Sexual & Human Reproduction

Question Paper

Level	O Level
Subject	Biology
Exam Board	Cambridge International Examinations
Topic	Development of organisms and continuity of life
Sub Topic	Sexual & Human Reproduction
Booklet	Question Paper

Time Allowed: **53 minutes**

Score: **/44**

Percentage: **/100**

1 A diploid cell produces further cells with a haploid number of chromosomes.

Which type of cell division is involved and what is the purpose of the cells produced?

	type of cell division	purpose of cells
A	meiosis	asexual reproduction
B	meiosis	sexual reproduction
C	mitosis	asexual reproduction
D	mitosis	sexual reproduction

2 Where does the placenta allow the exchange of materials to take place between mother and fetus?

A oviduct wall

B umbilical cord

C uterus wall

D vagina wall

3 Which row correctly pairs a hormone with its function in the menstrual cycle?

	hormone	function
A	FSH	stimulates release of eggs
B	LH	stimulates release of eggs
C	oestrogen	maintains uterus lining
D	progesterone	repairs uterus lining

4 Compared with the few days before ovulation, which hormone is released in increased quantities three days **after** ovulation?

A FSH

B LH

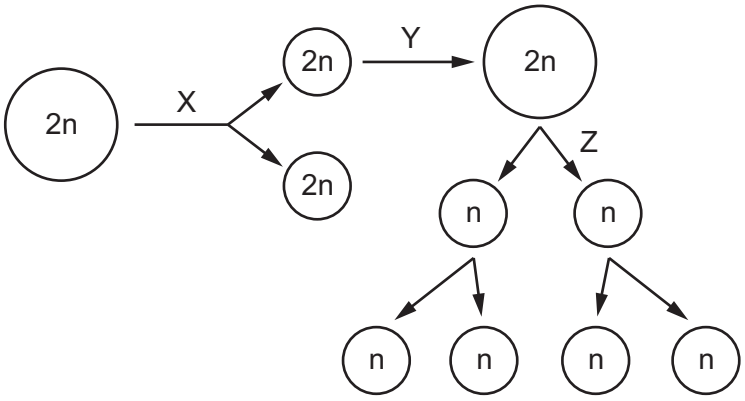
C oestrogen

D progesterone

5 What describes the chromosome number of these human cells?

	egg-producing cell in ovary	sperm	zygote	cell in an embryo
A	diploid	diploid	haploid	haploid
B	diploid	haploid	diploid	diploid
C	diploid	haploid	haploid	diploid
D	haploid	haploid	diploid	diploid

6 The diagram shows some cells in the life cycle of an animal.

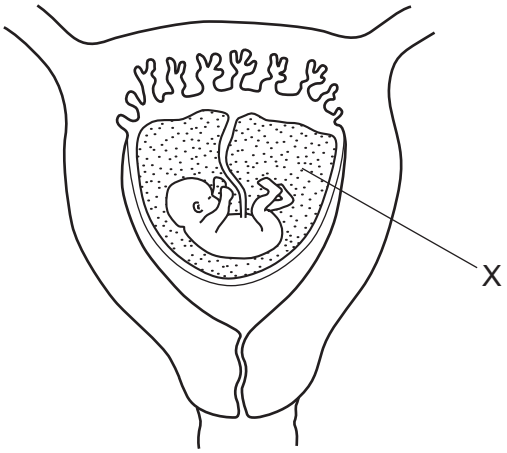


key
n = haploid
2n = diploid

Which processes are occurring at X, Y and Z?

	X	Y	Z
A	maturation	meiosis	mitosis
B	meiosis	maturation	mitosis
C	mitosis	maturation	meiosis
D	mitosis	meiosis	maturation

7 The diagram shows a developing fetus in the uterus.



What is the function of X?

A absorbing nutrients from the mother's blood

B contracting to push the baby out at birth

C prevention of disease

D protecting from mechanical damage

8 Human gametes are different from each other.

Which information about male gametes is correct?

	size	numbers released at one time	movement
A	large	normally one	cannot move on their own
B	large	millions	cannot move on their own
C	small	normally one	can swim
D	small	millions	can swim

