower to the filament of the same flower.

D Self-pollination is the transfer of pollen from the anther of a flower to the stigma of a flower on a different plant.

15. Nov/2023 /Paper_ 0610/31/No.5

(a) Fig. 5.1 is a diagram of an insect-pollinated flower.

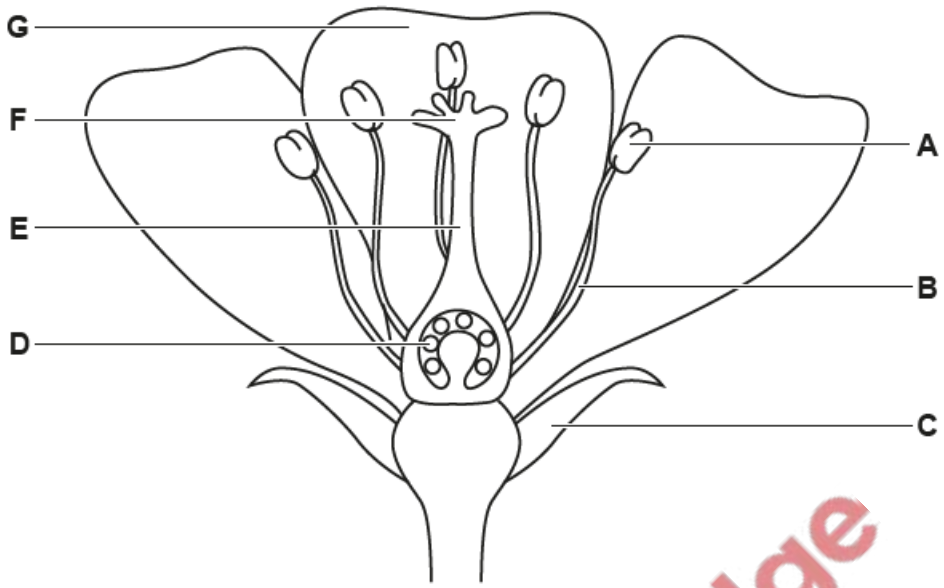


Fig. 5.1

(i) State the letters of the structures in Fig. 5.1 that make up the stamen.

..... and .....

[2]

(ii) State the letter of the structure in Fig. 5.1 where fertilisation takes place.

.....

[1]

(iii) Explain how the part labelled **G** in Fig. 5.1 is adapted for its function.

.....

.....

.....

.....

..... [2]

(b) **(i)** Complete the sentence about pollination.

Pollination is the transfer of pollen grains from the ..... to the

..... .

[2]

(ii) State **three** ways that pollen grains from insect-pollinated flowers differ from pollen grains from wind-pollinated flowers.

1 .....

2 .....

3 .....

[3]

[Total: 10]

16. Nov/2023 /Paper_ 0610/32/No.7

(a) Fig. 7.1 is a diagram of the female reproductive system in humans.

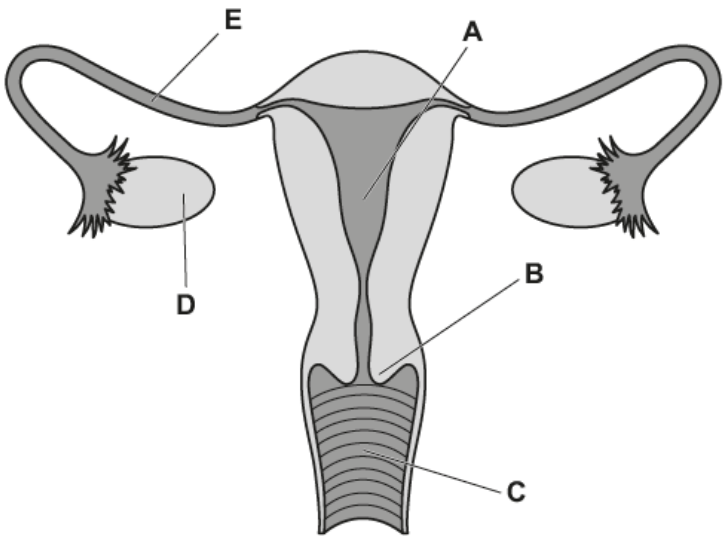


Fig. 7.1

Table 7.1 shows the name, letter and function of some of the parts in Fig. 7.1.

