SuperNovaSchool
LEARN TO BE DISTINCT

Entry Test

Academic Session 2019-20

BIOLOGY

Total Marks **35**

45 min

Class: IG-III(X)

Write in block letters:

Candidate Name

Date

Kindly read the instructions carefully;

1 Answers must be written in ink.

2 Write the number of question distinctly before each answer.

FOR OFFICIAL USE ONLY

Total Marks		**Marks Obtained**		**Percentage**	

1 Which processes can take place in a root hair cell when oxygen is **not** available?

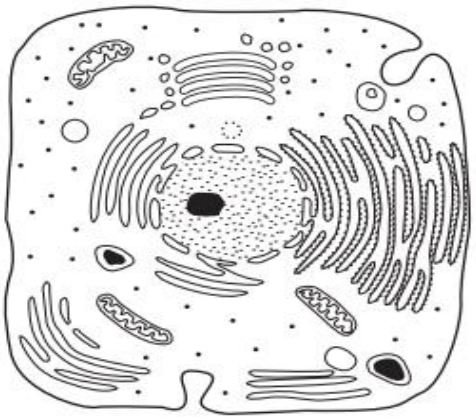
A active transport only

B diffusion only

C active transport and osmosis only

D diffusion and osmosis only

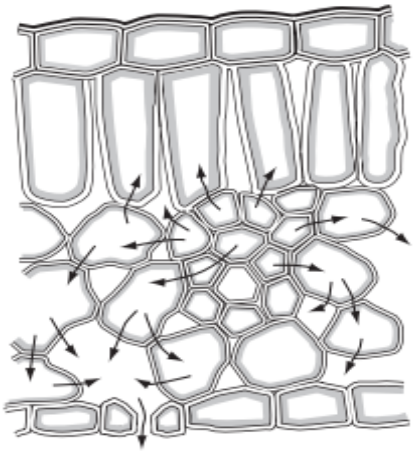
2 The diagram represents a cell as seen under the electron microscope.



What type of cell is this?

	type of cell	reason
A	animal cell	outer layer is the cell membrane
B	bacterium	no chromosomes are visible
C	plant cell	cytoplasm is visible
D	plant cell	cell wall is visible

3 The diagram shows a section through a green leaf.



The arrows represent the movement of

A carbon dioxide during respiration.

B oxygen during photosynthesis.

C sugars during translocation.

D water during transpiration.

4 Protease breaks down proteins into amino acids.

In the 'lock and key' hypothesis, what is the lock and what is the key?

	lock	key
A	amino acid	protease
B	protease	amino acid
C	protease	protein
D	protein	protease

5 The diagram shows some chemical reactions that occur in plants.

carbon dioxide and water $\xrightarrow{1}$ sugars $\xrightarrow{2}$ amino acids $\xrightarrow{3}$ proteins

Which stage or stages depend on the use of nitrate ions as a raw material?

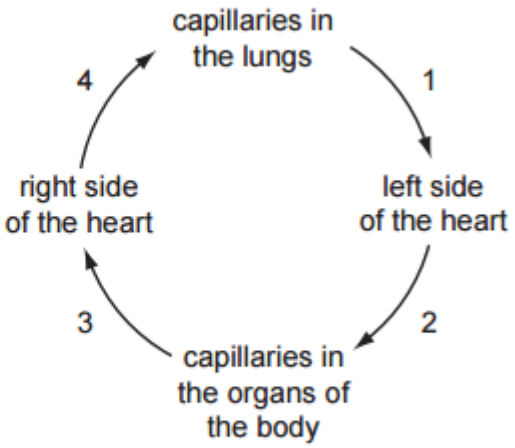
A 1 only

B 2 only

C 1 and 3 only

D 2 and 3 only

6 The diagram shows the direction of blood flow in the human body.

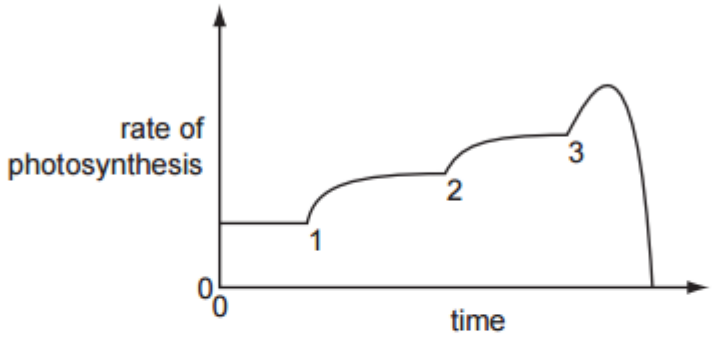


Which numbered stages have blood containing the most oxygen?

