

Name: \_\_\_\_\_

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# Year 11 Biology Practice Questions

Date:

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Time:

Total marks available: 70

Total marks achieved: \_\_\_\_\_

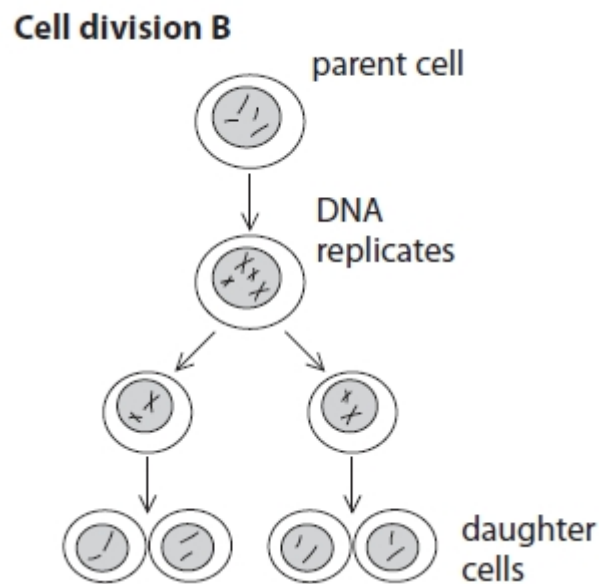
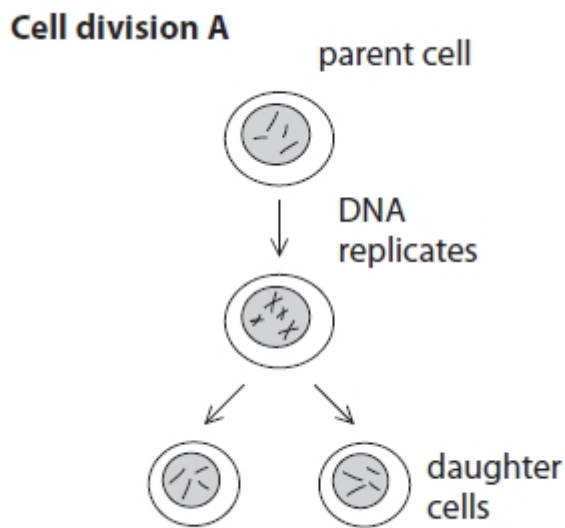
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## Questions

Q1.

The diagram shows two types of cell division.



(a) Give the name of cell division A.

(1)

.....

(b) Using the information in the diagram, give two differences between cell division A and cell division B.

(2)

1 .....

.....

2 .....

.....

(c) Name a part of a flowering plant where cell division A occurs and a part where cell division B occurs.

(2)

A .....

B .....

**(Total for question = 5 marks)**

Q2.

The sex of a baby is determined by the chromosomes it inherits from its parents.

(a) Explain which parent determines the sex of the baby.

(2)

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(b) Describe how cell division by meiosis is different from cell division by mitosis.

(4)

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**(Total for question = 6 marks)**

**Q3.**

The passage describes human reproduction.

Complete the passage by writing a suitable word or words in each blank space.

(10)

During sexual intercourse the male's ..... is inserted into the vagina. The male gametes, known as ....., are released from the male urethra into the vagina. The male gametes carry on swimming until one meets a female gamete, known as the

..... . This process is fertilisation and takes place in a tube called the .....

The fertilised female gamete, also known as the ....., moves down this tube. It undergoes the type of cell division called ..... and is now known as an ..... . This structure may then become implanted in the wall of the .....

The number of chromosomes in the fertilised female gamete is ..... the number found in the unfertilised gamete and is known as the ..... number.

