

Visit

FREETESTPAPER.com

for more papers



Website: [freetestpaper.com](http://www.freetestpaper.com)



[Facebook.com/freetestpaper](https://www.facebook.com/freetestpaper)



[Twitter.com/freetestpaper](https://www.twitter.com/freetestpaper)



**JUNYUAN SECONDARY SCHOOL
PRELIM EXAMINATION 2021
SECONDARY FOUR NORMAL ACADEMIC**

CANDIDATE
NAME

CLASS

4		
---	--	--

INDEX
NUMBER

--	--

SCIENCE (BIOLOGY)

5107/05

Paper 5 Multiple Choice

5 AUG 2021

Paper 5 and Paper 6: 1h 15 min

Additional materials: Multiple Choice Answer Sheet

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.

Do not use staples, paper clips, glue or correction fluid.

Write your name, class and index number on the Answer Sheet in the spaces provided.

There are **twenty** questions on this paper. Answer all questions. For each question there are four possible answers **A, B, C** and **D**.

Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

You are advised to spend **no more than 30 minutes** on Paper 5.

You may proceed to answer Paper 6 as soon as you have completed Paper 5.

Any rough working should be done in this booklet.

The use of an approved scientific calculator is expected, where appropriate.

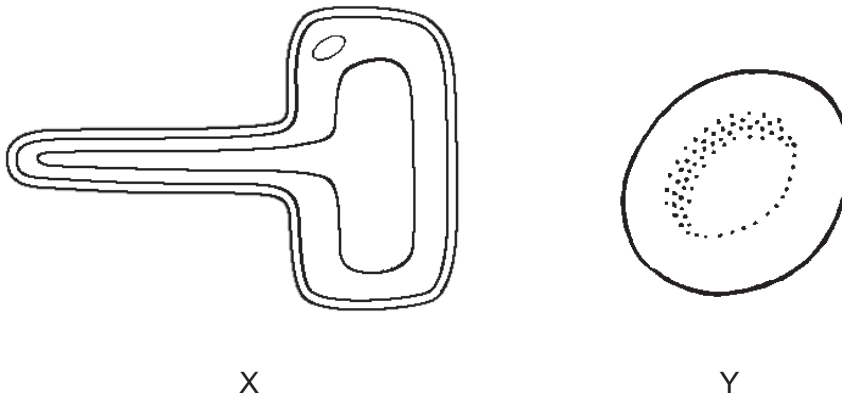
Answer to Paper 5 and Paper 6 must be handed in separately.

- 1 The diagram shows an electron micrograph of a plant cell.



Which structure is responsible for storing genetic information?

- 2 The diagram shows two types of specialised cells.

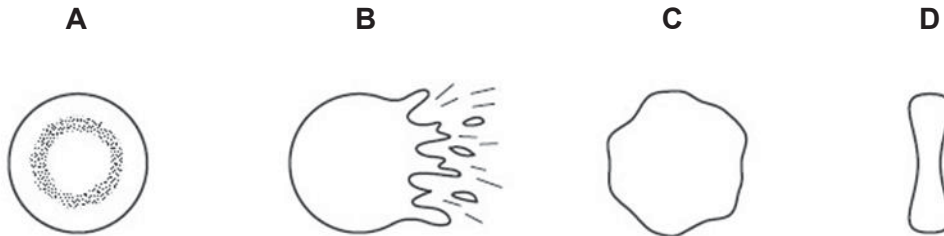


Which of the following correctly states the organelle absent in these cells?

	X	Y
A	chloroplast	nucleus
B	nucleus	chloroplast
C	nucleus	mitochondria
D	mitochondria	nucleus

- 3 The four diagrams show the appearance of red blood cells. The red blood cells were placed in distilled water or in one of three sodium chloride solutions of different concentrations.

Which cell was placed in distilled water?



- 4 Which of the following is the basic unit of glycogen?