Complete Table 7.1.

Table 7.1

name of the part	letter in Fig. 7.1	function
uterus		where the fetus grows
		where fertilisation occurs
	D	

[5]

(b) This list shows some specialised animal and plant cells.

ciliated cell	**guard cell**
neurone	**palisade mesophyll cell**
red blood cell	**white blood cell**

Choose words from the list to state the names of:

- two specialised plant cells

  ..... and .....

- the cell that transports oxygen

  .....

- the cell found in the trachea that moves mucus.

  .....

[4]

(c) State how new cells are produced.

.....

..... [1]

(d) Fig. 7.2 is a drawing of another specialised cell.

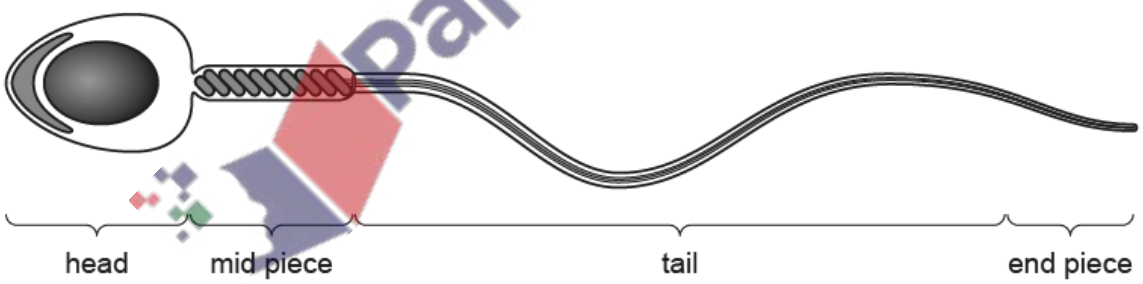


Fig. 7.2

(i) Label **three** cell structures in Fig. 7.2 with label lines and the correct names. [3]

(ii) State the name of the cell shown in Fig. 7.2.

..... [1]

[Total: 14]

17. Nov/2023 /Paper_ 0610/33/No.5

Bluebells are plants that can reproduce sexually and asexually.

(a) **(i)** Define the term asexual reproduction.

.....

.....

..... [2]

(ii) State **one** example of a structure that is involved in asexual reproduction in a plant.

..... [1]

(b) Fig. 5.1 is a drawing of a bluebell plant.

