

The City School

Unified Mid-Year Examinations
2018 - 2019
Class 9



SCHOOL NAME

INDEX NUMBER

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DATE

BIOLOGY

Paper 2 Theory

5090/22

1 hour 30 minutes

Candidates answer on the Question Paper.
No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your School name, Index number and Date in the spaces provided.
Write in dark blue or black pen.
You may use a pencil for any diagrams or graphs.
Do not use paper clips, glue or correction fluid.

Section A

Answer **all** questions in this section.
Write your answers in the spaces provided on the Question Paper.

Section B

Answer **both** questions in this section.
Write your answers in the spaces provided on the Question Paper.

Section C

Answer **either** question 6 or question 7.
Write your answers in the spaces provided on the Question Paper.

You are advised to spend no longer than one hour on Section A.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [] at the end of each question or part question.

Invigilated By: _____ Checked By: _____ Marks Tallied By: _____

This document consists of 9 printed pages and 3 blank pages.

Section A

Answer all questions in this section.

1 Figure 1.1 shows a U-tube containing pure water in side A and a 10% starch solution in side B. The figure shows the levels of liquids on both sides of the U-tube both before and after the investigation.

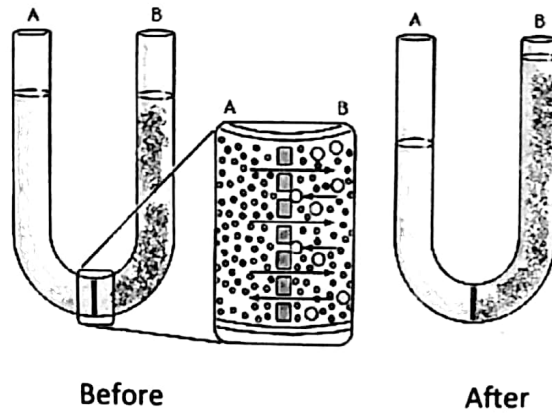


Fig. 1.1

(a) (i) Identify the type of movement of the molecules.

..... [1]

(ii) Define the process by which molecules move in Fig. 1.1.

..... [1]

(iii) Describe and explain the change that has taken place in the above experiment.

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..... [3]

(b) The process for the movement of molecules demonstrated in fig. 1.1 occurs naturally in living cells. One of such cells from part of a plant has been shown in fig. 1.2.



Fig. 1.2

(i) Name the cell shown in fig. 1.2.

..... [1]

(ii) State any two ways in which this cell differs from a red blood cell.

.....

.....

[1]

(iii) The cell is adapted to absorb water and minerals from the surroundings. Describe the movement of these ions into this cell.

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..... [3]

[Total: 10]

2 The table shows some of the nutrients in a healthy diet.

constituent
carbohydrates
fats
proteins
mineral salts
fibre / roughage

(a) State one of the constituents that

(i) does not require digestion [1]

(ii) Is the body's main storage substance [1]

(b) Name two dietary constituents that are not present in the above table. For each, state two reasons for their importance in diet.

Constituent:

1.
.....
.....

2.
.....
.....

Constituent:

1.
.....
.....

2.
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..... [6]

[Total: 8]

- 3 In living organisms, enzymes may be used in reactions to convert large molecules into smaller ones.
- (a) State the term used for all [2]
- (i) Molecules on which enzymes act
- (ii) Molecules that are formed in a reaction
- (b) For a chemical reaction that begins in the stomach, state [3]
- (i) The original large molecules
- (ii) The stomach enzyme involved
- (iii) The smaller molecules formed
- (c) Fig. 3.1 is part of a graph showing how the rate of an enzyme-controlled reaction changes with increasing temperature.

