Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

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Reproduction in humans

Time allowed: 1 hour 20 minutes

Subject code **0610**

Biology

Questions from Paper 3 and Paper 4

You must have: a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.

Total marks

/ 84

Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.

Information

- This paper has 9 questions worth 84 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

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Print at 100% (Actual size) so diagrams keep their real measurements.

1 Fig. 10.1 shows an early stage in the birth of a baby.

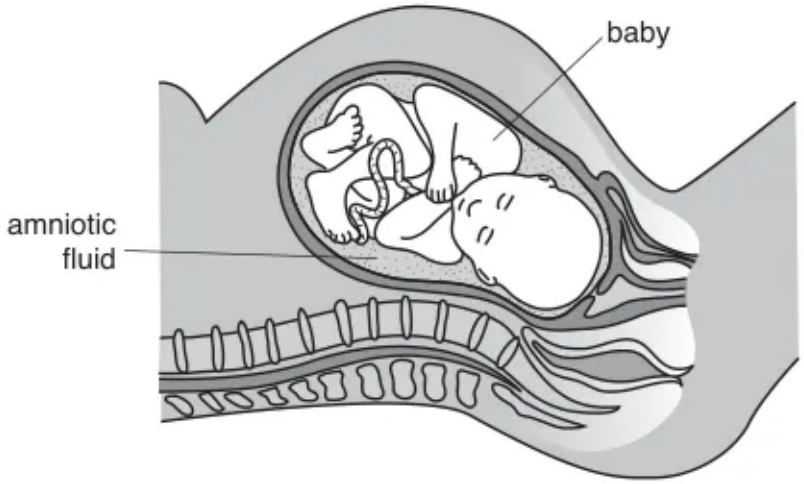


Fig. 10.1

(a) The unborn baby is surrounded by amniotic fluid.

Describe **one** function of this liquid.

.....

.....[1]

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(b) The list describes six stages in the birth of a baby.

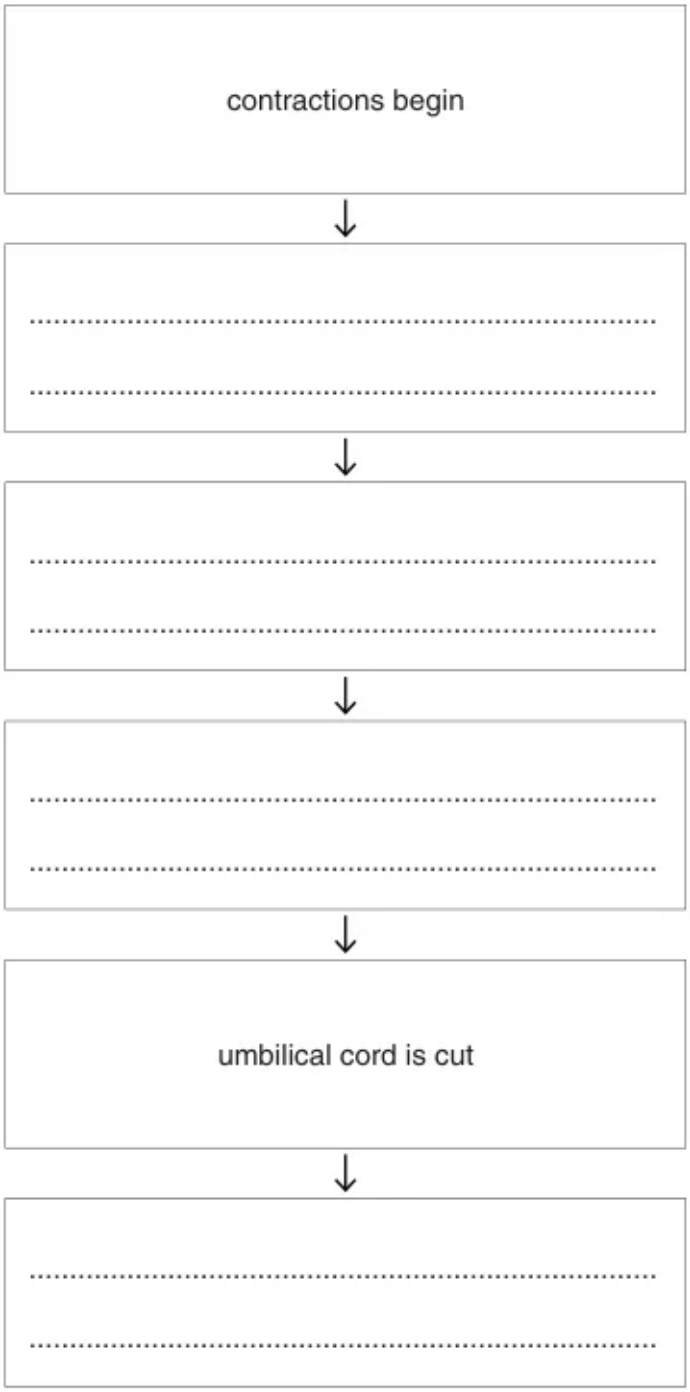
They are **not** in the correct order.