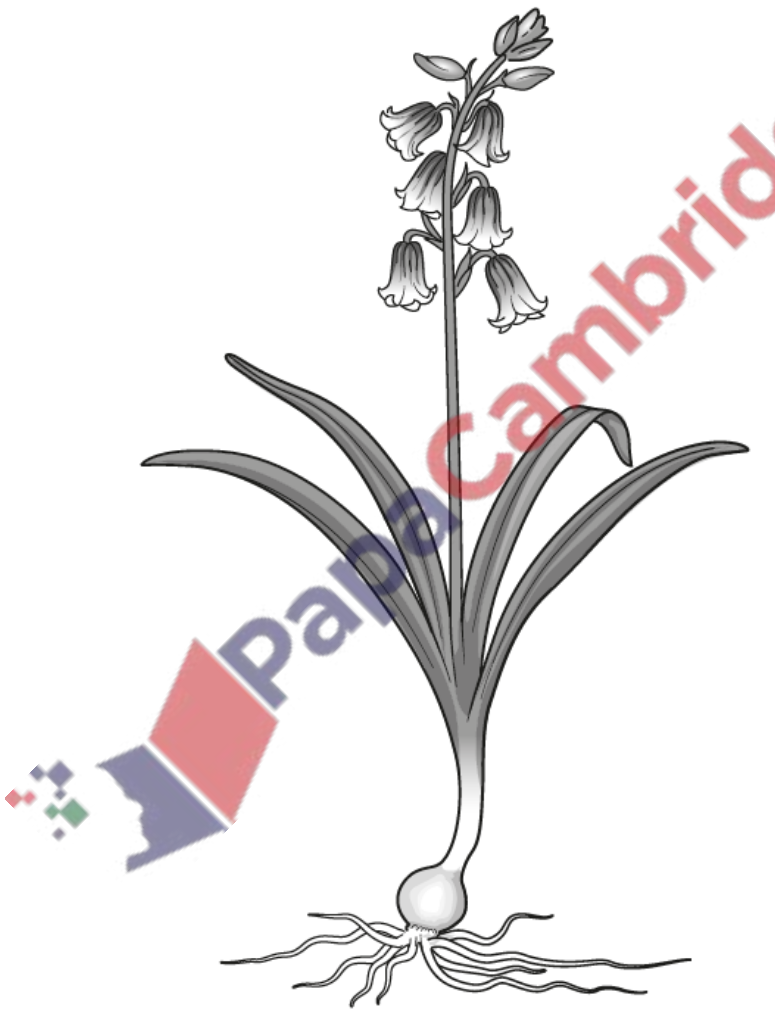


Fig. 5.1

On Fig. 5.1, label the structure that carries out sexual reproduction with a label line and the letter **S**. [1]

(c) Bluebells grow in ancient woodlands.

Fig. 5.2 is a graph showing the percentage of land that was covered with woodland in one country from the years 1100 to 2000.

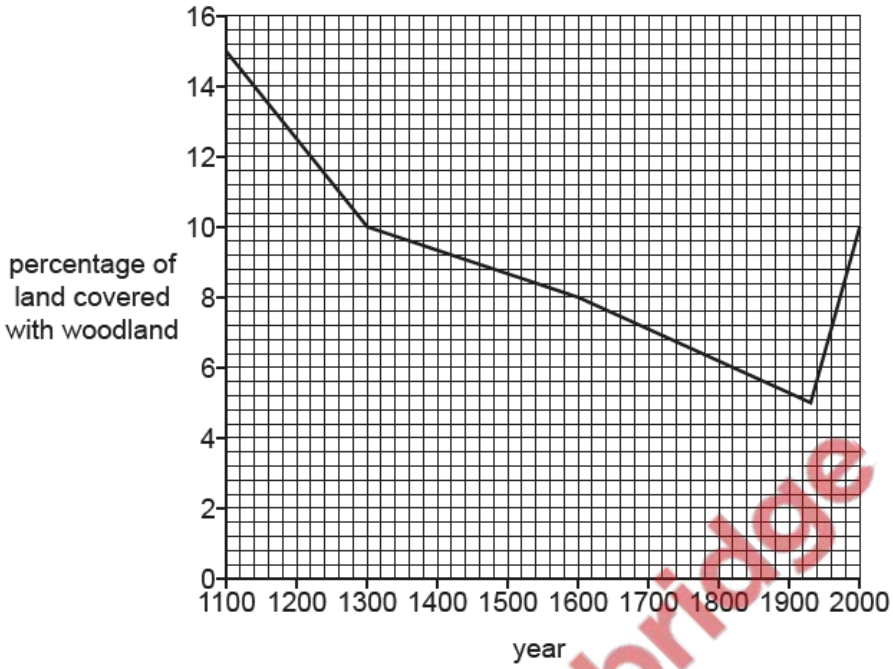


Fig. 5.2

(i) State the years when the percentage of land covered with woodland was 10% in Fig. 5.2.

..... and ..... [2]

(ii) State the percentage of land covered with woodland in 1600 in Fig. 5.2.

..... % [1]

(d) **(i)** In many countries the percentage of land covered with woodland has decreased because of deforestation.

Suggest **two** reasons why deforestation occurs.

1 .....

.....

2 .....

.....

[2]

(ii) Explain the undesirable effects of deforestation.

.....

.....

.....

.....

.....

.....

.....

