



Grade :	9		
Subject :	Integrated Science (Biology)		()
Date :	4 JUN 2026		/ 40
Time Allowed :	50 minutes		Parent's Signature:

Question and Answer Book

GENERAL INSTRUCTIONS

There are **TWO** sections, A and B, in this Paper. There are 10 marks in Section A and 30 marks in Section B. You are advised to finish Section A in about 15 minutes.

INSTRUCTIONS FOR SECTION A (MULTIPLE-CHOICE QUESTIONS)

- Answers of Section A should be marked on the **multiple-choice answer sheet according to the question number shown in this Question and Answer Book.**
- You should choose only **ONE** answer for each question. If you mark more than one answer, you will receive **NO MARKS** for that question.
- No marks will be deducted for wrong answers.

INSTRUCTIONS FOR SECTION B (STRUCTURED QUESTIONS)

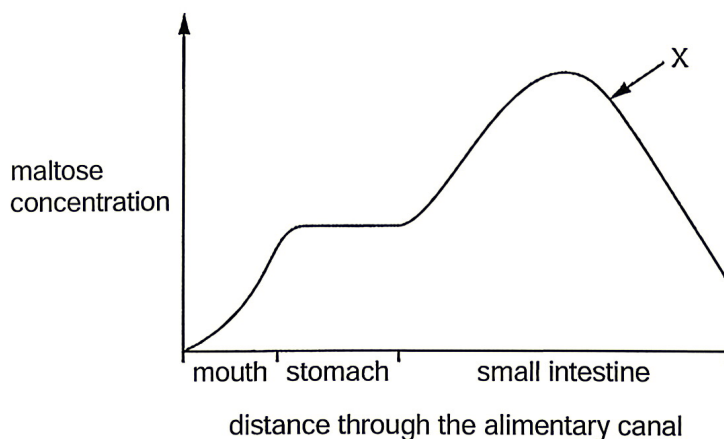
- The questions in this section carry 30 marks. Answer **ALL** questions.
- Supplementary answer sheets will be provided on request. Write down your Name, Class and Class Number on the sheets.
- Present your answers in paragraphs wherever appropriate.
- The diagrams in this section are **NOT** necessarily drawn to scale.

Section A Multiple-choice Questions (10 marks, 1 mark each)

Choose the best answer for each question. Mark your answers on the Multiple-choice Answer Sheet provided according to the question number shown in this Question and Answer Book with HB pencil.

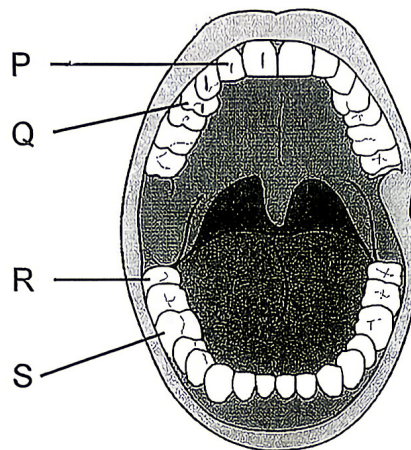
The diagrams in this section are **NOT** necessarily drawn to scale.

1. Which components of a balanced diet are needed to make haemoglobin and to prevent scurvy and rickets?
A. carbohydrates and minerals
B. carbohydrates and proteins
C. minerals and vitamins
D. vitamins and fibres
2. The graph shows the concentration of maltose in different parts of the alimentary canal. Which of the following causes the change in concentration at X?



