

Answers to end-of-chapter questions

Chapter 17: Reproduction in humans

1 testes, sperm ducts, urethra, prostate, testosterone, sperm, secondary

2 a oviduct

b ovary

c uterus

d cervix

3 a A uterus wall

B oviduct

C amnion

D amniotic fluid

E fetus

F placenta

G umbilical cord

H cervix

I vagina

b It produces amniotic fluid, in which the fetus floats. This fluid protects it from bumps and knocks.

c The placenta brings the mother's and fetus's blood close together, but does not allow them to mix. In the placenta, useful substances such as oxygen and glucose diffuse from the mother's blood to the fetus's blood. Wastes such as urea and carbon dioxide diffuse from the fetus's blood to the mother's blood.

4 a i they are haploid / they have only one set of chromosomes; [1]

ii it contains food stores for the developing embryo; [1]

iii the food stores will soon run out; (once attached) it obtains nutrients; and oxygen;

from the mother's blood; through the placenta.

[max 4]

b i A umbilical cord;

B amnion;

C cervix; [3]

ii the (beating of the) fetus's heart; [1]

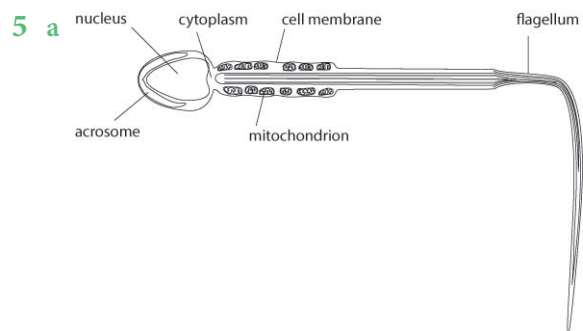
iii support / protect, the fetus; [1]

iv mother to fetus: any two of oxygen / glucose / amino acids / water / other named soluble nutrient; [2]
fetus to mother: carbon dioxide and urea; [2]

c i mother's blood is at a higher pressure and could damage the fetus; they could have different blood groups which could cause coagulation; [2]

ii any named toxin such as alcohol / nicotine; [1]

d it is free; it is less likely to contain pathogens; it is at the right temperature; it has the correct balance of nutrients at each stage of a baby's development; promotes bonding between mother and baby; [max 2]



one mark for any two labels correct;;; [3]

- b** acrosome contains enzymes which digest through the jelly surrounding the egg; mitochondria release energy by aerobic respiration (for swimming); flagellum propels the sperm forwards; nucleus contains the haploid number of chromosomes so the normal diploid number is restored at fertilisation; shape is streamlined to reduce energy needed for swimming; [max 4]
- c** nucleus contains the haploid number of chromosomes so the normal diploid number is restored at fertilisation; it contains food stores to provide for the young fetus (until it is implanted); it is surrounded by a protective layer of jelly; [3]
- 6 a** increased and then decreased; peaks in 2004 and 2007; any figure quote using both year and number of people infected read from the graph; [3]
- b** people recently infected with HIV show no symptoms; may not have had their blood checked; [2]
- c** HIV is a virus; infects lymphocytes; so body cannot fight effectively against pathogens; or destroy its own cancerous cells; (so) infectious diseases can take hold / cancer can develop, much more easily; [5]
- d** more awareness of AIDS; people with HIV/AIDS now knew that they had it and avoided passing it on; people who were not HIV positive modified their behaviour to reduce the risk of becoming infected with HIV; example – avoided having multiple partners / used condoms / did not share contaminated needles; use of anti-retroviral drugs to treat AIDS; other valid point; [max 4]