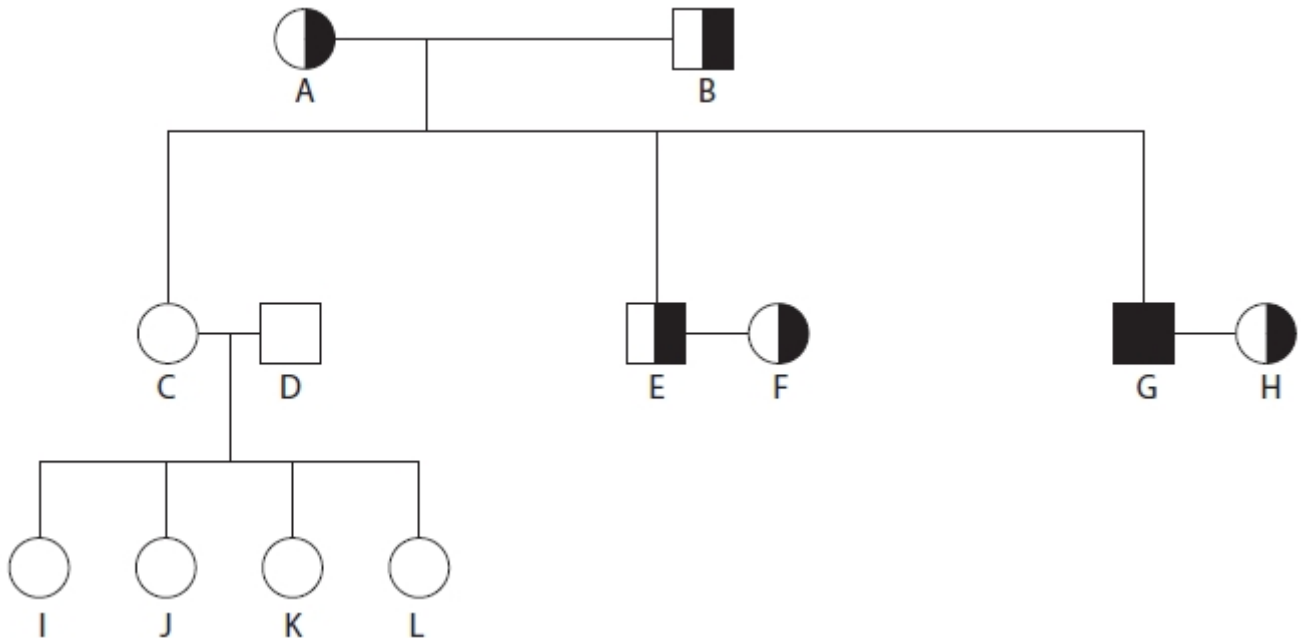
**(Total for question = 10 marks)**

**Q4.**

Cystic fibrosis is an inherited condition. It is caused by a recessive allele (d).

The non-cystic fibrosis allele is dominant (D).

The diagram shows how cystic fibrosis was inherited in a family.



key

	homozygous dominant female
	heterozygous female
	homozygous recessive female
	homozygous dominant male
	heterozygous male
	homozygous recessive male

(a) Use letters D and d to give the genotype of person A and person L in the table.

(2)

Person	Genotype
A	
L	

(b) How many people in this family do **not** have cystic fibrosis?

(1)

.....

(c) (i) Complete the table to show the probability of each set of people having a child with cystic fibrosis. One has been done for you.

(2)

People	Probability as a %
C and D	
E and F	25
G and H	

(ii) Parents E and F have four children. None of them have cystic fibrosis although the probability shown in the table is 25%.

Suggest why they did not have a child with cystic fibrosis.

(1)

.....  
.....  
.....

**(Total for question = 6 marks)**

**Q5.**

Marfan syndrome is a rare genetic condition of the body's connective tissues. It can result in a person being tall with abnormally long and slender limbs, fingers and toes. It may also affect the heart and eyes.

Children with the condition usually inherit it from one of their parents. It is caused by a dominant allele (M) and not the recessive allele (m).

(a) A homozygous recessive male mates with a heterozygous female.

Use a genetic diagram to show the parental genotypes, the gametes produced, and the possible genotypes and phenotypes of the offspring.

(4)

Parents genotypes

Gametes

Offspring genotypes

Offspring phenotypes

(b) A person wanted to find out if he had Marfan syndrome. He asked his doctor for advice.

(i) Use the information about the symptoms of Marfan syndrome to explain why it is difficult for the doctor to decide if the person has the condition.

(1)

.....  
.....

(ii) Suggest what other information the doctor could use to decide if the person

has Marfan syndrome.

(2)

.....

.....

.....

.....

.....

(c) Many genetic disorders are caused by a recessive allele rather than a dominant allele.

Explain how examining a family pedigree would enable you to tell if a condition was caused by a recessive allele.

(3)

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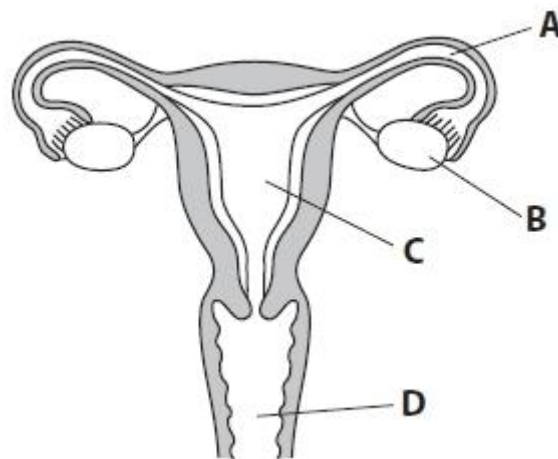
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**(Total for question = 10 marks)**



**Q6.**

The diagram shows the female reproductive system.