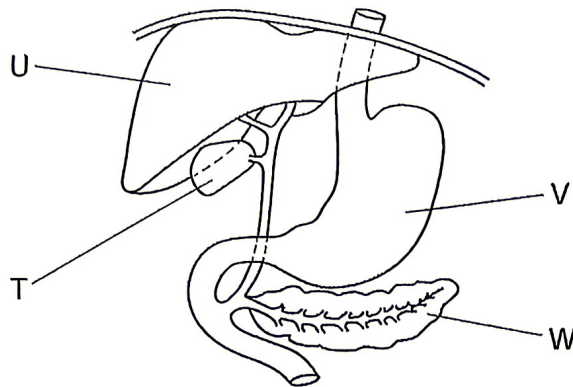
- A. absorption of maltose
 - B. action of amylase
 - C. assimilation of maltose
 - D. action of carbohydrase
3. Which of the following **cannot** occur as a result of a condensation reaction?
A. breaking of a peptide bond
B. formation of a disaccharide
C. joining together of two amino acids
D. production of a water molecule

4. Which of the following is the primary reason that fat digestion relies heavily on bile?
- A. Bile breaks down fat molecules chemically.
 - B. Bile increases the acidity in the stomach.
 - C. Bile converts fats into amino acids.
 - D. Bile facilitates the action of lipase.
5. The diagram below shows the teeth in a set of permanent teeth:



- Which of the labelled teeth in the diagram have one root?
- A. P and Q only
 - B. Q and R only
 - C. Q and S only
 - D. R and S only
6. A child decided to eat only meat, oily fish, cheese and bread, and drink only water. Which of the following nutrient would be in low levels in this diet?
- A. vitamin A
 - B. vitamin C
 - C. calcium
 - D. iron

7. The diagram below shows part of the alimentary canal and associated organs:



- Which structures secrete enzymes that digest proteins?
- A. T and U
 - B. U and V
 - C. V and W
 - D. W and T
8. Which food group should form the largest portion of the food pyramid?
- A. grains and cereals
 - B. fats and oils
 - C. proteins
 - D. sugars
9. Lipids are efficient long-term energy stores because
- A. they dissolve easily in blood.
 - B. they form enzymes.
 - C. they are quickly digested.
 - D. they contain more energy per gram than carbohydrates.

10. The nutrition label below shows the nutritional information of a food item:

Nutrition Facts			
Serving size: 258 g			
Serving per container: 1			
Amount per serving			
Energy	1134 kJ	From fat	294 kJ
			% Daily value
Total fat	8 g		12%
Saturated fat	3.5 g		15%
Cholesterol	30 mg		9%
Sodium	500 mg		20%
Total carbohydrates	28 mg		9%
Dietary fibre	3 g		13%
Sugars	5 g		
Proteins	21 g		
Vitamin A	8%	Vitamin C	0%
Calcium	35%	Iron	6%

The recommended daily intake of energy of a 5-year-old girl is 6500 kJ. If she eats only this food, how many grams of this food does she need to eat in order to obtain the amount of energy she needs per day?

- A. 5.7 g
- B. 25.2 g
- C. 1478.8 g
- D. 5704.1 g

END OF SECTION A

Section B Structured Questions (30 marks)

Answer ALL questions. Write your answers in the spaces provided.

1. Red pandas and humans have a similar arrangement of teeth. Fig. 1.1 below shows a mid-section of one tooth of a red panda and Fig. 1.2 shows the side view of the lower jaw of a red panda, which has the same arrangement of teeth as the upper jaw:

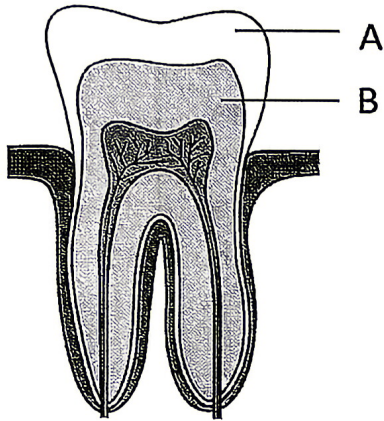


Fig. 1.1

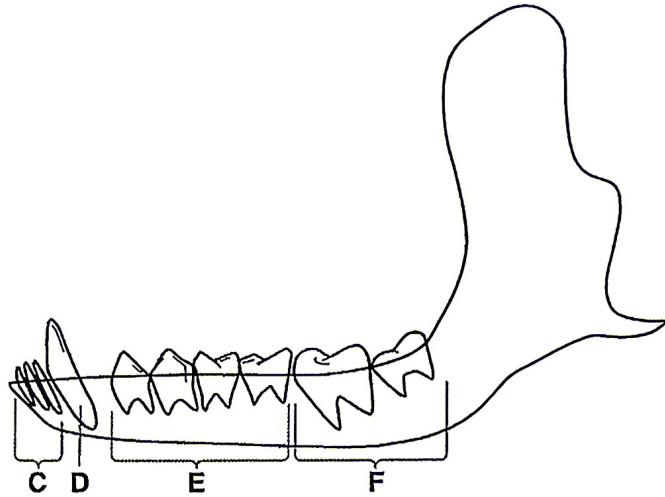


Fig. 1.2

- (a) Describe one similarity and one difference in the composition of layers A and B.

(2 marks)

- (b) Name the types of teeth labelled C to F.

(2 marks)

C: _____ D: _____

E: _____ F: _____

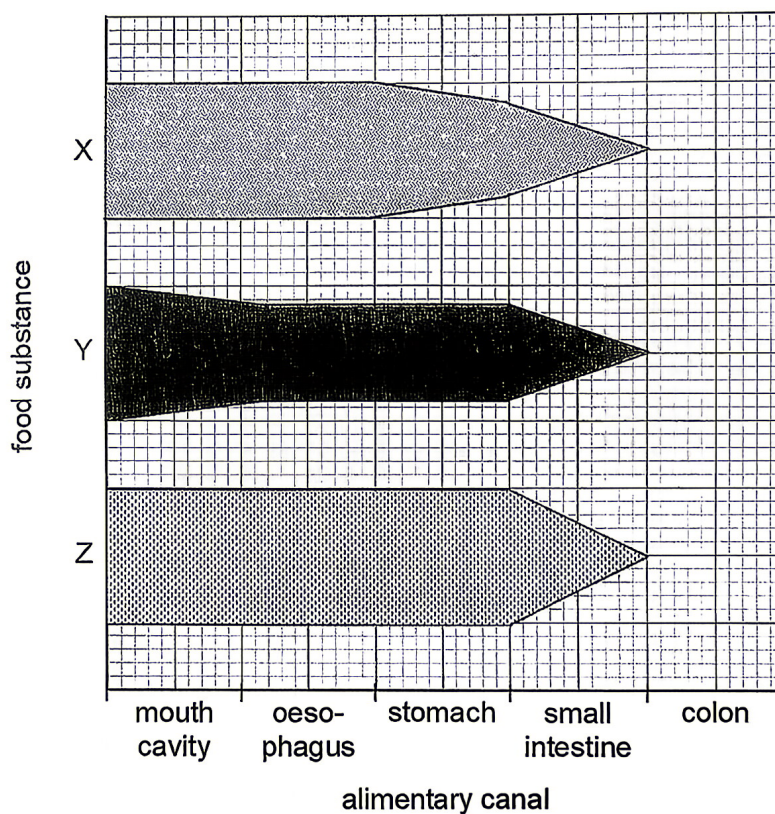
- (c) State the dental formula for a red panda.

(1 mark)

- (d) Suggest an advantage of a red panda having a greater number of teeth type E and F. (2 marks)

(Total: 7 marks)

2. The graph below shows the digestion of three different types of food substances (X, Y and Z) along the alimentary canal. The width of each band indicates the amounts of the food substances.



- (a) Identify food substances X, Y and Z. (3 marks)

X: _____ Y: _____ Z: _____

- (b) Name the process by which the food substances move along the alimentary canal. (1 mark)

- (c) Describe how physical digestion and chemical digestion help in the breakdown of food substance Z in the alimentary canal. (6 marks)

(Total: 10 marks)