- A fat
- B glucose
- C glycerol
- D polypeptide

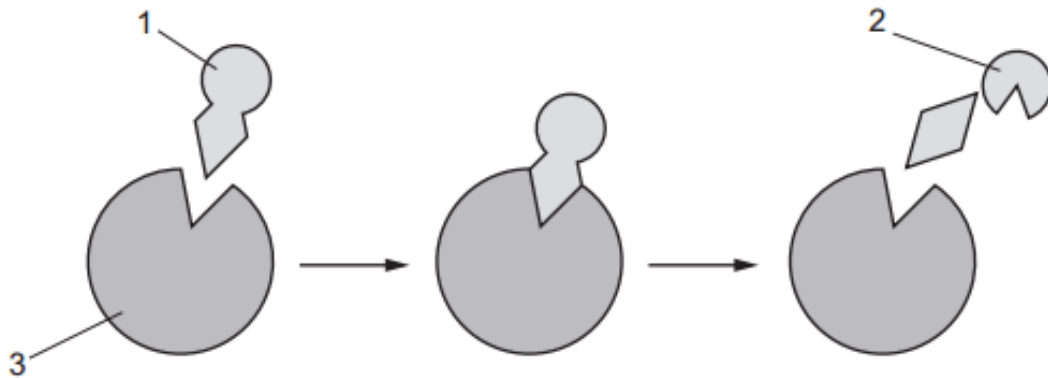
- 5 A student conducts some tests on a food sample. The following are the results of the tests.

- Blue solution with Biuret test
- Yellow solution with Benedict's test
- White emulsion with ethanol emulsion test
- Brown colour when iodine is added

Which row shows the nutrients present in the food sample?

	glucose	protein	fats	starch
A	X	√	X	√
B	X	√	√	X
C	√	X	√	X
D	√	X	X	√

6 The diagram shows an enzyme catalysed reaction.



Identify the enzyme and the product in the reaction.

	enzyme	product
A	1	2
B	1	3
C	3	1
D	3	2

7 Which parts of the alimentary canal has the least digestion of nutrients?

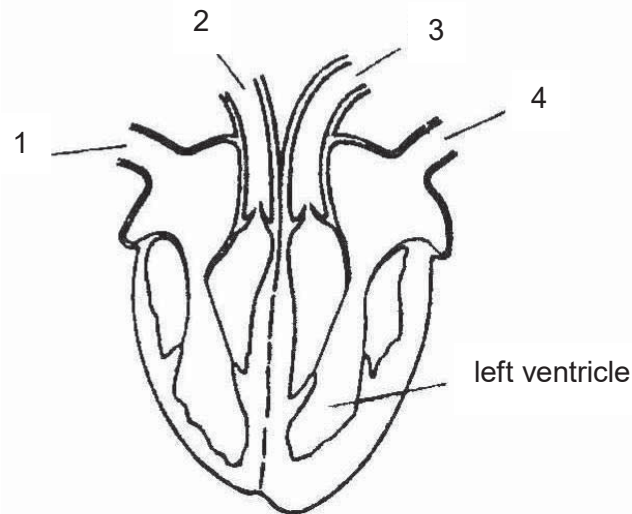
- A** mouth
- B** oesophagus
- C** small intestine
- D** stomach

8 Lipase solution was added to milk. After 30 minutes, the pH of milk decreased.

What were the substrate and product causing the change in this reaction?

	substrate	product
A	fat	amino acids
B	fat	fatty acids
C	protein	amino acids
D	protein	fatty acids

- 9 The diagram shows a section through the human heart.

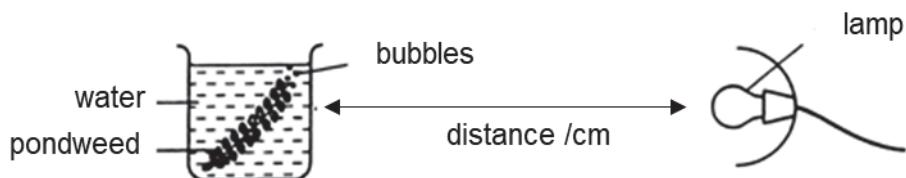


Which of the following classifies the blood vessels correctly?