9 The main function of which hormone is to maintain the uterus lining after ovulation?

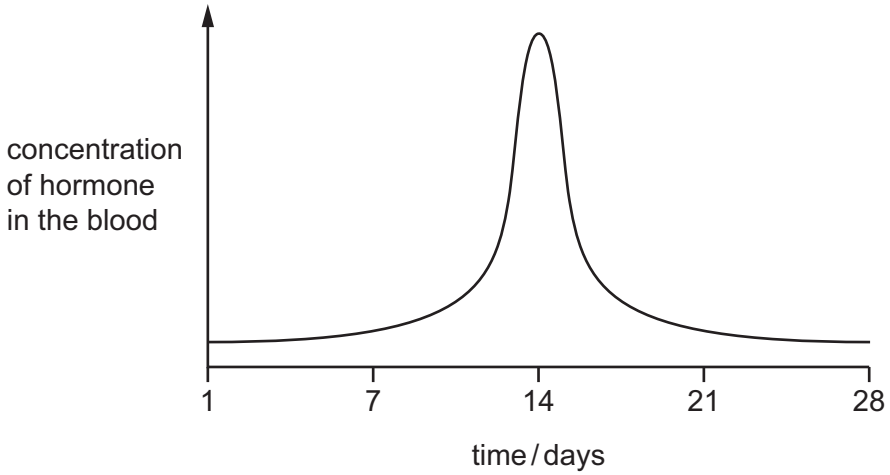
A FSH

B LH

C oestrogen

D progesterone

10 The graph shows the concentration of a hormone in the blood during one menstrual cycle.



Which hormone concentration was measured?

A follicle-stimulating hormone

B luteinising hormone

C oestrogen

D progesterone

11 Which substances are present in breast milk but **not** in bottled milk made from milk powder?

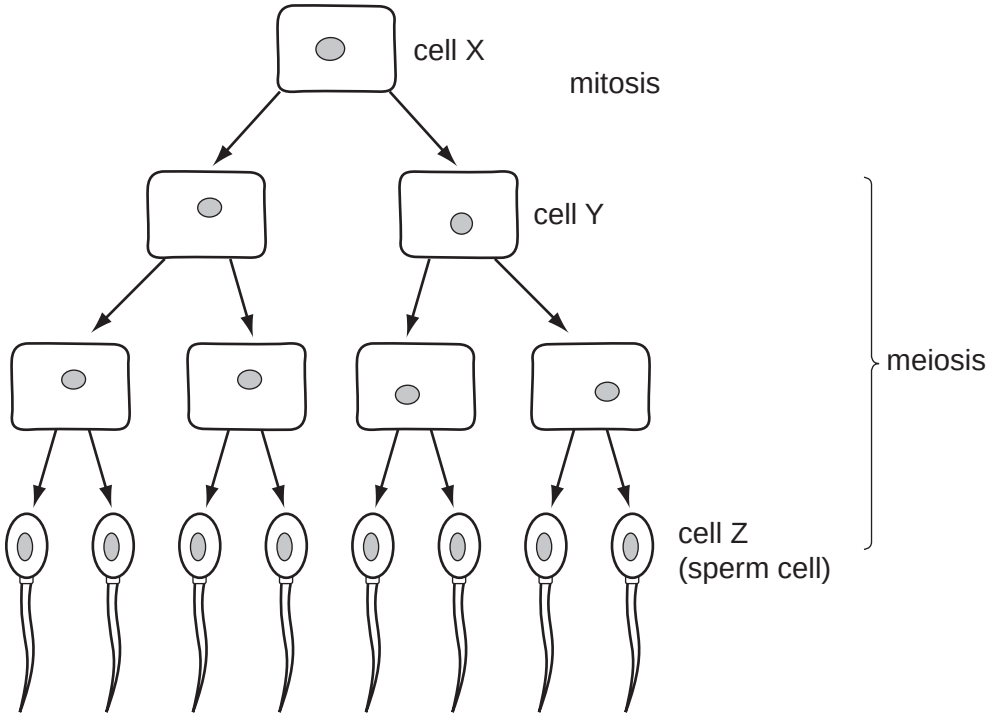
A antibodies

B carbohydrates

C proteins

D vitamins

12 The diagram shows some stages in cell division in a fruit fly.



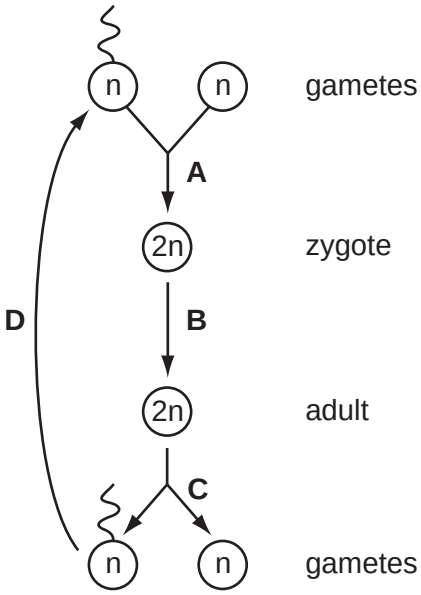
Cell X contains 8 chromosomes.