amniotic sac bursts **baby passes down vagina** **cervix dilates**

contractions begin **placenta delivered** **umbilical cord is cut**

Complete the boxes by writing the descriptions of the stages in the correct order.

Two of the stages have been completed for you.



[3]

[Total: 4]

Reproductive organs, fertilisation and pregnancy Click for more variations

2 Fig. 5.1 is a diagram of the female reproductive system in humans.

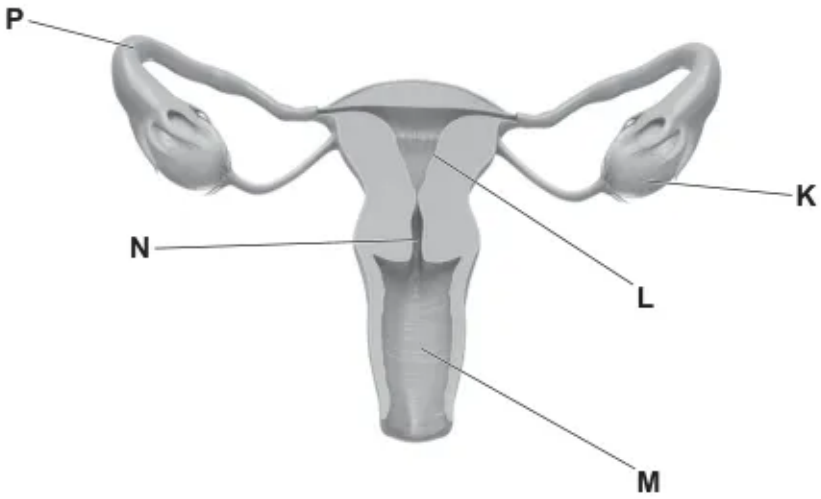


Fig. 5.1

(a) (i) State the letter in Fig. 5.1 that identifies:

the structure that releases egg cells .....

the structure where fertilisation usually occurs .....

the structure where an embryo implants. .....

[3]

(ii) State the names of structures **L**, **M** and **N** in Fig. 5.1.

L .....

M .....

N .....

[3]

(b) State **two** adaptive features of egg cells.

1 .....

2 .....

[2]

[Total: 8]

Reproductive organs, fertilisation and pregnancy Click for more variations

STEM

3 **(a)** Fig. 6.1 shows the changes that happen to the thickness of the uterus lining during the menstrual cycle.

The loss of the lining of the uterus is called menstruation.