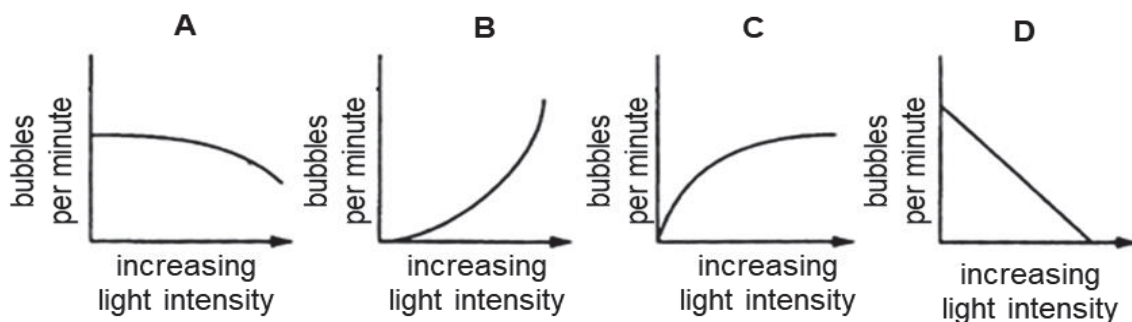
	arteries	veins
A	1 and 2	3 and 4
B	1 and 4	2 and 3
C	2 and 3	1 and 4
D	3 and 4	1 and 2

- 10 Which statement is correct for **all** arteries in the human body?
- A** Arteries carry blood away from the heart
 - B** Arteries carry blood towards the heart
 - C** Arteries carry deoxygenated blood.
 - D** Arteries carry oxygenated blood.
- 11 Which of the following best explains the reason for plant to open stomata in the day?
- A** To give out carbon dioxide produced during respiration.
 - B** To harness the light energy for photosynthesis.
 - C** To take in carbon dioxide needed for photosynthesis.
 - D** To take in water vapour needed for photosynthesis.

- 12 The diagram shows the apparatus used by a student to investigate how light intensity affects the rate of photosynthesis by varying the distance between the lamp and the beaker.



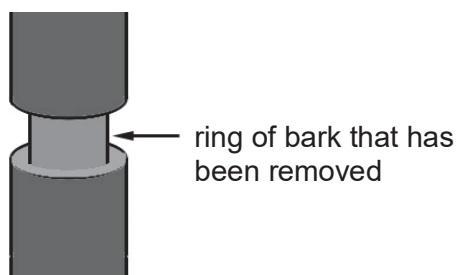
Which graph most likely shows the results of this experiment?



- 13 Which process is responsible for movement of water up the stem of the plant?

- A diffusion
- B evaporation
- C osmosis
- D transpiration pull

- 14 The diagram below shows part of a tree trunk. A ring of bark, including the phloem, has been removed.

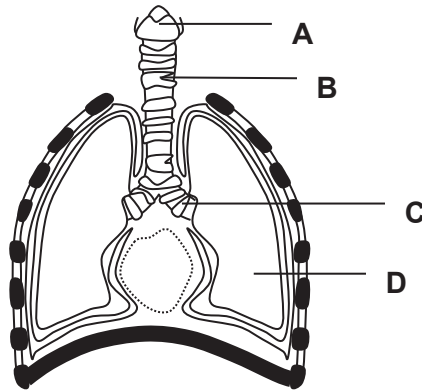


The tree will eventually die. Which of the following best explains the reason?

- A Manufactured food cannot be transported to the roots
- B Mineral salts cannot be transported to the leaves.
- C Oxygen cannot be transported to the roots.
- D Water cannot be transported to the leaves.

- 15 The diagram shows the human respiratory system.

Which of the following shows the bronchus?



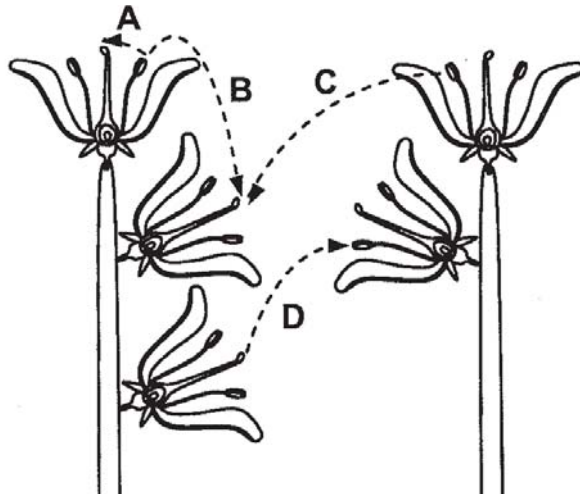
- 16 Tobacco smoke contains carbon monoxide gas.

Which effect does this gas have on the body?