How many chromosomes are in cell Y and in cell Z?

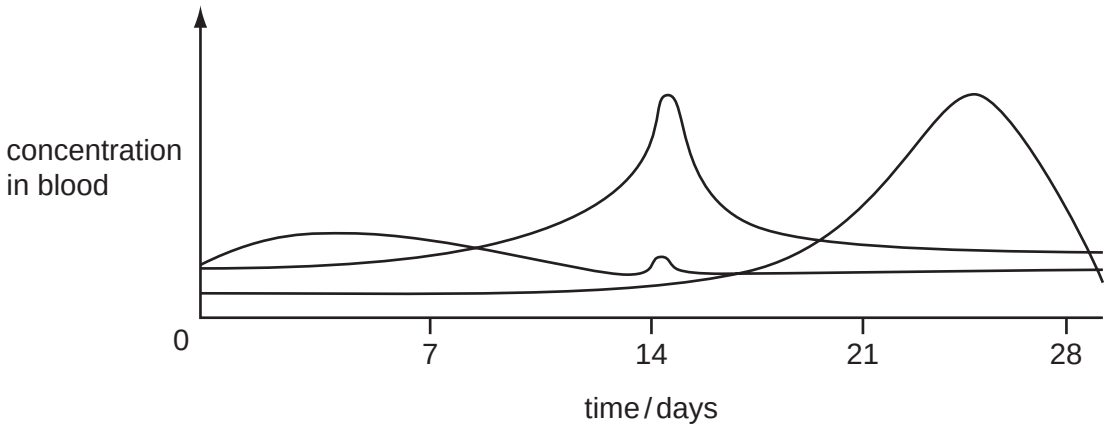
	cell Y	cell Z
A	4	4
B	4	8
C	8	4
D	8	8

13 The diagram shows cells at different stages in the life cycle of an organism.

At which stage does meiosis occur?



14 The graph shows the concentration in the blood of three of the four hormones FSH, LH, oestrogen and progesterone.



Which hormone is **not** shown?

A FSH

B LH

C oestrogen

D progesterone

15 What is the result of cutting both the sperm ducts in a man?

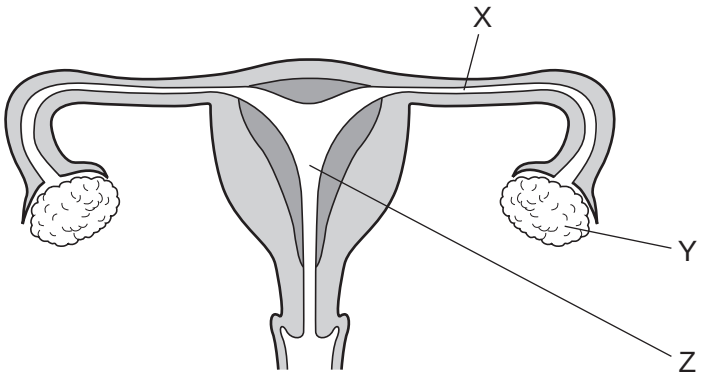
A He is unable to develop sperms.

B He is unable to pass urine.

C Male sex hormones no longer circulate in his blood.

D Sperm are not emitted from the urethra.

16 The diagram shows a section through the female reproductive system.



During pregnancy, where does mitosis occur in the cells of the embryo?