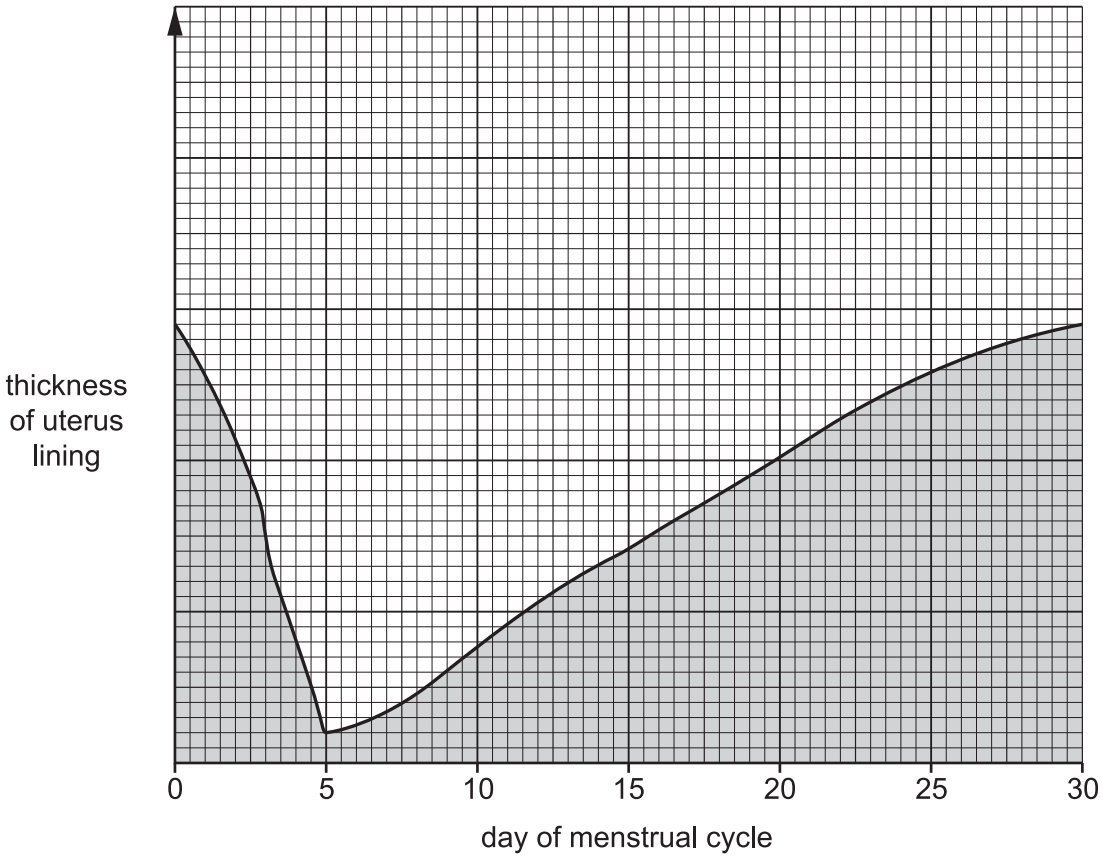


Fig. 6.1

Use Fig. 6.1 and the numbers from the list to answer these questions.

Each number can be used once, more than once or not at all.

0 **5** **8** **15** **28** **30**

State the number of days of this menstrual cycle. .....

State the number of days that menstruation lasts. .....

State the day on which ovulation is most likely to occur. .....

State **one** day when the uterus lining is at its thickest. .....

[4]

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(b) Table 6.1 shows some of the changes that happen to boys and girls during puberty.

Place ticks (✓) in Table 6.1 to show which changes happen in boys and which changes happen in girls.

Table 6.1

	boys	girls
breasts grow		
growth of pubic hair		
widening of hips		

[3]

(c) State the name of the hormone that causes the development of secondary sexual characteristics in girls.

..... [1]

(d) State where the hormone that causes the development of secondary sexual characteristics in boys is produced.

..... [1]

[Total: 9]

Sex hormones and the menstrual cycle Click for more variations

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4 Fig. 6.1 shows a fetus developing inside the uterus.