(a) Put a cross  in the correct box to show  
(i) where the egg is released

(1)

A

B

C

D

(ii) where the egg is fertilised

(1)

A

B

C

D

(iii) where the embryo becomes surrounded by amniotic fluid

(1)

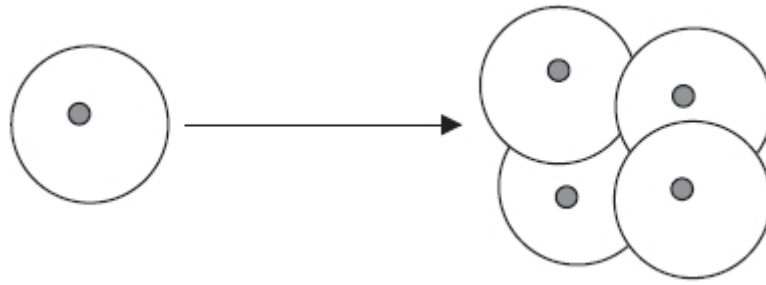
A

B

C

D

(b) The diagram shows a fertilised egg dividing into an embryo.



(i) What is another name used to describe a fertilised egg?

(1)

.....

(ii) Name the type of cell division used to produce the embryo.

(1)

.....

(iii) Complete the table by ticking the box that shows the correct description of each cell in the embryo.

(1)

Description	Tick
haploid with 23 chromosomes	<input type="checkbox"/>
haploid with 46 chromosomes	<input type="checkbox"/>
diploid with 23 chromosomes	<input type="checkbox"/>
diploid with 46 chromosomes	<input type="checkbox"/>

(c) Describe how the developing embryo is supplied with nutrients.

(3)

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 .....  
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 .....  
 .....

**(Total for question = 9 marks)**

**Q7.**

The photograph shows a breed of dog called a Border Collie.

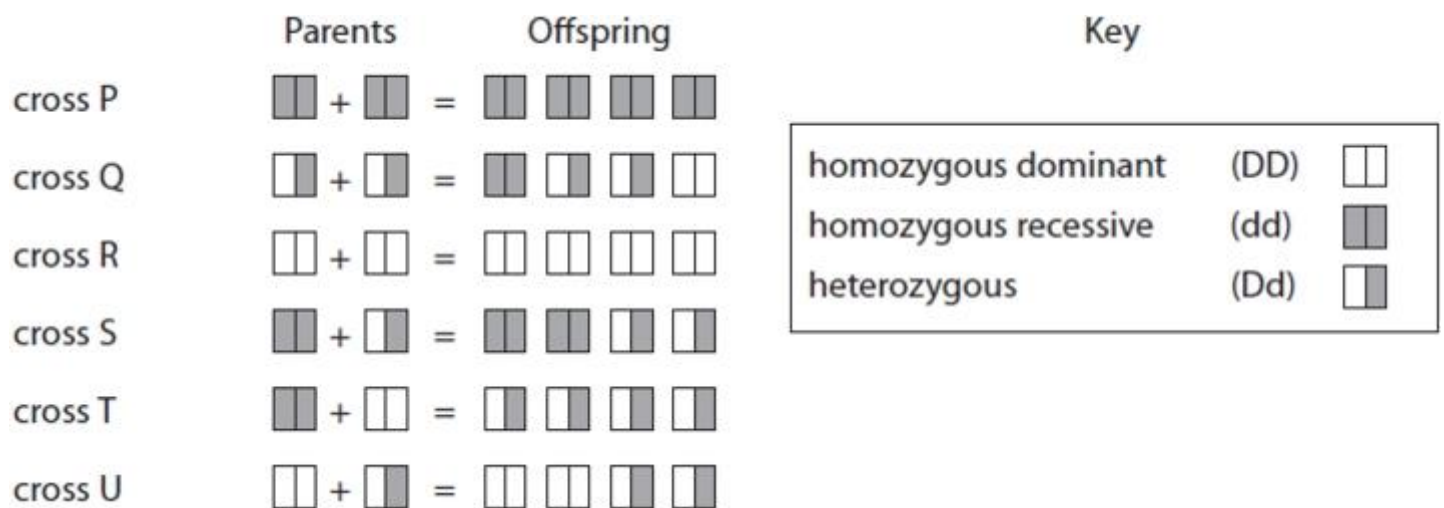


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Border Collies can inherit an eye defect called CEA (Collie Eye Anomaly).