	X	Y	Z
A	✓	✓	✓
B	✓	✓	✗
C	✓	✗	✓
D	✗	✗	✓

key
✓ = takes place
✗ = does not take place

17 In the female reproductive cycle, which sequence of events could occur in 28 days?

A fertilisation → ovulation → implantation

B implantation → ovulation → fertilisation

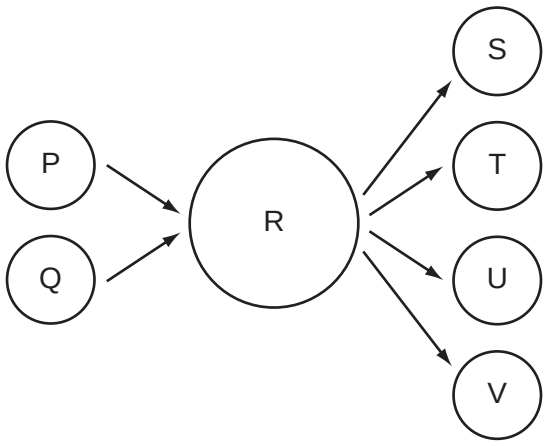
C menstruation → ovulation → fertilisation

D ovulation → fertilisation → menstruation

18 How are sperm cells different from egg cells in size and in number?

	size of sperm cell	number of sperm cells
A	larger	fewer
B	larger	more
C	smaller	fewer
D	smaller	more

19 The diagram represents gametes P and Q fusing to give cell R. Cell R then produces gametes S, T, U and V.



Which statement about the numbers of chromosomes in the cells and gametes is correct?

A The numbers of chromosomes in P and Q are different.

B The numbers of chromosomes in P and S are the same.

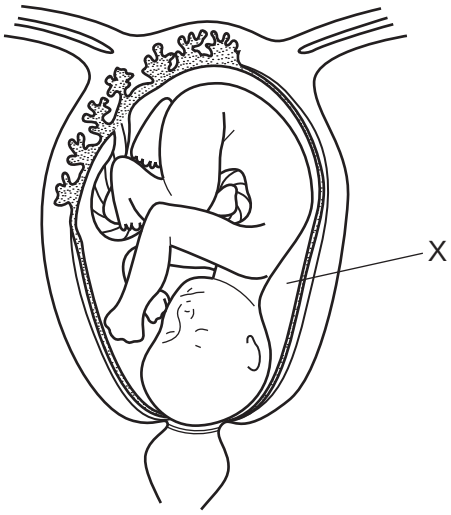
C The number of chromosomes in S is one quarter of the number of chromosomes in R.

D The number of chromosomes in T is half the number of chromosomes in Q.

20 Which row describes the exchange of substances at the placenta?

	passing from mother to fetus	passing from fetus to mother
A	carbon dioxide, glucose and alcohol	oxygen and urea
B	carbon dioxide, nicotine and glucose	oxygen and urea
C	oxygen and urea	carbon dioxide and glucose
D	oxygen, glucose and antibodies	carbon dioxide and urea

21 The diagram shows a developing fetus in the uterus.



What is the liquid at X called?

A amniotic fluid

B blood

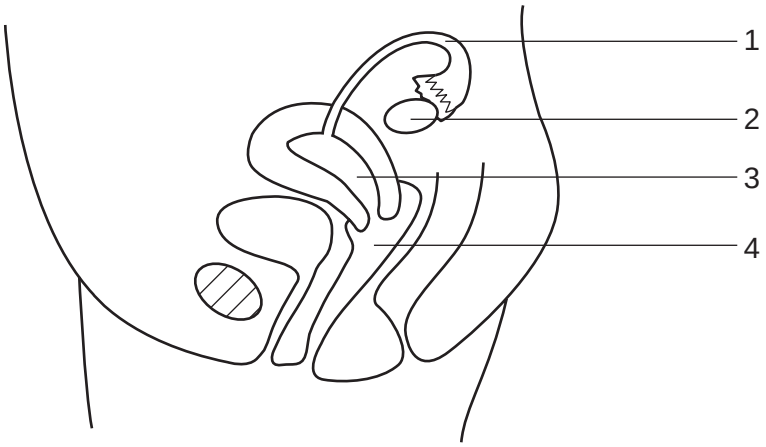
C urine

D water

22 Which statement correctly describes how a method of birth control works?

	method	mechanism
A	chemical	prevents eggs from passing down the fallopian tubes
B	hormonal	paralyses sperm after ejaculation
C	mechanical	inserts a barrier between egg and sperm
D	surgical	cuts the urethra so no sperm can emerge

23 The diagram shows a side view of the female reproductive system.



In which region are sperms released during sexual intercourse and where does fertilisation usually take place?

	sperms released	fertilisation
A	3	1
B	3	2
C	4	1
D	4	2

24 What is a major advantage of feeding breast milk rather than milk made up from milk powder to a baby?

A It contains a higher percentage of calcium for growth of the baby's bones.

B It contains all the carbohydrates, proteins and vitamins needed by the baby.

