This is a Class 1 exam

Lebanon Evangelical School
for Boys and Girls
Loueizeh - Baabda

SE01 Exam

10NOV2025

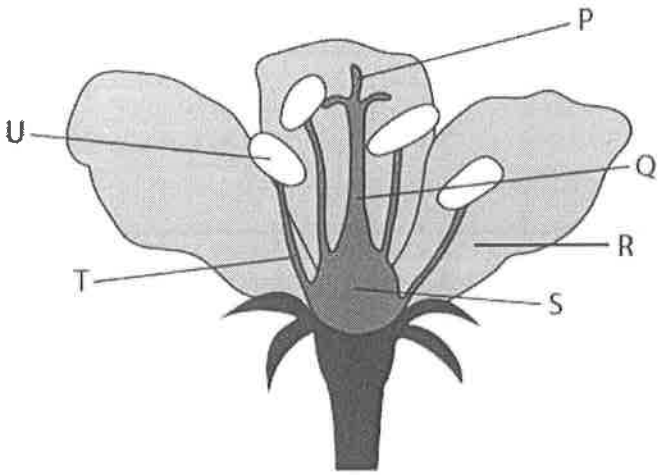
Do NOT write in this box. Your MARK will be placed here.

Subject :	Biology	
Class :	10A	
Teacher :	Miss Rahmeh Hilal	
Duration :	1 hour	
You are to answer the questions to this exam on : This exam paper		
Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

Q1.

The diagram shows a flower with some structures labelled.



(a) (i) Which structure is the style?

(1)

- ☐ **A** P
- ☐ **B** Q
- ☐ **C** S
- ☐ **D** T

(ii) Which structure releases pollen?

(1)

- ☐ **A** P
- ☐ **B** R
- ☐ **C** T
- ☐ **D** U

(iii) On which structure do the pollen grains germinate?

(1)

- ☐ **A** P
- ☐ **B** R
- ☐ **C** S
- ☐ **D** U

(b) This flower is insect-pollinated.

Describe how structures P, R and T would be different in a wind-pollinated flower.

(3)

P .....

.....

R .....

.....

T .....

.....

(c) Flowering plants can reproduce asexually.

(i) Give an example of a natural method of asexual reproduction in plants.

(1)

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(ii) Give an example of an artificial method of asexual reproduction in plants.

(1)

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(d) Give three differences between asexual and sexual reproduction.

(3)

1 .....

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2 .....

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3 .....

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(e) A farmer has two varieties of a plant species.

One variety has a red flower colour and no scent.
The other variety has a white flower colour and a perfumed scent.
The farmer wants to produce a variety that has the red flower colour and the perfumed scent.
Explain how the farmer could achieve this.

(3)

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(Total for question = 14 marks)

Q2.

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)

Q3.

Sperm cells are involved in fertilisation.

The diagram shows a human sperm cell.

Label the nucleus of this sperm cell



(1)

(Total for question = 1 marks)

Q4.

Machado-Joseph disease is a rare genetic condition that affects the nervous system.

The condition is caused by a dominant allele and results in lack of control of motor coordination, reflexes and eye movements.

(a) (i) Explain what is meant by the term **dominant allele.**

(2)

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(ii) The symptoms of Machado-Joseph disease do not become obvious until the person is more than 40 years old.

Suggest why the late development of symptoms makes it difficult to reduce the number of people born with the condition.

(2)

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(b) A man who is heterozygous for this condition has a child with a woman who is homozygous recessive.

Use a genetic diagram to show the genotypes of these parents, the gametes they produce and the genotypes and phenotypes of any possible offspring.

Use the letter D for the dominant allele and d for the recessive allele.

(4)

Genotypes of parents

Gametes

Genotypes of offspring

Phenotypes of offspring

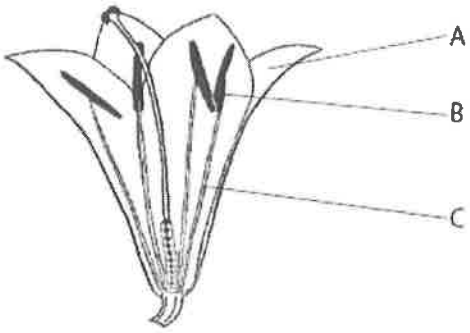
(Total for question = 8 marks)

Q5.

Plants can reproduce sexually or asexually.

Plants that reproduce sexually can be pollinated by insects or by wind.

(a) The diagram shows a flower from a plant.



Name the structures labelled on the diagram.

(3)

A .....

C .....

(b) The flower in the diagram is insect-pollinated.

An insect carrying pollen lands on the flower.
Describe the events that lead to seed formation.