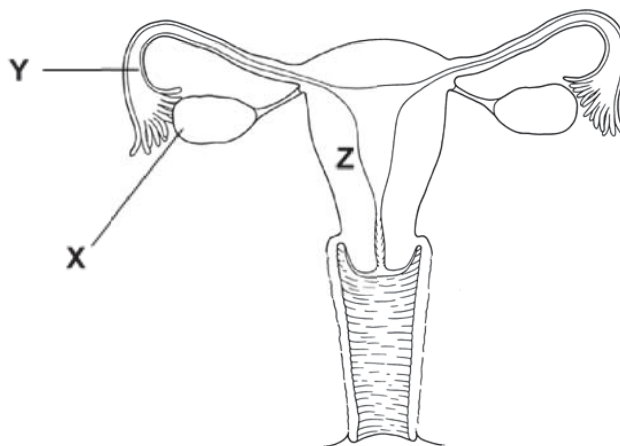
- A It causes cells to divide uncontrollably.
 - B It destroys walls of the alveoli.
 - C It increase the risk of bronchitis.
 - D It lowers the ability of blood to carry oxygen.
- 17 Which characteristic best describes the offspring of asexual reproduction?
- A The offspring is genetically dissimilar from their parents.
 - B The offspring is genetically identical to their parents.
 - C The offspring is more resistant to disease compared to their parents.
 - D The offspring is weaker than their parents.

- 18 The diagram shows two plants of the same species.

Which arrow represents cross-pollination?



- 19 The diagram shows the female reproductive system.



What of the following correctly identify the processes taking place at positions X, Y and Z?

	X	Y	Z
A	fertilisation	menstruation	implantation
B	implantation	ovulation	menstruation
C	ovulation	fertilisation	implantation
D	ovulation	implantation	fertilisation

20 A cow has 60 chromosomes in its body cells. The cow reproduces through sexual reproduction.

What is the correct number of chromosomes in each cell for the following stages of sexual reproduction?

	gametes	zygote	embryo
A	30	30	30
B	30	60	60
C	60	30	30
D	60	60	60

End of paper

BLANK PAGE

BLANK PAGE



**JUNYUAN SECONDARY SCHOOL
PRELIM EXAMINATION 2021
SECONDARY FOUR NORMAL ACADEMIC**

CANDIDATE
NAME

--

CLASS

4		
---	--	--

INDEX
NUMBER

--	--

SCIENCE (BIOLOGY)

5107/06

Paper 6 Biology

5 AUG 2021

Paper 5 and Paper 6: 1 h 15 min

Candidates answer on the Question Paper

No additional materials are required

READ THESE INSTRUCTIONS FIRST

Write your class, index number and name on all the work you hand in.

Write in dark blue or black pen on both sides of the paper.

You may use a soft pencil for any diagrams, graphs, tables or rough working.

Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions in Section A and any **two** questions in Section B.

The use of an approved scientific calculator is expected, where appropriate.

In calculations, you should show all the steps in your working, giving your answer at each stage.

You are advised to spend **no longer than 30 minutes** on Paper 5.

You may proceed to answer Paper 6 as soon as you have completed Paper 5.

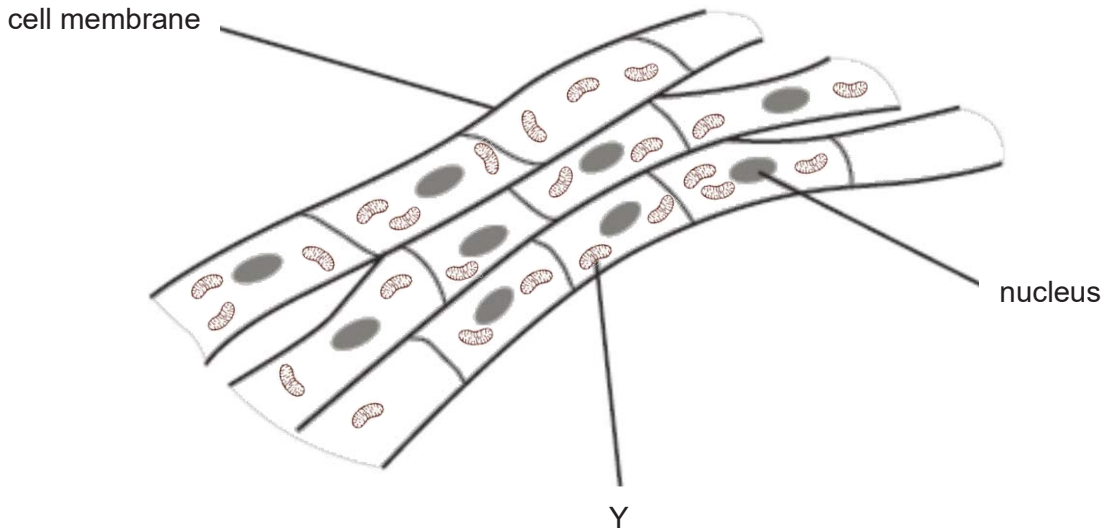
At the end of the examination hand in your answers in the question paper.