The dominant allele D produces good vision but the recessive allele d produces poor vision.

(a) The diagram shows the possible offspring from parents with different genotypes.



(i) All the offspring from cross R have good vision.

Give the letters of the other crosses where all the offspring have good vision.

(2)

(ii) Give the phenotype of each parent used in cross P.

(1)

- .....
- (iii) Which cross has a 50% probability of producing offspring with good vision? (1)
- .....
- (iv) Give the genotype of each of the offspring produced in cross T. (1)
- .....
- (b) The crosses between the dogs are examples of sexual reproduction.
- (i) Name the gametes produced by males in sexual reproduction. (1)
- .....
- (ii) Name the gametes produced by females in sexual reproduction. (1)
- .....
- (iii) Give the term used to describe the fusion of gametes. (1)
- .....
- (iv) In which organ of a female parent do offspring develop? (1)
- .....

**(Total for question = 9 marks)**

**Q8.**

The passage describes the events that lead to the production of a seed in a plant.

- (a) Complete the passage by writing a suitable word in each blank space. (7)

Pollen grains are produced in the ..... of a flower by a process of cell division called ..... . The pollen grains land on the ..... of another flower and each grain grows a pollen tube down the .....

Each pollen tube grows until it reaches the ovary of the flower.

The pollen tube then enters the micropyle of an .....

The male nucleus passes down the pollen tube and ..... takes place.

A seed is produced and the ovary becomes a .....

(b) Flowers can be insect-pollinated or wind-pollinated.

(i) State two ways in which the structure of an insect-pollinated flower is different from the structure of a wind-pollinated flower. (2)

1 .....

2 .....

(ii) Some people have an allergy to the pollen produced by flowering plants. This allergy is known as hay fever.

Suggest why hay fever is more likely to be caused by pollen from a wind-pollinated flower than by pollen from an insect-pollinated flower. (2)

.....  
.....  
.....  
.....  
.....  
.....

**(Total for question = 11 marks)**

**Q9.**

For a woman to become pregnant, a sperm must fertilise one of her eggs. At the time the egg is released, the body temperature rises slightly.

A woman wanted to become pregnant. She measured her body temperature each day for 28 days, starting on the first day of her menstrual cycle.

The chart she kept is shown below.

Day	Body temperature in °C
1	36.8
2	36.8
3	36.8
4	36.7
5	36.8
6	36.7
7	36.7
8	36.7
9	36.7
10	36.6
11	36.7
12	36.7
13	36.7
14	36.7
15	37.0
16	37.0
17	37.0
18	37.1
19	37.1
20	37.0
21	37.0
22	37.0
23	37.0
24	37.0
25	37.0
26	37.0
27	37.0
28	36.9

(a) (i) What was the total number of days that the body temperature of the woman was below 37.0 °C?

(1)

.....

(ii) On which day was an egg probably released from her ovary?

(1)

.....

(iii) Suggest how the woman could accurately determine her body temperature.

(2)

.....

.....

(b) During the 28 days the ovary of the woman released two different hormones, A and B. The table shows some of the roles of these hormones.

Hormone A	Hormone B
repairs uterus lining	maintains uterus lining
develops secondary sexual characteristics	prevents egg release

(i) Name hormone A.

(1)

.....

(ii) Name hormone B.

(1)

.....

(iii) How do these hormones travel from the ovary to the uterus?

(1)

.....

(iv) Give **two** female secondary sexual characteristics.

(2)

.....

.....

(Total for question = 9 marks)

**Mark Scheme**

Q1.



Question number	Answer	Notes	Marks
(a)	<u>mitosis</u> ;		1
(b)	1. A produces <u>two</u> daughter cells; 2. A has <u>one</u> round of division / A splits <u>once</u> ; 3. A produces cells with four chromosomes / diploid cells / full set of chromosomes / eq;	allow converse for B use of 'it' assumes A  ignore ref to size of cells ignore identical / varied as not shown in the diagram	Max 2
Question number	Answer	Notes	Marks
(c)	A any correctly named plant part;  B anther / ovule / ovary;	eg growing region tip / stem / root / buds / leaf / embryo / cuttings / callus / bulb / pollen tube	2

(Total for question = 5 marks)

Q2.

Question number	Answer	Notes	Marks
(a)	1. male / father; 2. male is XY / heterogametic / sperm are X or Y;	allow sperm are X and Y allow converse	Max 2
(b)	1. produces four cells / has two cell divisions; 2. produces haploid cells; 3. halves the chromosome number; 4. produces <u>genetic</u> variation / cells not <u>genetically</u> identical / eq; 5. produces gametes / sex cells / involved in sexual reproduction / eq; 6. takes place in gonads / ovaries / testes / sex organs;	allow converse for mitosis  3. ignore 23 chromosomes	Max 4

(Total for question = 6 marks)

Q3.