C It contains antibodies from the mother, which protect the baby from infectious diseases.

D It contains less protein, sugar and fat, which prevent the baby from becoming obese.

25 On which date is a woman most likely to ovulate if the first day of menstrual loss was 1 February?

A 5 February

B 14 February

C 28 February

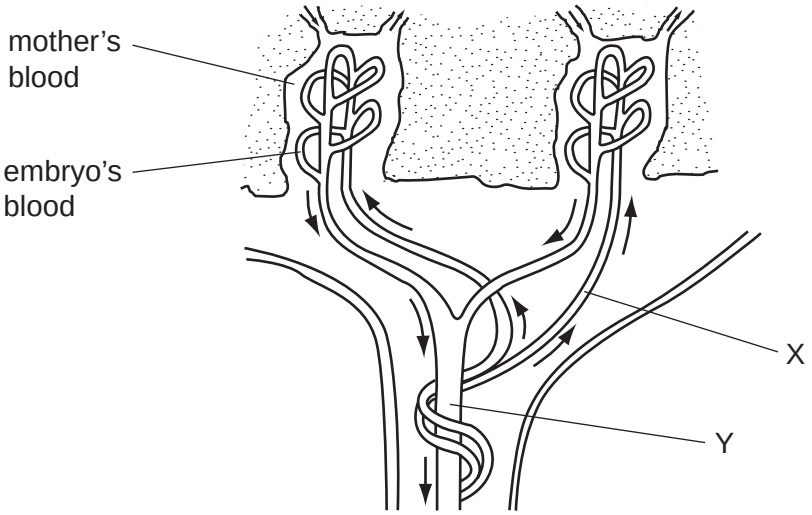
D 1 March

26 After sexual intercourse, sperm can survive for 3 days in the uterus and oviducts. Ovulation can occur any time from day 13 to day 15 and an egg cell can live for 2 days after ovulation.

How long is the longest possible fertile phase of the menstrual cycle?

A 2 days **B** 3 days **C** 5 days **D** 7 days

27 The diagram shows how the blood of a human embryo flows close to the mother's blood in the placenta.



Which substances are present at X in higher concentrations than at Y?

A carbon dioxide and glucose

B carbon dioxide and urea

C glucose and oxygen

D glucose and urea

28 What is a reason for breast milk being better for a baby than bottled milk?

A It contains antibodies for disease protection.

B It contains calcium ions for bone development.

C It contains protein for growth.

D It contains sugar for energy.

29 Male and female sea urchins release their sperm and eggs into the water where fertilisation takes place.

How can their reproduction be described?

A asexual reproduction which results in genetically dissimilar offspring

B asexual reproduction which results in genetically identical offspring

C sexual reproduction which results in genetically dissimilar offspring

D sexual reproduction which results in genetically identical offspring

30 What is the sequence of structures through which a mammalian sperm passes after leaving the penis and before fusing with an ovum?

