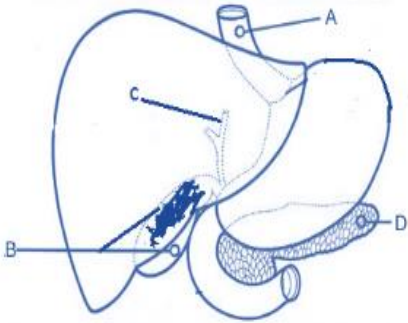


3A

Pts. /55

Multiple choice: Place the letter on the left side of the number. **1pt each.**

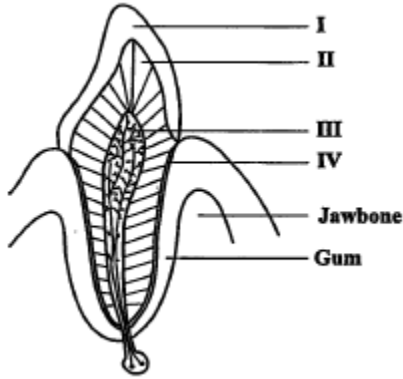
- Which of the following statements about the characteristics of enzymes is/are true?
 - They only work at body temperature.
 - They are only made in the gut
 - They only act on specific substrates
 - They only work over a certain range of pH.
 - I and II
 - III and IV
 - I and III
 - I, II and IV
- Which of the following enzymes digest starch?
 - Catalase
 - Lipase
 - Starchase
 - Amylase
- Which of the following is true of the 'lock and key' model of enzyme action?
 - Enzyme is the 'key' to the substrate's 'lock'
 - The reaction can only take place in the active site.
 - When the substrate joins with the active site, it reduces the energy needed to start the reaction.
 - The enzyme is unable to carry out further reaction after the substrate leaves the active site.
- Which of the following structures represents the bile duct?
 

- What is the normal number of teeth in an adult human
 - 20
 - 24
 - 30
 - 32
- Which of the following regions of the alimentary canal produces no digestive enzymes?
 - Mouth
 - Oesophagus
 - Stomach
 - Pancreas
- Which of the following statements about digestion is **not** correct?
 - Digestion release energy from food.
 - Digestion converts proteins into amino acids.
 - Digestion make insoluble materials into soluble molecules.
 - Digestion changes starch into glucose.
- Enzymes are made of the organic molecule:
 - Carbohydrates
 - Fats
 - Lipids
 - Proteins
- Which of the following is caused by a lack of Vitamin A in the diet?
 - Rickets
 - Scurvy
 - Beri-Beri
 - Night blindness

- Which of the following organs makes a juice which helps to neutralise stomach acids?
 - Liver
 - Small intestine
 - Gall bladder
 - Stomach

11. The diet of a body builder should contain large amounts of
- A. Fat
 - B. Protein
 - C. Vitamins
 - D. Carbohydrate

Items 13-14 refer to the following diagram of a section through an incisor tooth.



12. The region of tooth sensitive to temperature is labelled.
- A. I
 - B. II
 - C. III
 - D. IV
13. The region IV is the
- A. Root
 - B. Cement
 - C. Dentine
 - D. Enamel
14. Which of the following is the BEST definition for excretion?
- A. Loss of excess materials
 - B. Loss of indigestible materials
 - C. Removal of metabolic wastes
 - D. Removal of unwanted substances
15. Which of the following enzymes works BEST in an acid pH?
- A. Pepsin
 - B. Lipase
 - C. Trypsin
 - D. Amylase

Short Answer questions:

1. a. Describe the chemical digestion of carbohydrates, fats and proteins from the mouth until they are absorbed in the small intestines. 6 marks.

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b. (I) Describe how the body systems work together to assimilate glucose molecules. 4 marks.

ii. Explain how the assimilation of glucose by a non-diabetic person differ from that of a person suffering from diabetes. 5 marks