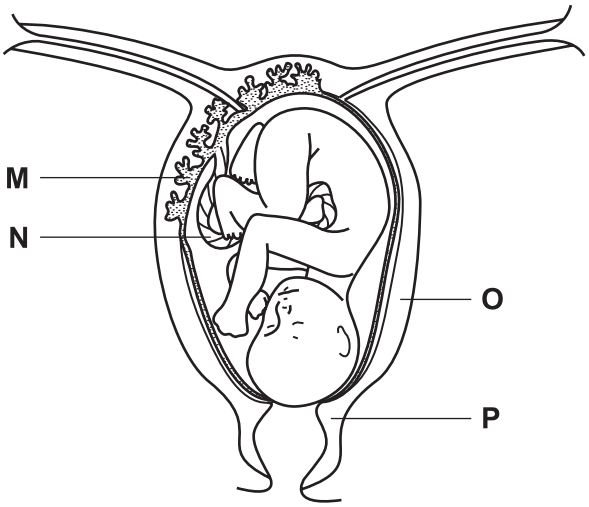


Fig. 6.1

(a) The fetus developed from a fertilised egg cell. Place an **X** on the diagram where an egg cell is normally fertilised. [1]

(b) **(i)** Name the structures **M** and **N**.

M .....

N ..... [2]

(ii) Describe the role of structure **M** in gaseous exchange.

.....

.....

.....

..... [3]

(c) Describe how the structures labelled **O** and **P** are involved in the birth of the baby.

structure **O** .....

.....

structure **P** .....

..... [2]

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(d) (i) If a woman infected with HIV becomes pregnant, her baby may also be infected with HIV, by the time it is born.

Suggest **two** ways this may happen.

.....

.....

..... [2]

(ii) Apart from avoiding infections, describe two other ways that a pregnant mother can help her baby develop healthily.

1. .....

.....

2. .....

..... [2]

[Total: 12]

Reproductive organs, fertilisation and pregnancy Click for more variations

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5 Fig. 4.1 shows the concentrations of female sex hormones during the menstrual cycle.

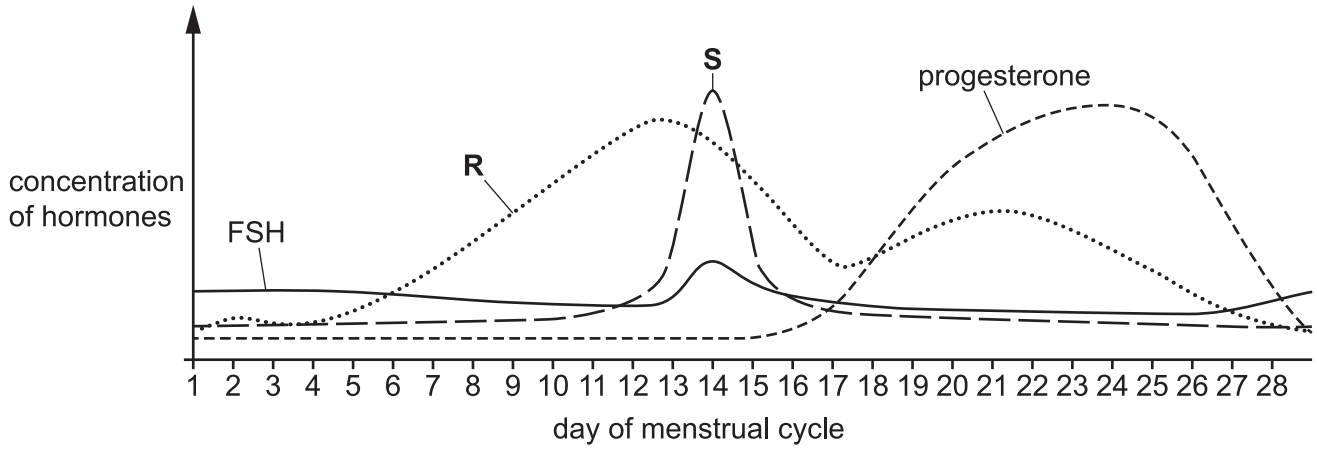


Fig. 4.1

(a) Identify, from Fig. 4.1, hormone:

R .....

S. .....

[2]

(b) State the day or days of the menstrual cycle shown in Fig. 4.1 when:

ovulation is most likely to occur .....

shedding of the uterine lining occurs. .....

[2]

(c) Describe how the concentration of progesterone would change during pregnancy.