A 1 and 2 **B** 2 and 3 **C** 3 and 4 **D** 4 and 1

7 Temperature, light intensity and carbon dioxide concentration are three limiting factors in photosynthesis.

In an experiment, each factor is increased in turn. The graph shows the results.



Which numbered points represent when each factor was increased?

	carbon dioxide concentration	light intensity	temperature
A	1	2	3
B	2	3	1
C	3	1	2
D	3	2	1

8 Which row in the table describes the features of the pulmonary vein?

	feature of pulmonary vein		
	blood	lumen	muscle layer
A	deoxygenated	narrow	thin
B	deoxygenated	wide	thick
C	oxygenated	narrow	thick
D	oxygenated	wide	thin

9 Which chemical test shows the presence of an enzyme in a biological washing powder?

A Benedict's

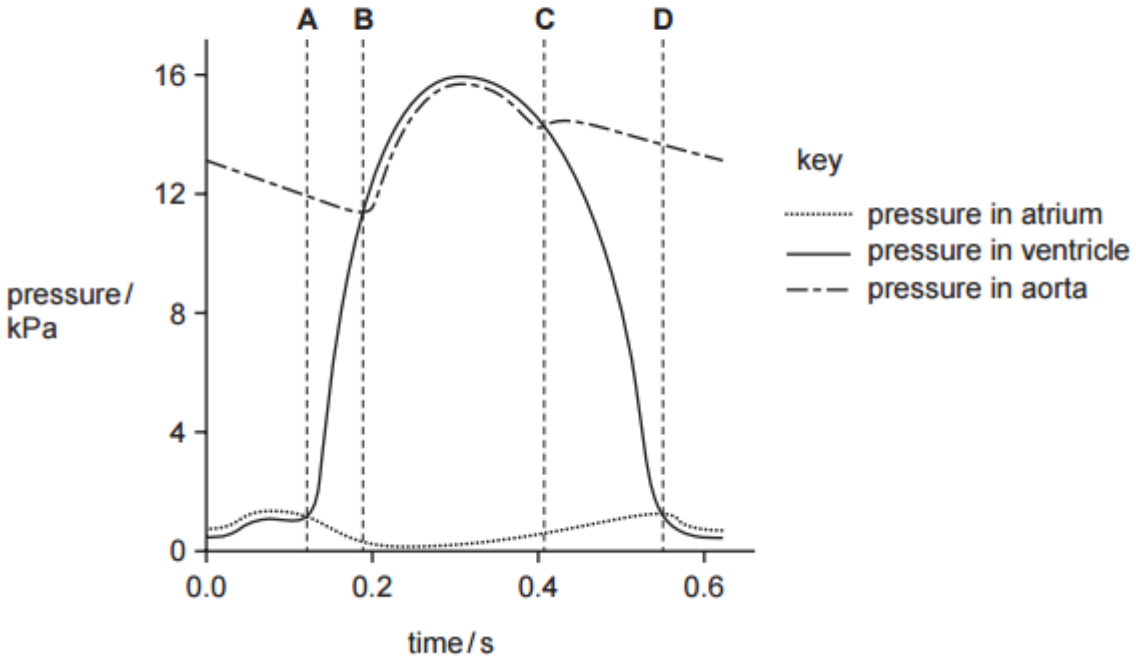
B biuret

C ethanol emulsion

D iodine solution

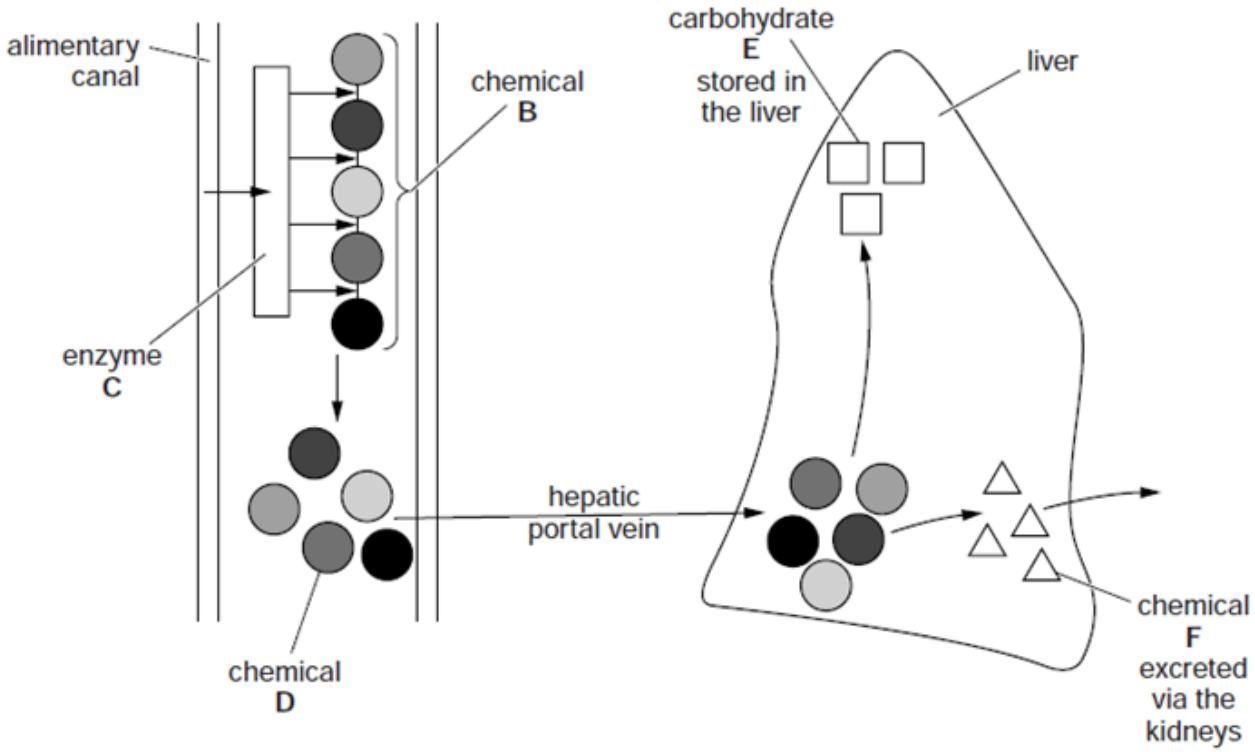
10 The graph shows pressure changes in the left side of the heart, during a single heart beat.

At which point do the semi-lunar valves open?



Section B