(5)

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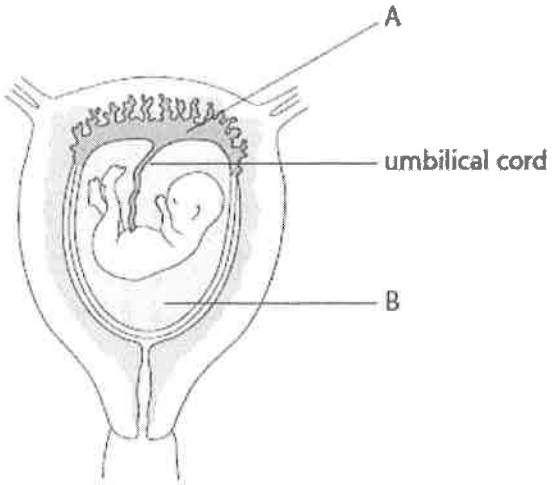
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(Total for question = 7 marks)

Q6.

The drawing shows a fetus developing in the uterus of a woman.



(a) (i) What is the function of part A?

(1)

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(ii) What is the function of part B?

(1)

.....

.....

(b) Scientists can take cells from part A and use them to find out if the fetus has a genetic condition.

(i) How many chromosomes would the scientists find in a normal body cell from a fetus?

(1)

.....

(Total for question = 3 marks)

Q7.

Plants can reproduce sexually and produce seeds.

These seeds can remain dormant for long periods of time before germination takes place.

(a) What is meant by the term **germination?**

(1)

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(b) Explain three conditions needed for seeds to germinate.

(6)

1 .....

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2 .....

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3 .....

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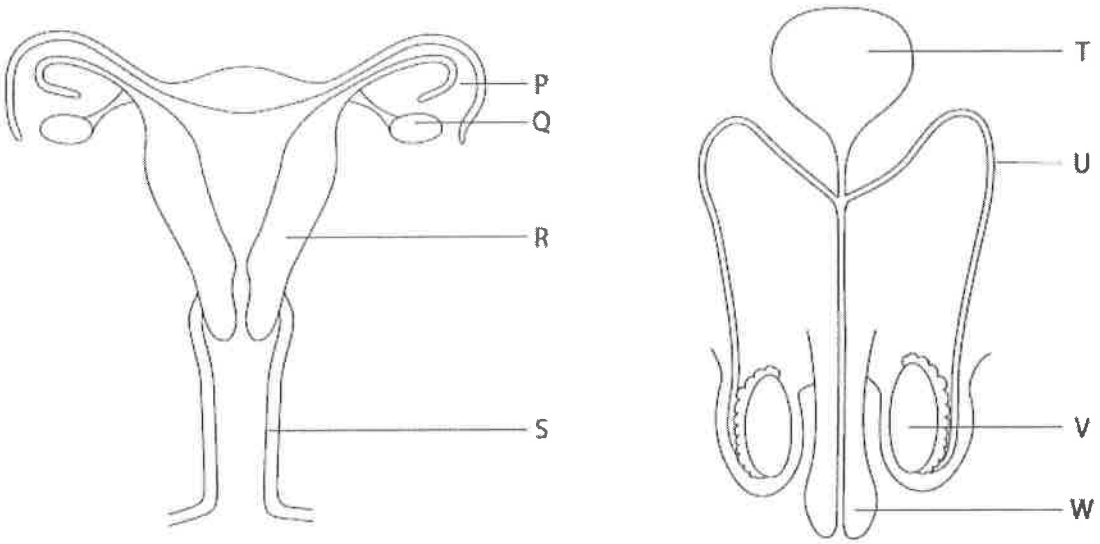
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(Total for question = 7 marks)

Q8.

The diagrams show the female and male reproductive systems.



The table lists some events that take place in the female reproductive system, some that take place in the male reproductive system, and some that take place in both.

Complete the table by giving the letter, or letters, to indicate where each event takes place. The first one has been done for you.

(5)

Event	Letter
fertilisation	P
release of oestrogen	
meiosis	
repair of the uterus lining	
implantation of an embryo	
formation of gametes	

(Total for question = 5 marks)

Q1.