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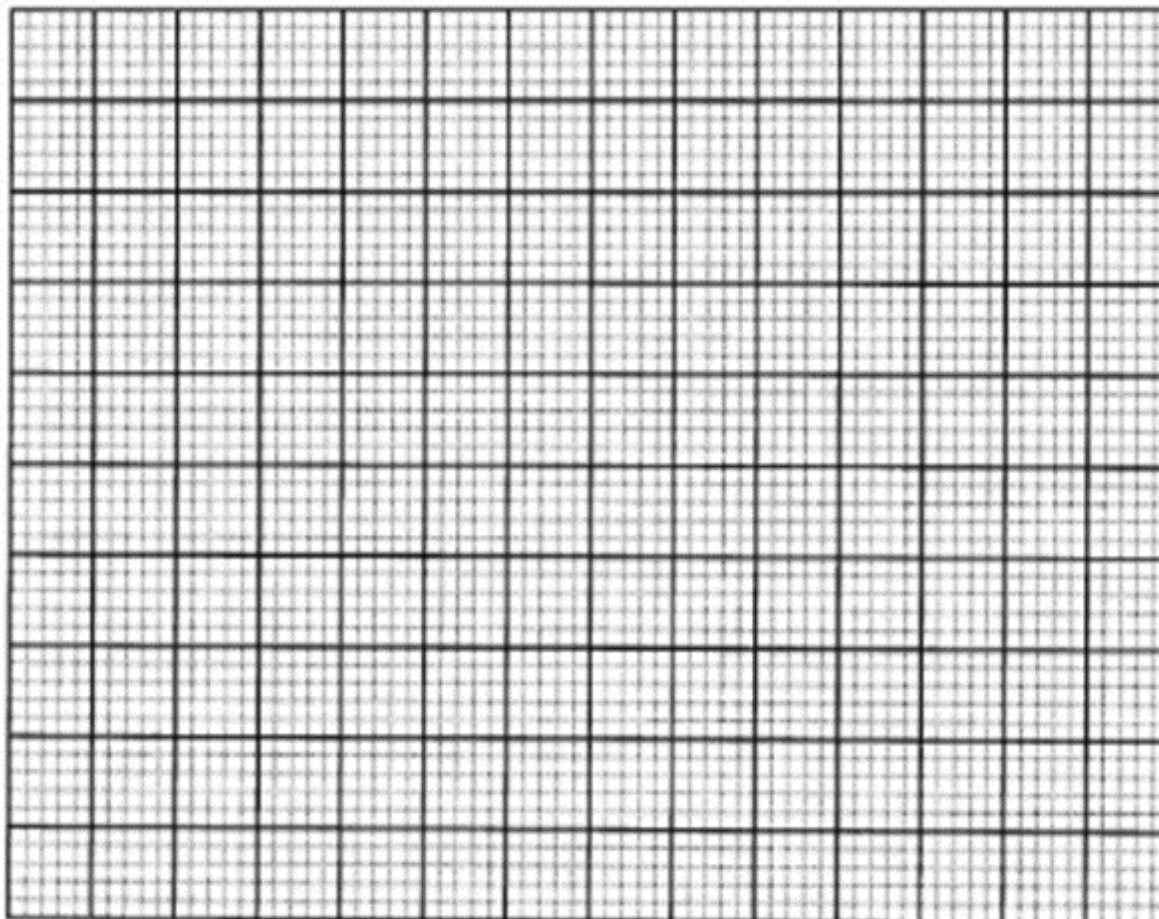
Total 15 marks

2. (a) A group of students conducts an experiment to investigate the rate of reaction of enzyme X at different temperatures. The results of the experiment are shown in Table 1.

Table 1: RATE OF REACTION OF ENZYME X AT DIFFERENT TEMPERATURES

Temperature (°C)	Rate of Reaction of Enzyme X (mg of product per min)
0	0
5	3
15	9
25	15
30	24
40	8
50	0

- i. Plot the data in the Table 1 on the grid below.



(4 marks)

- ii. Use the graph plotted in (a) (i) identify the optimum temperature for Enzyme X. (1 mark)

- iii. - Account for the shape of the graph: Between 5°C and 30°C
- Above 40°C

.....
.....2 marks.

- iv. State ONE precaution that the students should take when carrying out this experiment.

..... 1 mark.

b. i. Name TWO enzymes that break down protein.

..... 2 marks.

ii. Name Two parts of the human alimentary canal where enzymes that break down protein are found.

..... 2 marks.

iii. Suggest TWO reasons why the different enzymes for breaking down proteins are located in two different parts of the alimentary canal.

.....2 marks.

c. Leguminous plants such as peanuts are able to manufacture proteins with the help of nitrogen-fixing bacteria that live in the nodules on their roots.

i. Identify the type of relationship that exists between the peanut plant and the bacteria.

.....1 mark

ii. Explain your answer in (c) (i) above.

.....3 marks.

iii. Describe a suitable procedure for testing the presence of protein in peanuts.

.....3 marks.

iv. Suggest TWO reasons why plants need protein.

.....4 marks.

Total: 25 points