Give a reason for this change.

.....

.....

.....

.....

..... [2]

(d) State the sites of production of progesterone during a menstrual cycle and during pregnancy.

during a menstrual cycle .....

during pregnancy .....

[2]

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(e) Describe the role of FSH in the menstrual cycle.

.....

.....

..... [1]

[Total: 9]

Sex hormones and the menstrual cycle Click for more variations

6 **(a)** Fig. 3.1 shows some of the events that occur in the menstrual cycle.

A	follicle is fully developed
B	gamete is released into the oviduct
C	lining of the uterus is removed from the body
D	lining of the uterus reaches a maximum thickness
E	lining of the uterus gets thicker

Fig. 3.1

(i) Put the events shown in Fig. 3.1 into the correct sequence.

One has been done for you.

		B		

[1]

(ii) State the name of the hormone that stimulates event **A** to occur.

..... [1]

(iii) Event **C** means that menstruating females lose blood regularly.

Two females of the same age have different dietary needs because one has started menstruating and the other has **not** started menstruating.

Suggest why the dietary needs of the two females are different.

.....

.....

.....

.....

..... [2]

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(b) During pregnancy menstruation does not occur.

Fig. 3.2 shows some of the organs of a pregnant woman, viewed from the side.

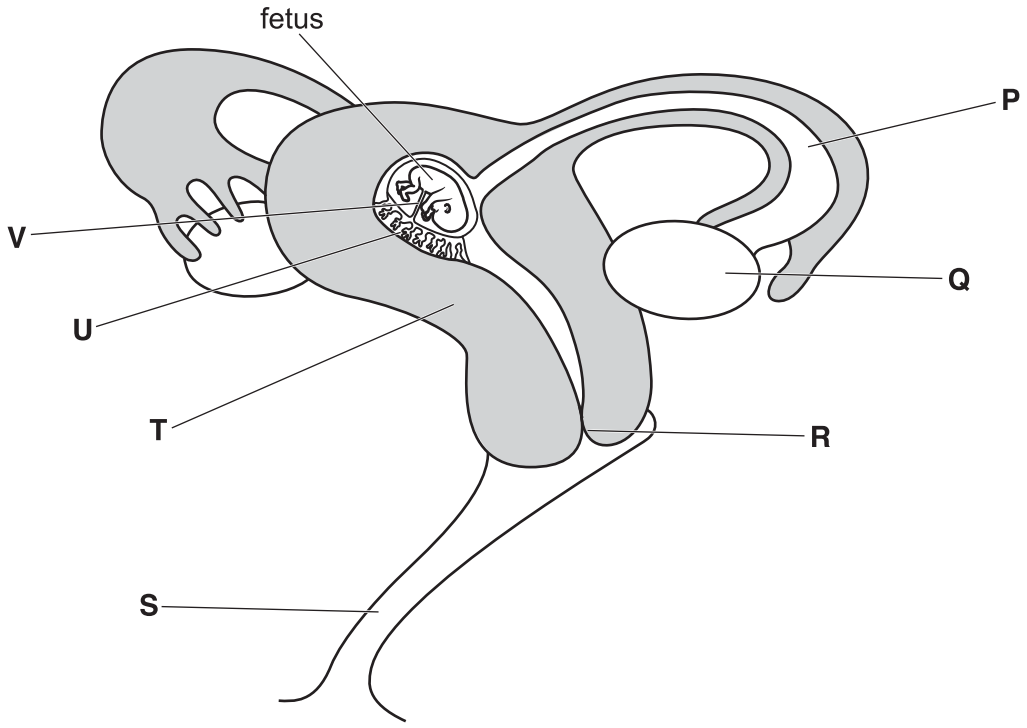


Fig. 3.2

Describe what happens between ovulation and the formation of a fetus.

Use the letters in Fig. 3.2 to support your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 10]

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Reproductive organs, fertilisation and pregnancy Click for more variations

7 **(a)** Fig. 4.1 shows part of a human placenta and umbilical cord. The arrows show the direction of blood flow.