Question number	Answer	Notes	Marks
	penis; sperm / eq; egg / ovum / ova; fallopian (tube) / oviduct; zygote; mitosis; embryo; uterus / womb; twice / double / two times; diploid;		10

Q4.

Question number	Answer	Notes	Marks
(a)	A - Dd / dD; L - DD;		2
(b)	11 / eleven;		1
(c) (i)	0 / zero; 50;		2
(ii)	1. no fusion of recessive gametes / eq; 2. random / probability / chance / luck / eq; 3. no children who are dd / each child has at least one dominant allele / eq; 4. embryo selection / IVF / eq;		1

Q5.

Question number	Answer	Notes	Marks
(a)	<p>P mm Mm;</p> <p>G m M m;</p> <p>O Mm mm;</p> <p>Ph Marfan / eq unaffected;</p>	<p>G. Clear separation of gametes</p> <p>Ph. Allow half Marfan and half unaffected even if not linked to genotypes</p> <p>Allow max from Punnett square</p> <p>Allow 3 max for TE</p> <p>Allow other symbols</p>	4
(b) (i)	<p>some people do not have obvious symptoms / some people with symptoms/long fingers/tall do not have condition / heart problems/eyesight problems may have other causes / eq;</p>		1
(ii)	<p>1. look at parents / family history;</p> <p>2. genetic test / analyse DNA / eq;</p> <p>3. look for combination of symptoms / look for tall and eyesight / eq;</p>	3. Allow any 2 symptoms	2
(c)	<p>1. condition present in offspring but not in parents;</p> <p>2. it skips generations / eq;</p> <p>3. carriers (present);</p>		3

Q6.

Question number	Answer	Notes	Marks
(a) (i)	B;		1
(ii)	A;		1
(iii)	C;		1
(b) (i)	zygote;		1
(ii)	mitosis ;		1
(iii)	diploid with 46 chromosomes;	ignore tick cross hybrid two ticks present = 0	1
(c)	placenta;  from mother's blood;  diffusion / high conc. to low conc. ;  large surface area / thin / eq;  <u>umbilical</u> cord;	ignore gas exchange / ignore carried	3
		<b>Total</b>	<b>9</b>

Q7.

Question number	Answer	Notes	Marks
(a) (i)	T; U;	T and any = 1 U and any = 1 U, T and any = 1 P, Q and T = 0 Ignore R so U, T and R = 2	2
(ii)	poor vision / CEA / Collie eye anomaly / defect;		1
(iii)	(cross) S / dd + Dd / Dd + dd;	Allow Dd , Dd, Dd, Dd	1
(iv)	Dd / heterozygous / dD;		1
(b) (i)	sperm(s) / spermatozoa;	Ignore X and Y	1
(ii)	egg(s) / ova / ovum;	Ignore X / Reject ovule	1
(iii)	fertilisation;		1
(iv)	uterus / womb;		1

Total 9 marks

Q8.

Question number	Answer	Notes	Marks
(a)	1. anther; 2. meiosis; 3. stigma; 4. style; 5. ovule; 6. fertilisation; 7. fruit;	1. Ignore stamen  3. Ignore carpel  5. Ignore ovum / ova / egg / ovary Ignore fusion  7. Reject fruit wall	7
(b) (i)	1. stigma enclosed / covered stigma / short stigma / not feathery; 2. anthers enclosed / stamens enclosed / covered stamens / filaments short / eq; 3. petals large / (flowers) large; 4. nectary;	Allow converse  2. Ignore pollen grains  3. Ignore bright / coloured  4. ignore nectar / scent	max 2
(ii)	1. more pollen / eq; 2. light / small / dust like / eq;	Allow converse	max 2

Total 11 marks

Q9.

Question number	Answer	Notes	Marks
(a) (i)	15;		1
(ii)	14 or 15;		1
(iii)	1. thermometer; 2. clinical / digital / mouth / ear / rectum / anus / armpit / eq;		2
(b) (i)	oestrogen;	allow estrogen / estradiol	1
(ii)	progesterone;		1
(iii)	blood / plasma;	allow blood vessel / blood stream	1
(iv)	1. breasts / mammary glands / nipples / eq; 2. body shape / wide hips / eq; 3. body hair / pubic hair / eq; 4. menstruation / period / menstrual cycle / ovulation / eq;	reject characteristics only shown by males ignore facial hair ignore voice  ignore psychological changes ignore sex drive	2

**Total 9 marks**