The number of marks is given in brackets [] at the end of each question or part question.

Section A

Answer **all** questions in the spaces provided.

1 The diagram below shows some muscle cells.



(a) It was found that in the muscle cells there is an increased number of organelle Y. Suggest the reason for this observation.

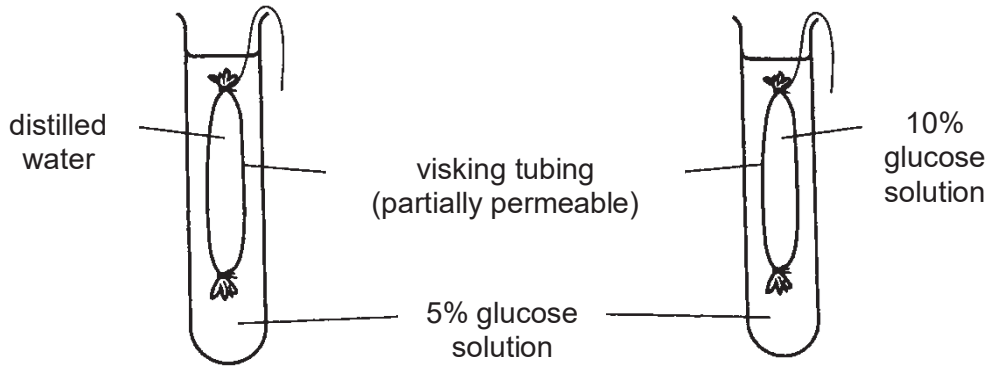
.....
.....[1]

(b) Using the arrangement of the cells seen in the diagram above, identify and describe the level of organisation.

.....
.....
.....
.....[2]

[Total: 3]

2 An experiment was set up as shown below.



(a) Arrange the three liquids (5% glucose, 10% glucose and distilled water) used in the set up above according to their water potential in ascending order.

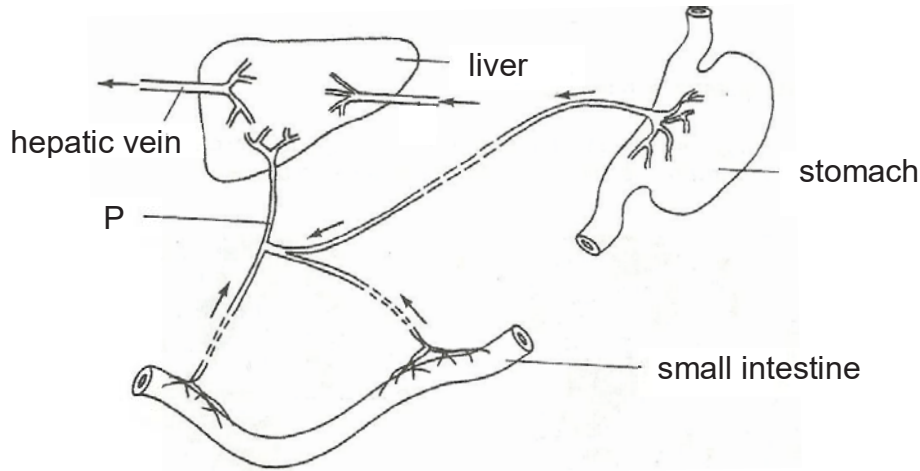
.....[1]

(b) After 20 minutes, the visking tubing containing 10% glucose solution grew in size. Explain this observation with respect to osmosis.

.....
.....
.....
.....[2]

[Total: 3]

3 Diagram below shows a small part of a circulatory system in a man. The arrows indicate the direction of blood flow in the blood vessels.



- (a) Describe the digestion of protein in the stomach.
.....
.....
.....[2]
- (b) State one function of fats in the body.
.....[1]
- (c) Name blood vessel P.
.....[1]
- (d) Bile is produced in the liver. Explain how bile helps to increase the rate of fats digestion.
.....
.....
.....[2]
- (e) Explain why the digestive enzyme in the stomach is unable to work in the small intestine.
.....
.....
.....[2]

[Total: 8]

Section B

Answer any **two** questions from this section in the spaces provided.