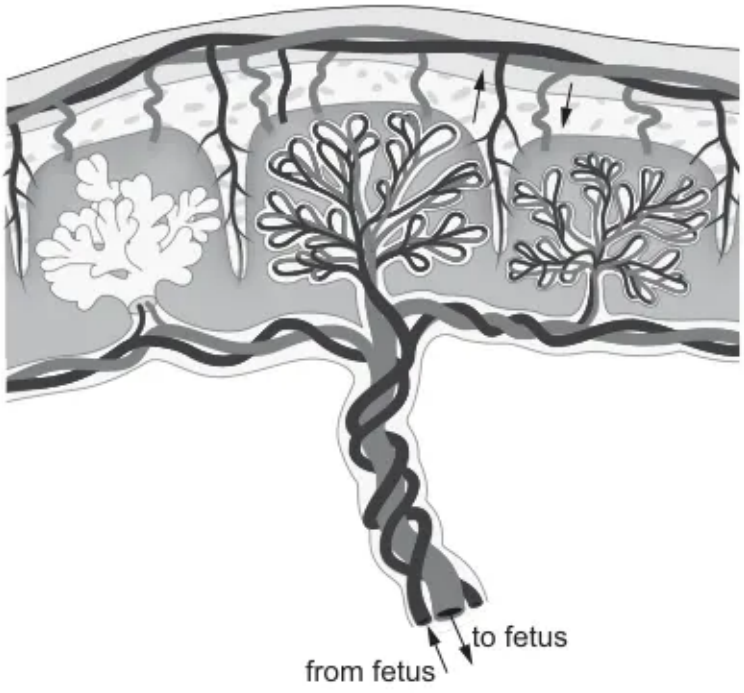


Fig. 4.1

(i) Describe the functions of the placenta and the umbilical cord shown in Fig. 4.1.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

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(ii) A fetus develops inside an amniotic sac.

Describe the functions of the amniotic sac and amniotic fluid.

.....

.....

.....

.....

.....

.....

..... [3]

(b) Syphilis is a sexually transmitted infection (STI) that can be passed from a mother to her fetus.

(i) State the name of **one** other STI that can be passed from mother to fetus.

..... [1]

(ii) State **two** ways to control the spread of STIs.

1 .....

2 .....

[2]

[Total: 10]

Reproductive organs, fertilisation and pregnancy Click for more variations

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8 Fig. 1.1 shows a diagram and a photograph of the human immunodeficiency virus (HIV) after release from a human cell.

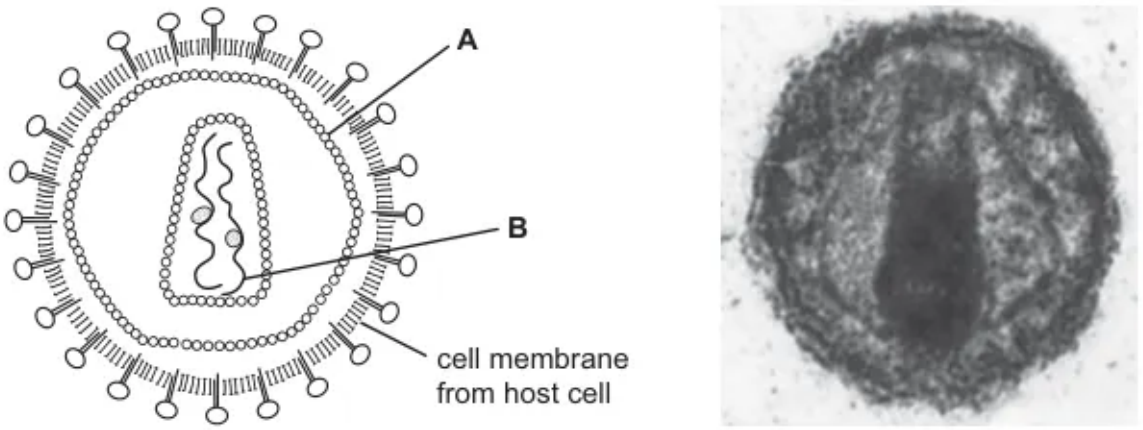


diagram photograph

Fig. 1.1

(a) Identify **A** and **B**.