1 Fig. 1 1 shows the digestion, absorption and assimilation of a chemical (**B**). It also shows the formation of its waste product, chemical **F**.



(a) Name

chemical **B** .....

enzyme **C** .....

chemical **D** .....

carbohydrate **E** .....

chemical **F** ..... [5]

(b) **(i)** Describe what happens to carbohydrate **E** before it can be used in metabolic reactions in body cells.

.....

.....

..... [2]

(ii) Name the process in which the product of carbohydrate **E** is used within a body cell.

process ..... [1]

(iii) Describe how different types of body cells and tissues make use of this process.

.....

.....

.....

.....

.....

.....

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

[Total: 12]

2 Fig. 2.1 shows a small, deep-rooted bush growing in a warm, dry climate.
Branches **B** and **C** have a similar number of leaves, but the leaves of branch **B** are enclosed in a transparent polythene bag that empties into a container.

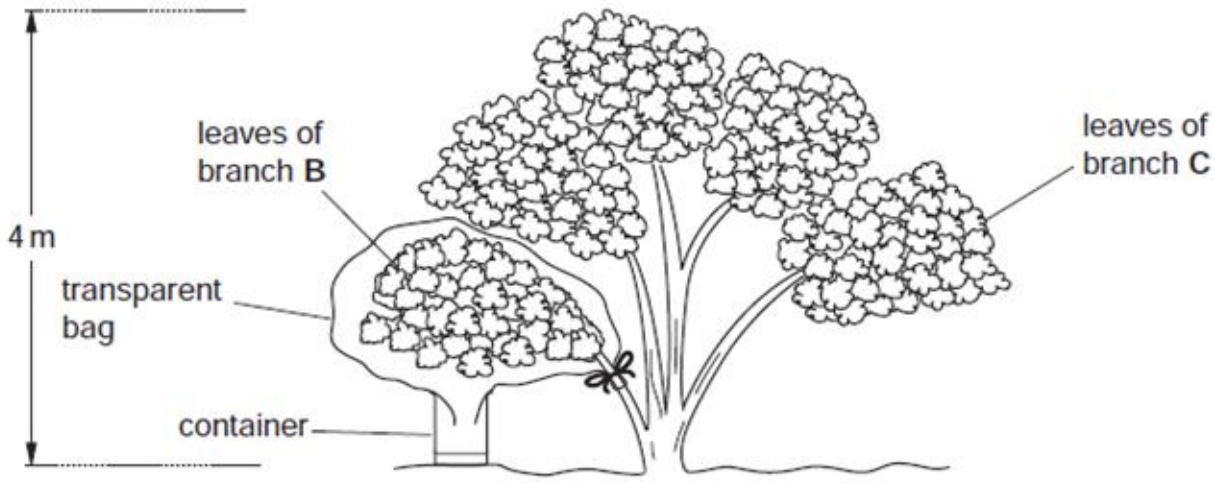


Fig. 2.1

Fig. 2.2. is a graph showing the total volume of water lost by the leaves of each of the two branches during the same day.