- 4 (a) A baby was born with a heart condition. Fig. 4.1 shows the structure of the baby's heart.

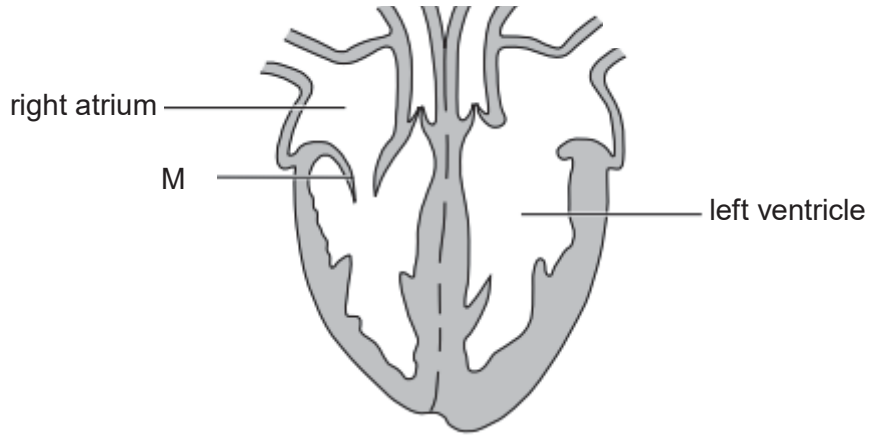


Fig. 4.1

- (i) State the purpose of the structure M.

.....[1]

- (ii) When the ventricles of the heart contract, blood is pushed into the arteries.

Explain why this will not happen properly on the left side of the baby's heart.

.....
.....
.....[2]

- (iii) Explain why the left ventricle wall is thicker than the right ventricle wall.

.....
.....[1]

- (b) Three similar plants, each with variegated (green and white) leaves, were set up as shown in Fig. 4.2 to investigate starch production by plants.