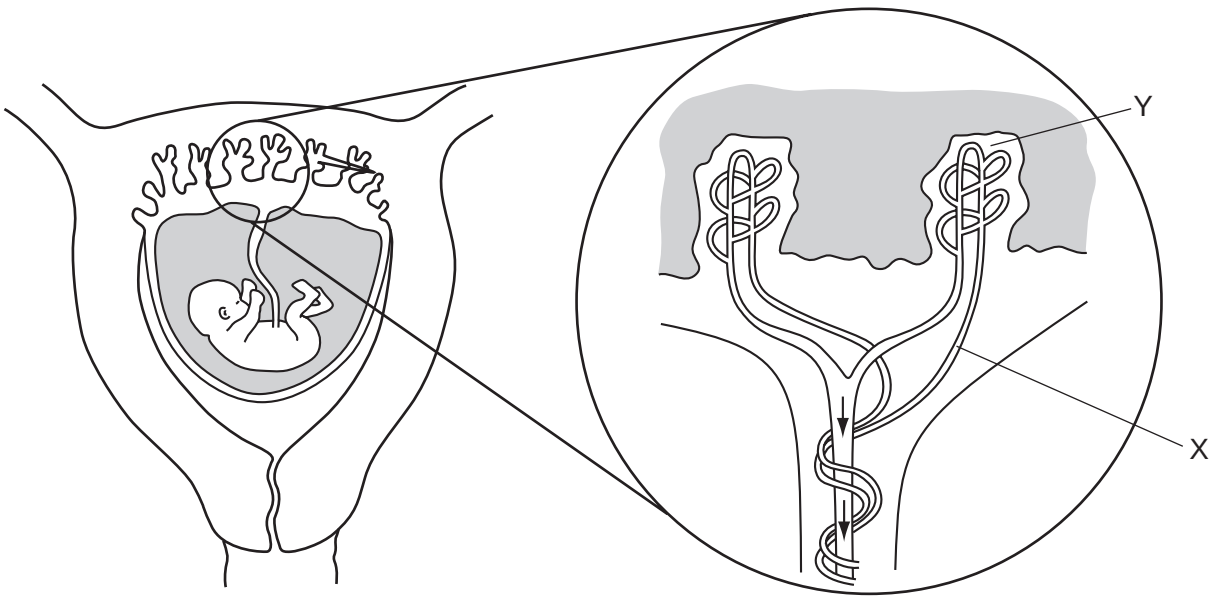
A ureter → uterus→ vagina

B vagina → fallopian tube → ovary

C vagina → urethra → fallopian tube

D vagina → uterus → fallopian tube

31 The diagram shows a fetus in the uterus.



Which substances will be at a higher concentration at Y than at X?

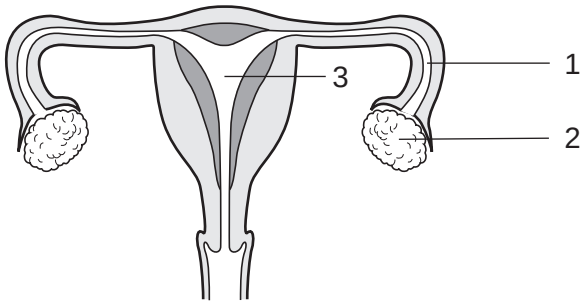
A carbon dioxide and glucose

B carbon dioxide and urea

C glucose and oxygen

D oxygen and urea

32 The diagram shows the female reproductive system.

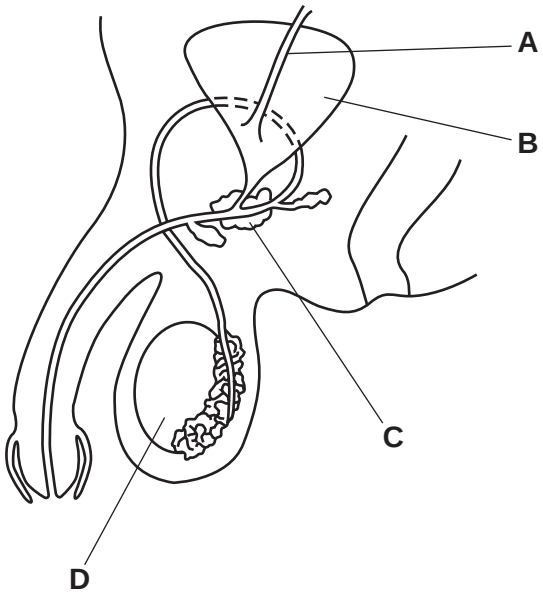


In which parts are the eggs and the zygote formed?

	eggs	zygote
A	1	2
B	1	3
C	2	1
D	2	3

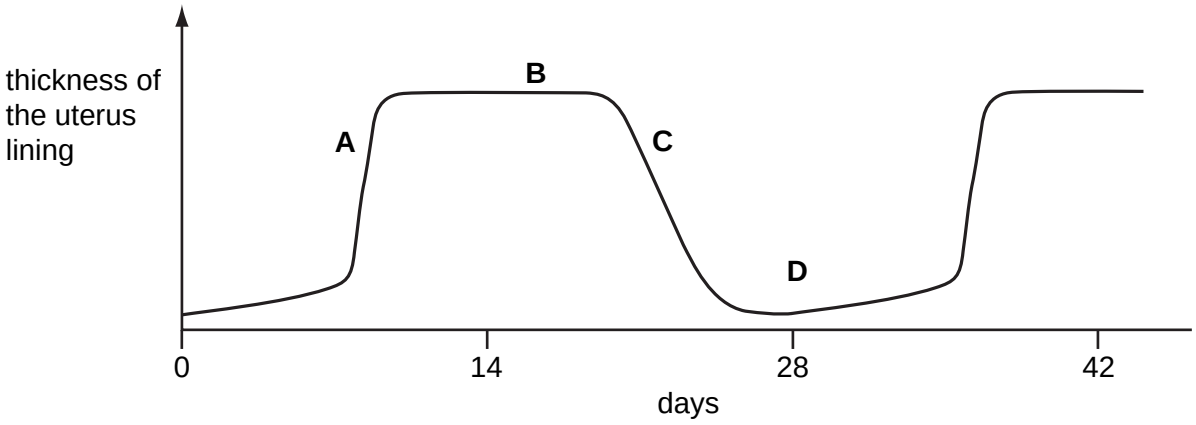
33 The diagram shows the male reproductive and urinary systems.