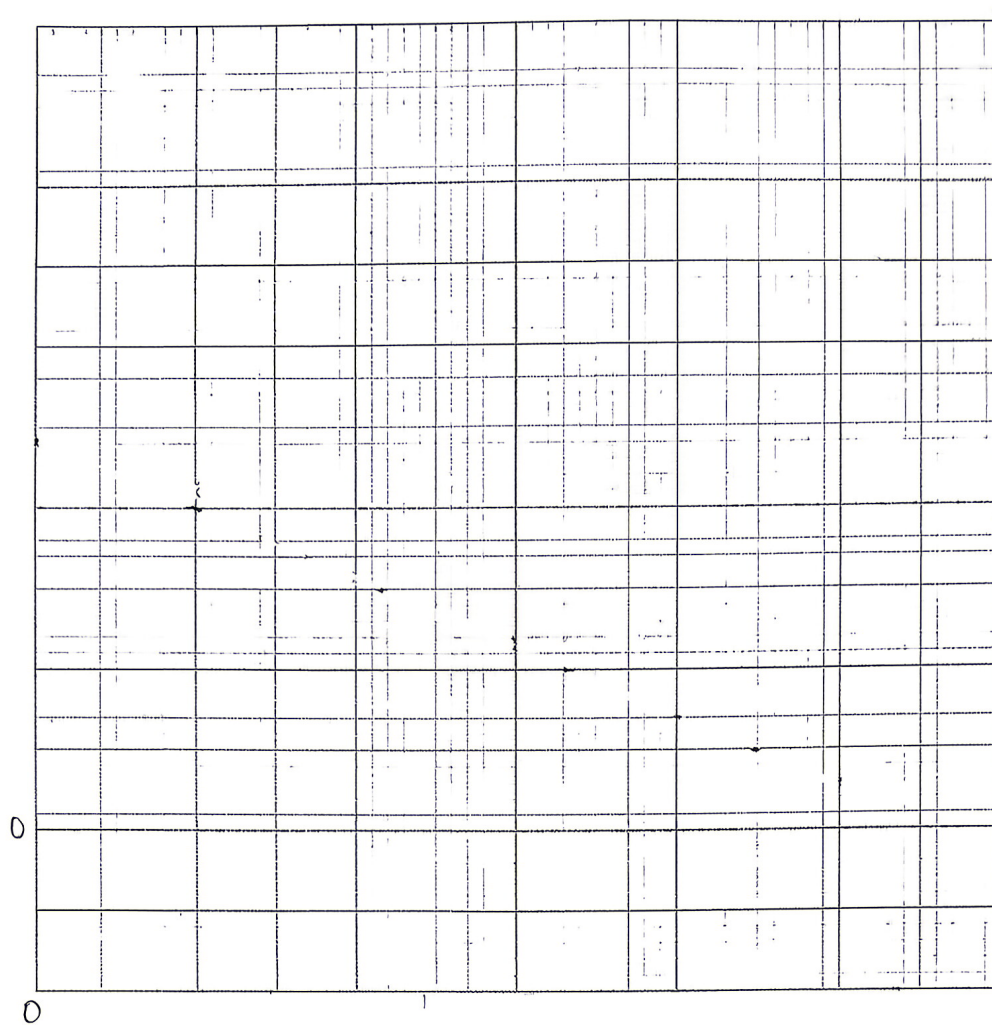
3. Cabbage leaves contain vitamin C. A group of students investigated the effect of boiling time on the concentration of vitamin C remaining in the cabbage leaves. The results of the investigation are shown in the table below:

Boiling time (min)	Vitamin C concentration (mg per 100g of cabbage leaves)
0	34
5	31
10	26
15	22
25	13

- (a) State two variables that should be controlled in this investigation. (2 marks)

(b) Plot a line graph to represent the results obtained in the table.

(4 marks)



(c) Use your graph to estimate the concentration of vitamin C in a sample of cabbage leaves that has been boiled for 20 minutes. (1 mark)

(d) State a conclusion from this investigation.

(1 mark)

- (e) The students wanted to know if the vitamin C had moved from the cabbage leaves into the water that the leaves were boiled in. Describe how the students could test the water for the presence of vitamin C. Include the result of a positive test. (2 marks)

- (f) Other than vitamin C, cabbage also contains dietary fibre. Explain how a diet low in fibre could affect the functioning of the digestive system. (3 marks)

(Total: 13 marks)

END OF SECTION B

END OF PAPER