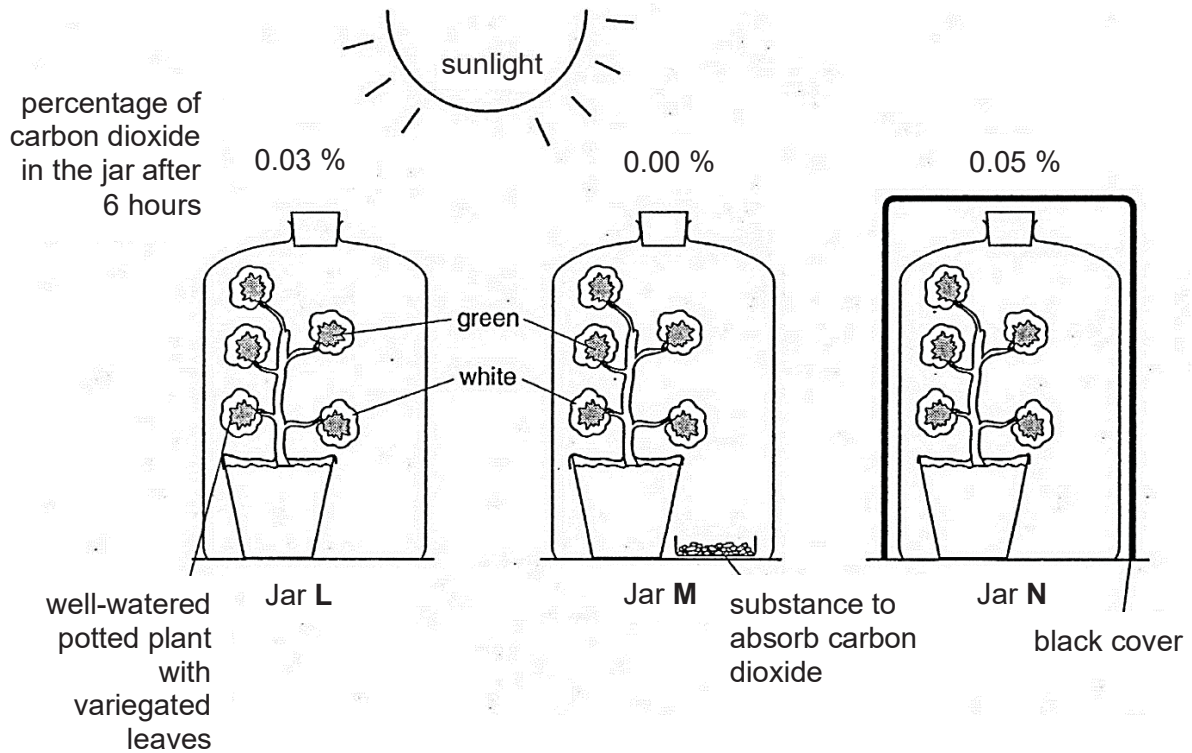


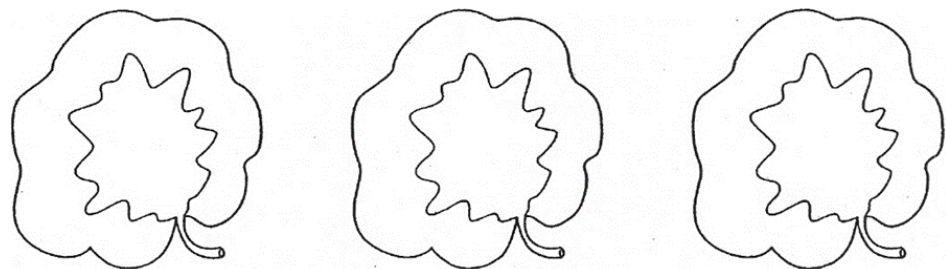
Fig. 4.2

- (i) Write the word equation for photosynthesis.

.....[1]

- (ii) At the end of the experiment, a leaf was taken from each plant and tested for the presence of starch.

Shade the region(s) of the leaves below, which will give a positive result for iodine test.



leaf from L

leaf from M

leaf from N

[1]

- (iii) Explain your result for the leaf in Jar M.

.....
[2]

[Total: 8]

- 5 (a) Fig. 5.1 shows the effect of exercise on the concentration of oxygen in the blood and the concentration of lactic acid in the muscles of a healthy person over a 5-minute period.

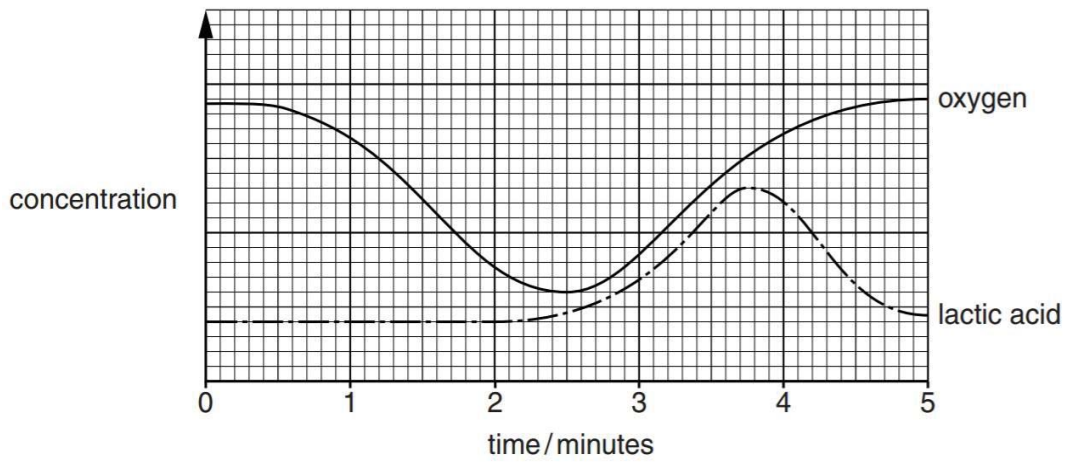


Fig. 5.1

- (j) The oxygen concentration changes during the first 2 minutes as shown in Fig. 5.1 Name the process that causes the change in oxygen concentration and write down the word equation.

Process:

Word equation:[2]

- (ii) State one effect of lactic acid build-up in the muscle.

.....[1]

- (iii) Explain the decrease of lactic acid concentration from 3.8 minutes.

.....