Which structure produces the fluid part of semen?



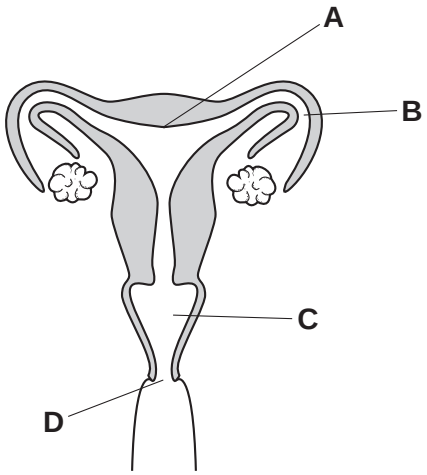
34 The diagram shows the changes in the thickness of the uterus lining of a woman during her menstrual cycle.

At which time is the woman most likely to be fertile?



35 This diagram shows the reproductive system of a human female.

Where does fertilisation take place?



36 The table shows the average pregnancy rates amongst couples using different methods of contraception.

contraception method	average number of pregnancies per 1000 couples per year
condom	55
contraceptive pill	4
rhythm method	125
spermicide	80

Which type of contraception is the least reliable?

A chemical

B hormonal

C mechanical

D natural

37 What would be the result of cutting the sperm ducts on the right and left sides in a man?

A He would become sterile.

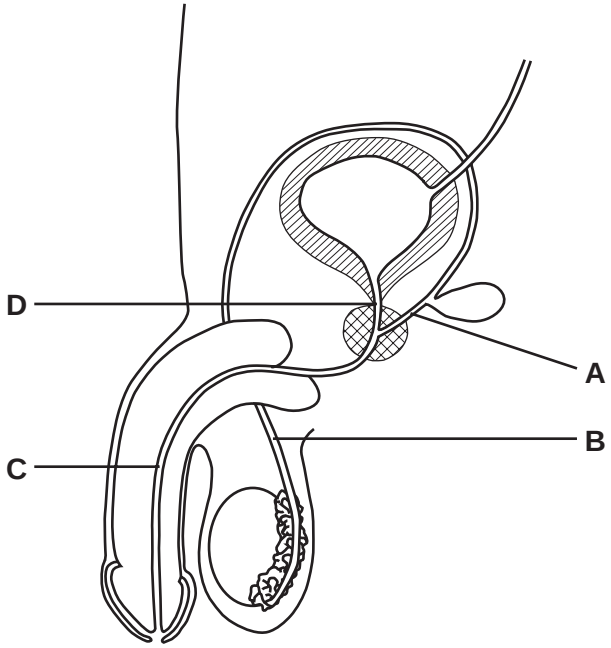
B He would be unable to develop sperms.

C He would be unable to pass urine.

D Male sex hormones would no longer circulate in the blood.

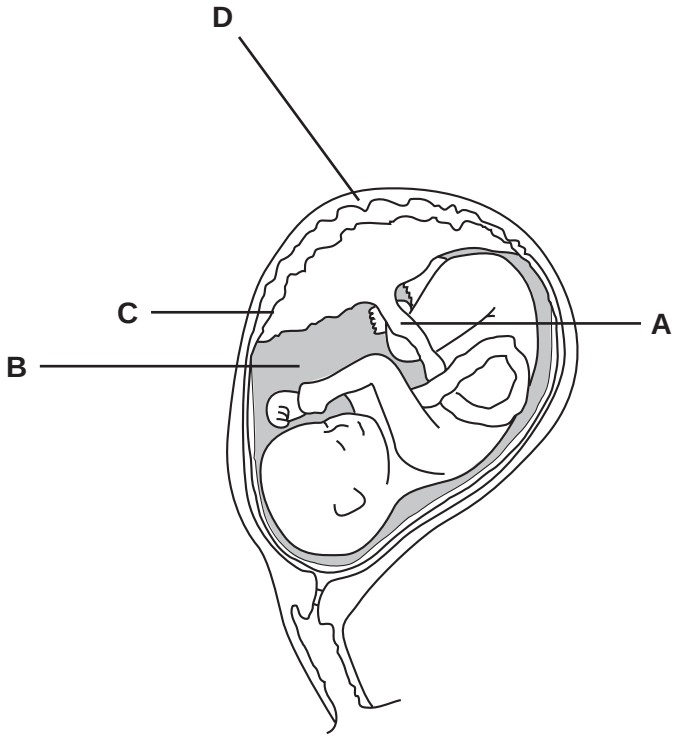
38 A surgical method of birth control involves cutting some of the tubes through which sperm pass.