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..... [3]

[Total: 12]

18. Nov/2023 /Paper_ 0610/41/No.1

(a) Fig. 1.1 shows the changes in the concentration of two hormones involved in the menstrual cycle.

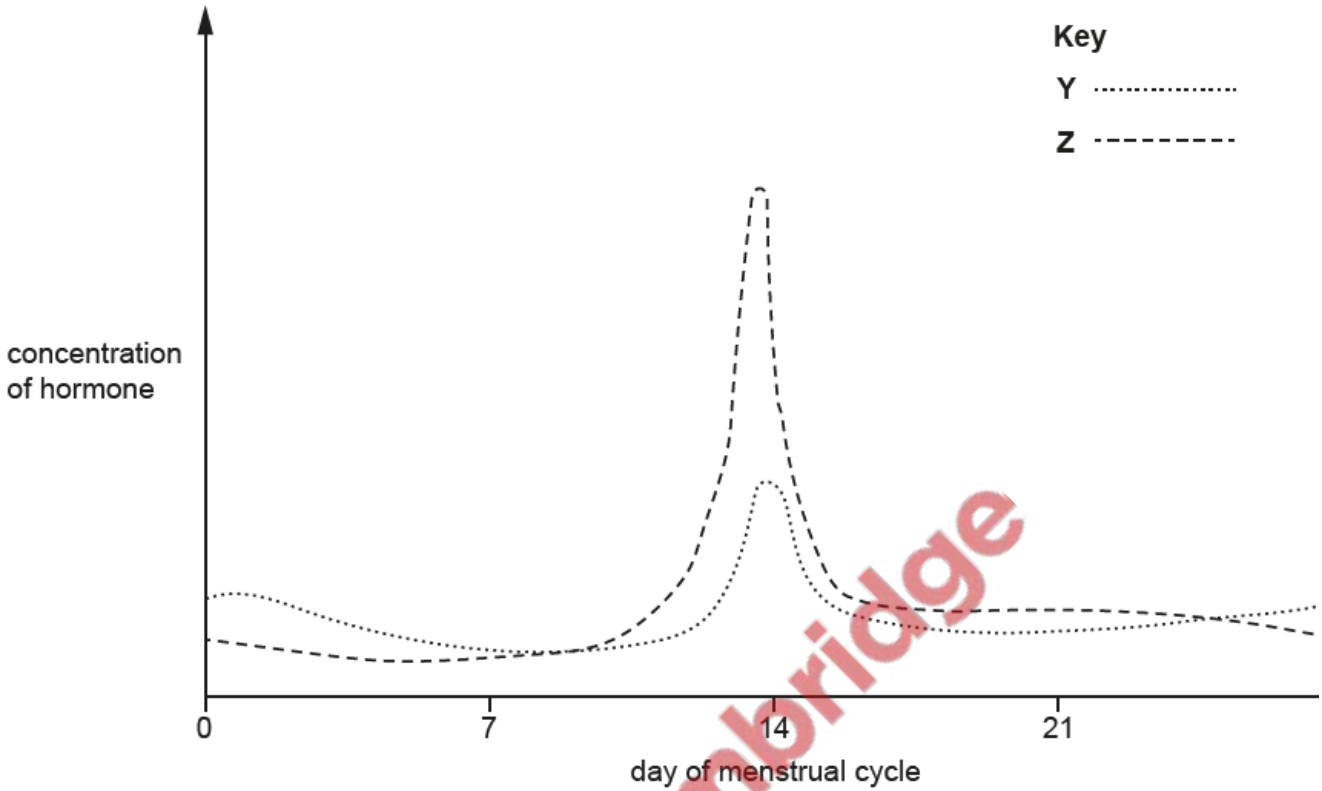

Fig. 1.1

(i) State the names of the hormones **Y** and **Z** in Fig. 1.1.

Y .....

Z .....

[2]

(ii) **On Fig. 1.1**, sketch a line to show the levels of progesterone through the 28-day menstrual cycle. [2]

(iii) State the day in the 28-day menstrual cycle when the egg is most likely to be released from a follicle.