A .....

B ..... [2]

(b) HIV infects lymphocytes and may lead to their destruction.

Explain why the destruction of lymphocytes puts people infected with HIV at increased risk of developing many infectious diseases.

.....

.....

.....

.....

.....

..... [3]

(c) List three methods of transmission of HIV.

1 .....

2 .....

3 ..... [3]

(d) Describe ways in which the spread of HIV can be reduced.

.....

.....

.....

.....

.....

..... [3]

[Total: 11]

Sexually transmitted infections and HIV Click for more variations

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9 Fig. 5.1 shows the structure of the placenta and parts of the fetal and maternal circulatory systems.

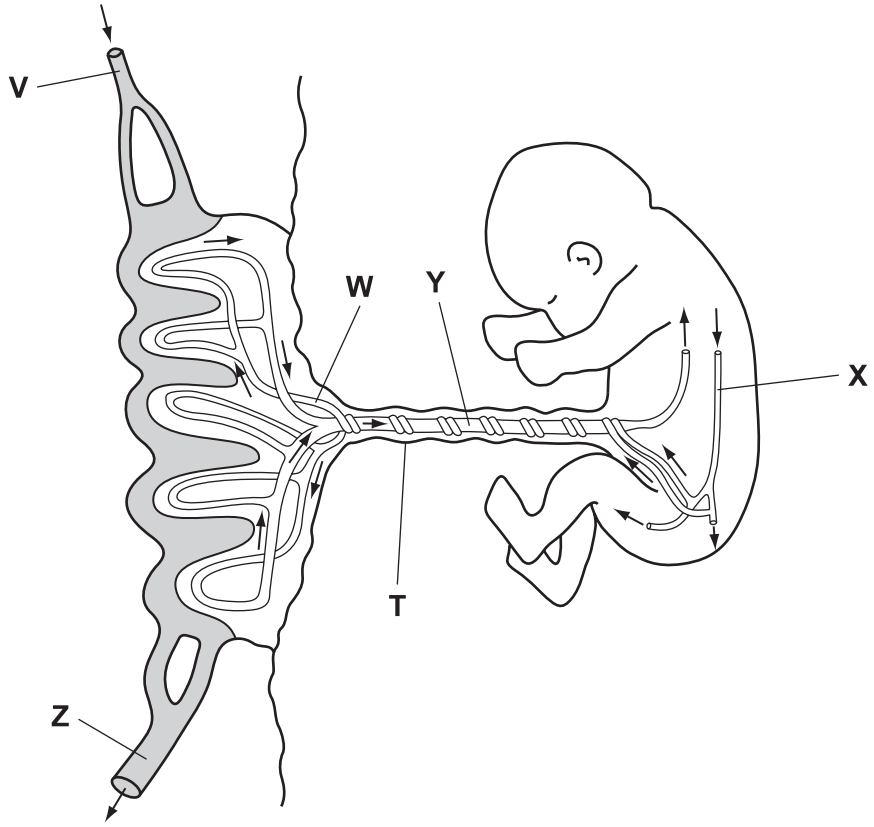


Fig. 5.1

(a) (i) Complete Table 5.1 by listing the blood vessels that carry oxygenated blood. Use the letters in Fig. 5.1 to identify the blood vessels.

Table 5.1

circulatory system	blood vessels that carry oxygenated blood
maternal	
fetal	

[2]

(ii) Name structure **T** and describe what happens to it after birth.

.....

.....

.....

..... [2]

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(iii) The placenta is adapted for the exchange of substances between the maternal blood and the fetal blood.

Describe the exchanges that occur across the placenta to keep the fetus alive and well.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) The placenta secretes the hormones oestrogen and progesterone.

Describe the roles of these hormones during pregnancy.

.....

.....

.....

.....

.....

..... [3]

[Total: 11]

Reproductive organs, fertilisation and pregnancy Click for more variations

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