At which point does the surgeon make the cuts?



39 The diagram shows a developing fetus.

Where does gaseous exchange between mother and fetus occur?



40 In human reproduction, which sequence of events is correct?

A menstruation → ovulation → fertilisation → implantation

B menstruation → ovulation → implantation → fertilisation

C ovulation → menstruation → fertilisation → implantation

D ovulation → menstruation → implantation → fertilisation

41 Which statement about sexual reproduction is correct?

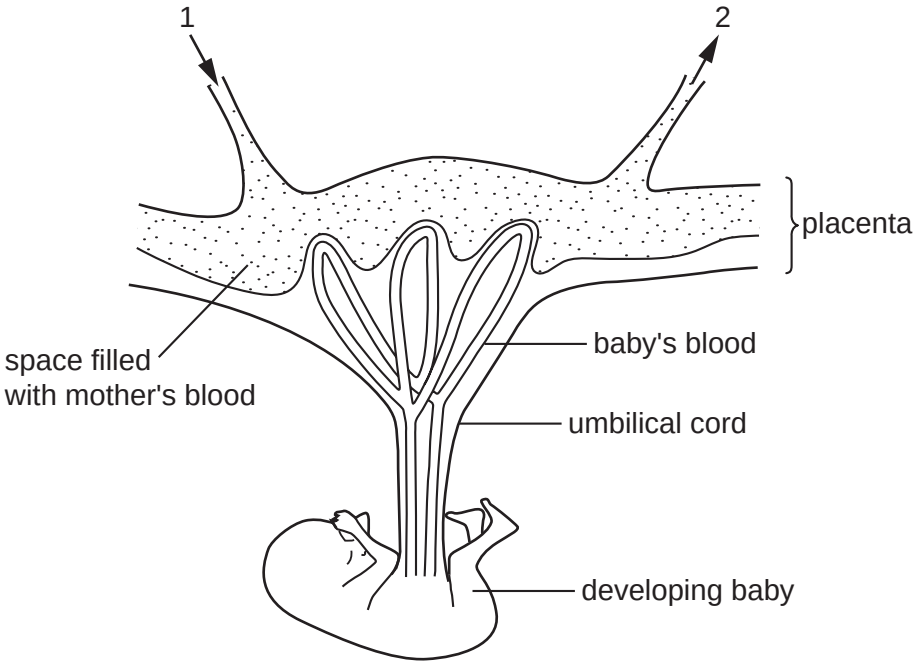
A All types of organism reproduce by this process.

B Many cells of one type fuse with a single cell of another type.

C Nuclei of two specialised cells fuse together.

D Parents produce genetically identical offspring.

42 The diagram shows the arrangement of blood vessels in the uterus wall and placenta of a pregnant woman.



Which will increase in concentration in the blood as it flows from 1 to 2?

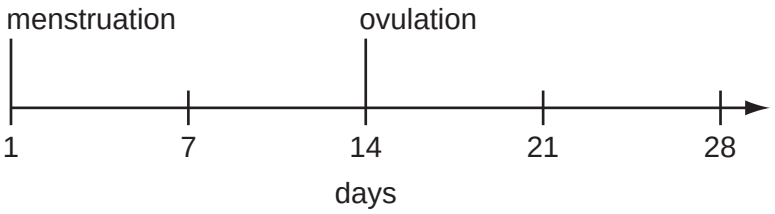
A amino acids

B carbon dioxide

C glucose

D oxygen

43 The diagram shows a 28 day menstrual cycle.



During which days would a woman be most and least fertile?

	most fertile	least fertile
A	1–7	14–21
B	7–14	21–28
C	14–21	1–7
D	21–28	7–14

44 The diagram shows the male reproductive system and part of the urinary system.

Which part is the prostate gland?