..... [1]

(iv) State the main site of progesterone production during pregnancy.

..... [1]

(b) Egg cells are contained in follicles in the ovary.

At the start of the menstrual cycle, a follicle has an average diameter of 29 μm.

Just before an egg is released from the follicle, the follicle has an average diameter of 22 mm.

Calculate the percentage increase in the average diameter of the follicle from the start of the menstrual cycle, until just before an egg is released.

Step 1 Convert the average starting diameter of a follicle to millimetres (mm).

..... mm

Step 2 Calculate the percentage increase.

..... %

Step 3 Give your answer to **three** significant figures.

..... %
[4]

(c) Once an egg cell has been released from a follicle it can be fertilised by a sperm cell.

State **three** adaptive features of a sperm cell.

1 .....

2 .....

3 .....
[3]

[Total: 13]

19. Nov/2023 /Paper_ 0610/42/No.6

(a) State the names of **two** hormones released by the ovaries.

1 .....

2 .....

[2]

(b) During pregnancy, antibodies are acquired by the fetus from the mother.

State the organ the antibodies cross to reach the fetus.

..... [1]

(c) A baby was breastfed for six months. The concentration of antibodies in the baby's blood obtained from breast milk and the concentration of antibodies made by the baby itself were measured.

Fig. 6.1 shows the results.