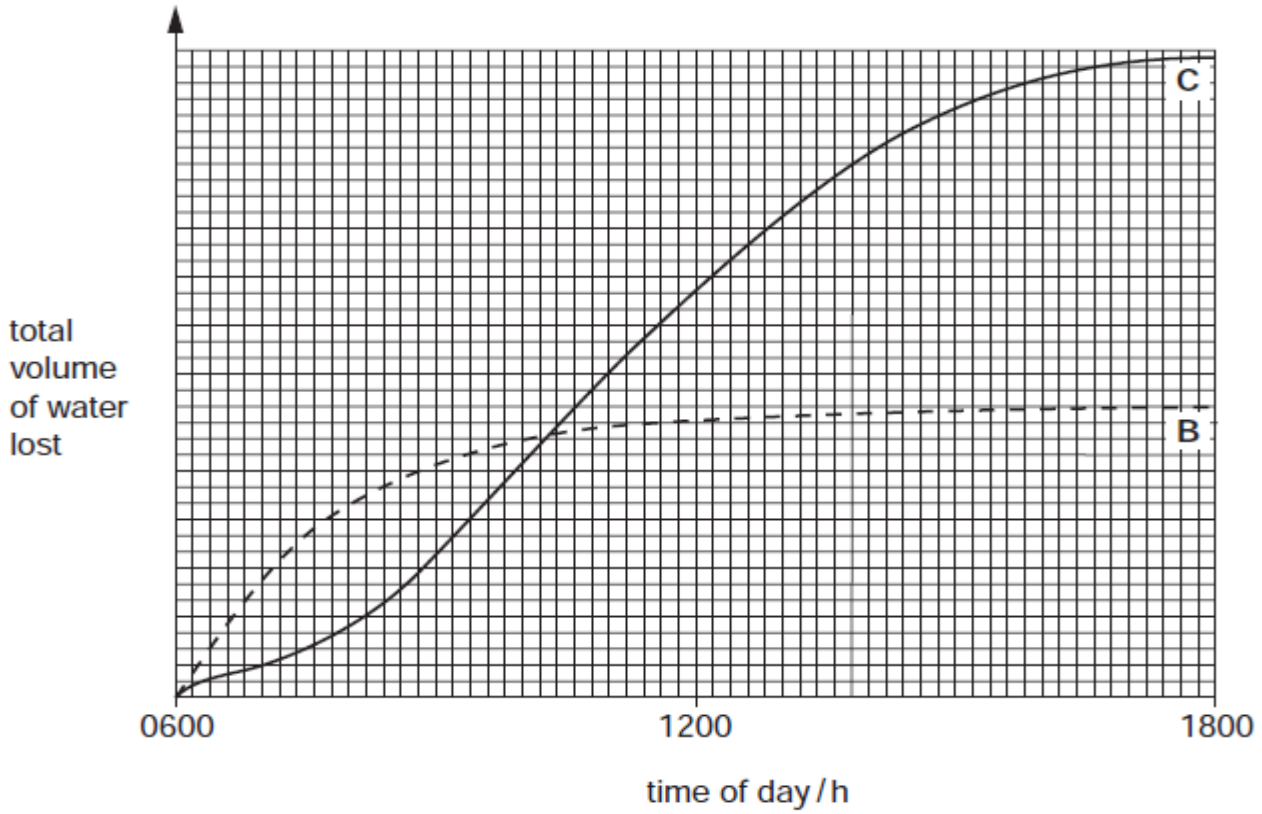


Fig. 2.2

(a) State **two** environmental factors responsible for the water loss during the day by branch **C**. For each factor, explain how it affects water loss.

factor 1. .....

explanation

.....

.....[2]

factor 2. .....

explanation

.....

.....[2]

(b) Explain how the volume of water lost from branch **B** is at first greater, then less than that lost from branch **C**.

.....

.....

.....[2]

(c) Suggest why, even for certain plants that are poisonous to humans, the container in Fig. 2.1 can supply travellers with safe drinking water.

.....

.....

.....

.....[3]

[Total:10]

3 Food tests were carried out on some seeds and some of the results and conclusions are recorded in Table 3.1.

(a) Complete Table **4**.1.

Table **4**.1

reagent used	colour of reagent at the start	final colour of reagent	conclusion
Benedict's solution	blue		trace of reducing sugar present
biuret	blue		protein present
iodine solution		black	

[Total: 4]