[1]

(b) Fig. 5.2 shows a cross-section of a leaf, as seen under light microscope

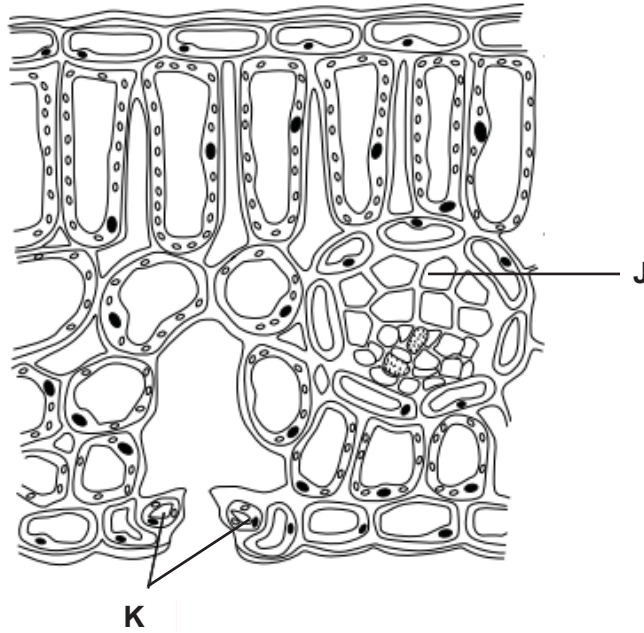


Fig. 5.2

(i) Define translocation.

.....
 [1]

(ii) On the diagram, name and label the structure where translocation occurs. [1]

(iii) Describe one structural adaptation of structure J.

.....
 [1]

(iv) Describe how structure K will respond during wilting.

.....
 [1]

[Total: 8]

6 (a) Fig. 6.1 shown the carpel of a flower soon after pollination.

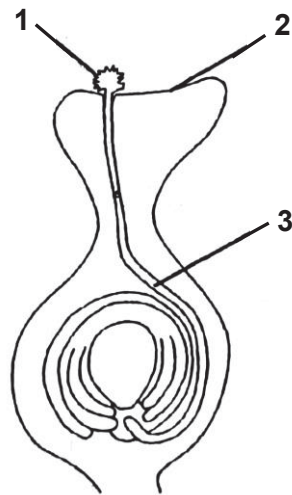


Fig. 6.1

(i) Define pollination.

.....
.....[1]

(ii) Using the diagram above, describe the events that take place after pollination leading to fertilisation.

.....
.....
.....
.....
.....[3]

(b) Fig.6.2 below shows the variation in thickness of the uterine lining of a woman over 9 weeks.

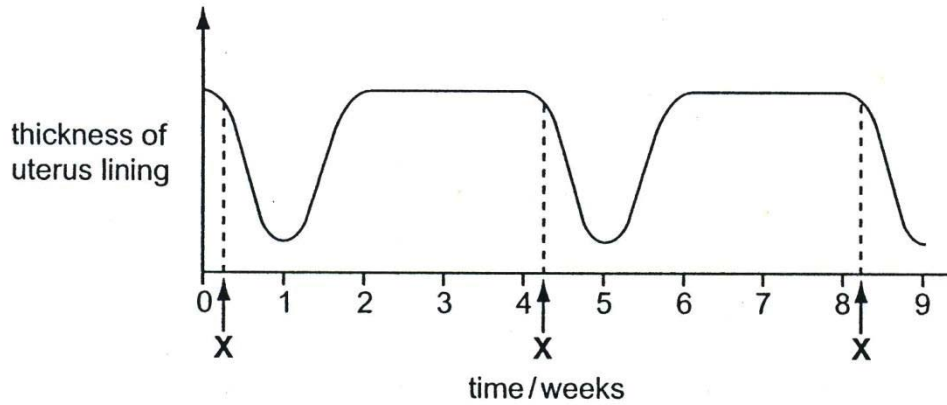


Fig. 6.2

(i) Event X is menstruation. On the graph above, use a dark circle (●) to annotate the point where ovulation occurs for one menstrual cycle. [1]

(ii) The menstrual cycle is controlled by two hormones, oestrogen and progesterone.

Describe the function of oestrogen and progesterone.

.....

.....

.....

.....

.....[2]

(iii) If successful fertilisation occurs in week 8, describe the difference in the thickness of the uterine lining of this pregnant woman in the subsequent weeks.

.....

.....[1]

[Total: 8]

End of Paper

For Answer please email :

LAPOOPOO555@GMAIL.COM

to share with you.