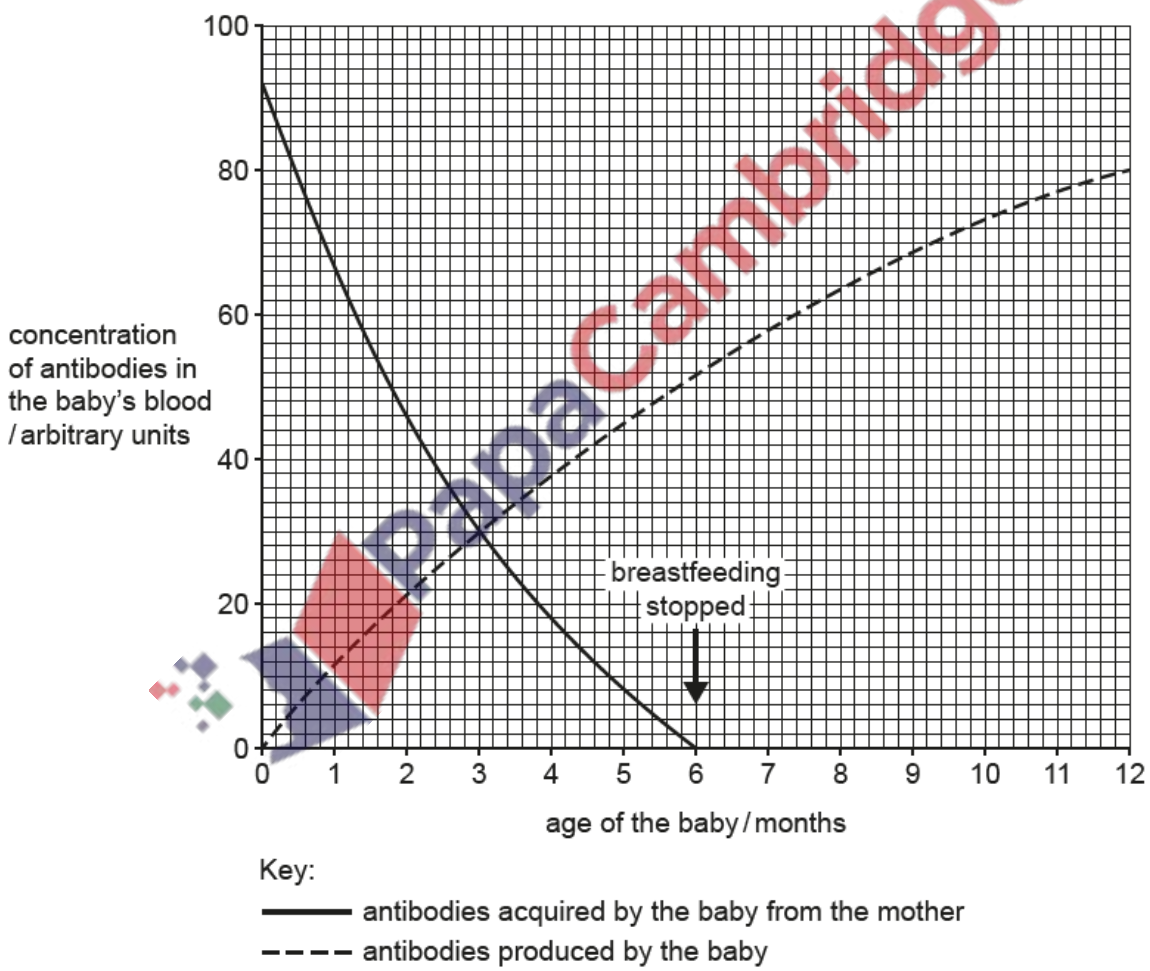

Fig. 6.1

(i) Complete the sentences to describe the changes in antibody concentration in the baby.

After birth the concentration of antibodies acquired from the mother decreases rapidly to 0 arbitrary units at ..... months.

Antibodies start being produced by cells called ..... in the baby immediately after birth.

The total concentration of antibodies in the baby from both sources is ..... arbitrary units at 4 months.

The concentration of antibodies acquired from the mother and the concentration of antibodies produced by the baby are the same at ..... months. [4]

(ii) Describe the benefits of breastfeeding a baby for the first six months of life.

.....

.....

.....

.....

..... [2]

(iii) State **two** ways, other than breastfeeding, that a baby can acquire immunity.

1 .....

.....

2 .....

.....

[2]

(d) Explain the importance of the shape of an antibody.

.....

.....

.....

.....

.....

.....

..... [3]

(e) Antibodies are proteins.

State the chemical elements present in all proteins that are also found in carbohydrates and fats.

..... [1]

[Total: 15]

20. Nov/2023 /Paper_ 0610/43/No.1

(a) Fig. 1.1 is a diagram of an insect-pollinated flower.

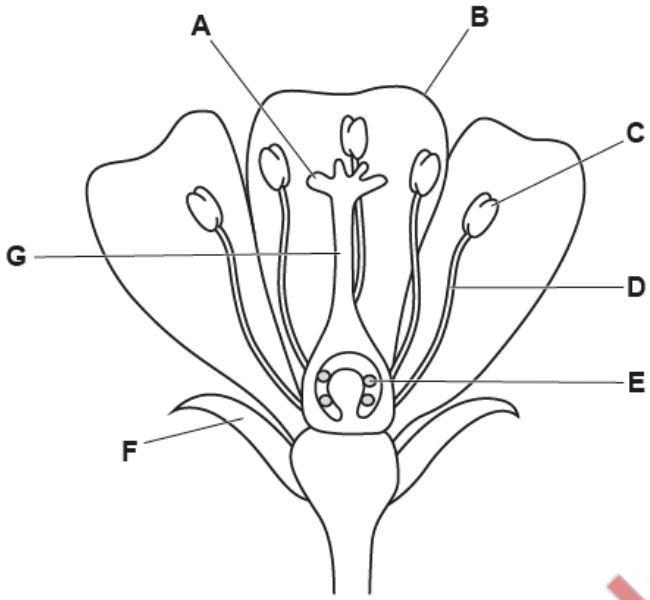

Fig. 1.1

(i) Using the information in Fig. 1.1, complete Table 1.1.

Table 1.1

structure in Fig. 1.1	name	function
A		
B		
F		

[3]

(ii) State the names of the **two** structures that form the stamen in a flowering plant.

1 .....

2 .....

[1]

(b) **(i)** Describe the stages in the reproduction of a flowering plant, from self-pollination to fertilisation.

.....

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.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

(ii) Outline the advantages and disadvantages of self-pollination compared with cross-pollination.

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.....

.....

.....

.....

.....

..... [4]

[Total: 13]