Question Number	Answer	Mark
(a)(i)	**B (Q)** A is not the answer as P is not the style C is not the answer as S is not the style D is not the answer as T is not the style	1

Question Number	Answer	Mark
(a)(ii)	**D (U)** A is not the answer as P does not release pollen B is not the answer as R does not release pollen C is not the answer as T does not release pollen	1

Question Number	Answer	Mark
(a)(iii)	**A (P)** B is not correct as pollen grains do not germinate on R C is not correct as pollen grains do not germinate on S D is not correct as pollen grains do not germinate on U	1

Question Number	Answer	Mark
(b)	A description that makes reference to the following: • P feathery / large surface area / outside flower /exposed / eq (1) • R absent / smaller / not coloured / green / eq (1) • T longer / hinged / outside flower / exposed / eq (1)	3

Question Number	Answer	Mark
(c)(i)	• runners / bulbs / corms/ tubers / rhizomes /eq (1)	1

Question Number	Answer	additional guidance	Mark
(c)(ii)	• cuttings / grafting / layering / tissue culture / micropropagation / eq (1)	Reject cloning	1

Question Number	Answer	additional guidance	Mark
(d)	An answer that makes reference to the following: Allow two / three in one numbered line • no gametes produced in asexual / no meiosis in asexual / gametes produced in sexual / meiosis in sexual / one parent <u>cell</u> (1) • no fusion or fertilisation in asexual / present in sexual (1) • offspring are clones / show no **<u>genetic</u>** variation in asexual / **<u>genetic</u>** variation in sexual /eq (1) • asexual faster / shorter time / sexual slower / longer time / eq (1)	Only mitosis in asexual ignore ref to number of parents sexual involves fusion of gametes scores mp 1 and mp 2	3

Question Number	Answer	additional guidance	Mark
(e)	An explanation makes reference to three of the following: • selective breeding / artificial selection (1) • cross red (flower)/ unscented (flower) with white (flower) / scented (flower)/ eq (1) • select / breed / offspring with red and scent /eq (1) • repeat / for many generations eq (1)	Ignore ref to GM as it is the farmer Cross varieties / the plants ignore desired characteristics alone	3

Q2.

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

Q3.



Q4.

Question number	Answer	Notes	Marks
(a) (i)	1. form / version / type of a gene; 2. present in phenotype / always expressed / homozygote and heterozygote are similar / eq;	2. Allow with one allele it has the disease / one present it has the disease	2
(ii)	1. had children / already reproduced; 2. before symptoms appear / before knowing (have disease) / do not know (have the disease) / hard to diagnose before symptoms / eq; 3. pass on allele;		max 2

(b)	parents Dd dd; gametes D or d d; offspring Dd dd; phenotypes disease / affected + no disease / unaffected / eq;	Allow ecf from incorrect parents to max 3 Allow Mps 1, 2 and 3 from Punnett square Allow other symbols Must see separation of gametes Phenotypes do not need to be matched but no credit if matched incorrectly	4

Q5.

(b)	A petal / petals / corolla;		1
	C filament;		1
(c)	1. stigma; 2. pollen tube grows (down style); 3. into ovule / ovary; 4. enters via micropyle; 5. (male) nucleus / (pollen grain) nucleus / male gamete; 6. fertilisation / fuse / join / eq; 7. ovum / egg / (female) nucleus / female gamete; 8. ovule becomes seed; 9. ovule wall becomes seed coat / testa; 10. ovary becomes fruit;	allow if shown on clearly labelled diagram	5

Q6.

Question number	Answer	Notes	Marks
(a) (i)	transfer oxygen / nutrients / named nutrient / water / carbon dioxide / waste / named waste / antibodies / release progesterone; reject if linked to exchange of blood	allow examples of named nutrient eg protein ignore food	1
(ii)	cushions / protects (from physical damage) / shock absorber / supports / eq;	protects must be qualified eg from bumps ignore keeps fetus safe / insulated	1
(iii)	antibodies;		1
(b) (i)	46 / 23 pairs;		1

Q7.

Question number	Answer	Notes	Marks
(a)	root appears / shoot appears / sprout / seed coat splits / eq;	ignore growth alone	1
(b)	1. oxygen; 2. respiration; 3. water / moisture / rain; 4. (activate) enzymes / reactions / hydrolysis / digestion / eq; 5. warmth / suitable temperature / optimum temperature; 6. enzymes / reactions; 7. light; 8. activate plant growth regulators / eq;	ignore air / pH 3. ignore humid 5. ignore temperature alone / heat four conditions and no explanations = 3 max	6

Q8.

Question number	Answer	Notes	Marks
	<table><tr><th>event</th><th>letter</th></tr><tr><td>fertilisation</td><td>(P)</td></tr><tr><td>release of oestrogen</td><td>Q; ONLY</td></tr><tr><td>meiosis</td><td>Q and V; ONLY in any order</td></tr><tr><td>repair of the uterus lining</td><td>R; ONLY</td></tr><tr><td>implantation of an embryo</td><td>R; ONLY</td></tr><tr><td>formation of gametes</td><td>Q and V; ONLY in any order</td></tr></table>	only give mark if correct letter(s) given one correct and one wrong = 0 allow lower case letters	5
		Total	**5**