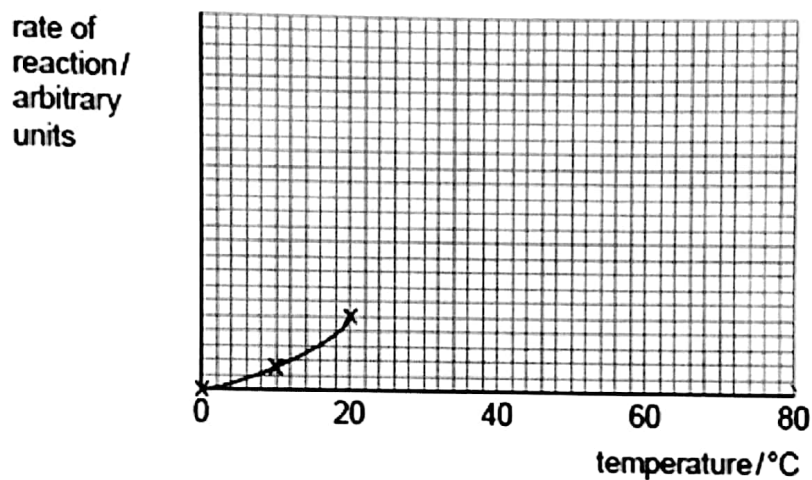


Fig. 3.1

Complete the graph in Fig. 3.1 to show how the rate of this enzyme-controlled reaction changes as the temperature is increased from 20°C to 80°C. [3]

- (d) Fig. 3.2 shows diagrammatically how an enzyme-controlled reaction may occur.

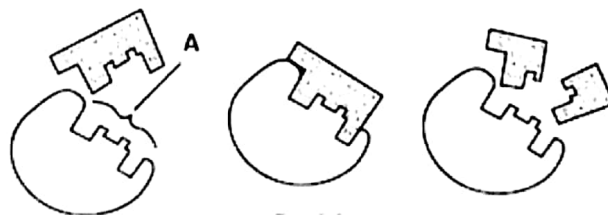


Fig. 3.2

- (i) Identify region A on Fig. 3.2.
..... [1]
- (ii) State the hypothesis illustrated in Fig. 3.2
..... [1]

[Total: 10]

Section B

Answer **both** questions in this section.

Write your answers in the spaces provided.

4. (a) Enlist components of a balanced diet and state one use of each component.

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..... [5]

(b) Explain how it is important for an anaemic and diabetic to modify their diet.

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..... [3]

[Total: 8]



Section C

Answer **either** question 6 or question 7.

Write your answers in the spaces provided.

- 6 (a)** Swallowed food keeps on moving throughout the alimentary canal by involuntary action of the muscles present in the walls of alimentary canal. Name and describe this involuntary action.

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..... [5]

- (b)** A dietary component plays a very important role in enhancing the above process and hence improves digestion. State the name of this component. Name its major sources and discuss the effect of a diet lacking this component.

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..... [4]

[Total: 9]

7 (a) Fig. 7.1 shows the arrangement of teeth in the lower jaw of an adult person.

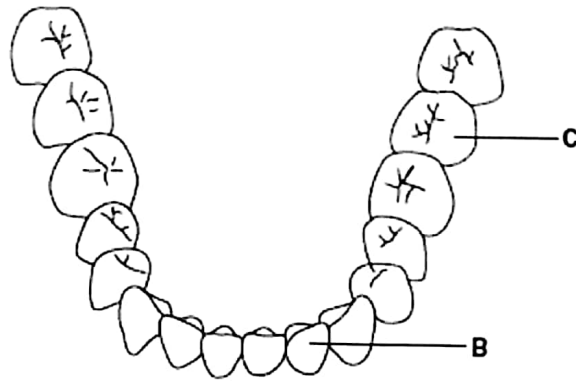


Fig. 7.1

Identify the types of teeth labelled B and C and state one function of each.

Type B

Function [2]

Type C

Function [2]

(b) During a single day two people ate the same amount of food containing a large amount of carbohydrate.

Person D ate the food in three equal portions at 7.00 am, 1.00 pm and 8.00 pm, following which he brushed his teeth using toothpaste before going to bed.

Person E ate the food in smaller portions more frequently during the day and did not brush her teeth before going to bed.

(i) List the chemical elements that make up carbohydrates.
..... [1]

(ii) If persons D and E continue their eating habits for several years, suggest in which person dental decay will occur first. Explain your reasoning.

Person.....

Explanation.....

.....

.....

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..... [4]

[Total: 9]