

SECTION A: MATHEMATICS (30 marks)

Answer ALL the questions in this section.

Show ALL the steps in your calculations, giving your answers at each stage.

1. Without using a calculator, evaluate:

$$-6 \times 9 + 7 - 12 \div 3 - 5 \quad (3 \text{ marks})$$

2. Determine the ratio of $a:c$ given that $a:b = 3:5$ and $b:c = 6:5$. (3 marks)

3. A residential estate is to be developed on a 6 hectares piece of land. $1,500 \text{ m}^2$ are taken up by road and the rest is divided into 40 equal plots. Calculate the area of each plot in m^2 . (3 marks)

4. Use table 1 to draw a graph of $y = (3x + 1)(2x - 5)$ for $-1 \leq x \leq 4$.

Table 1

| | | | | | | | | | | | |
|-----|----|------|----|-----|-----|-----|----|-----|----|-----|----|
| x | -1 | -0.5 | 0 | 0.5 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 |
| y | 14 | 6 | -5 | -10 | -12 | -11 | -7 | 0 | 10 | 23 | 39 |

Take 2 cm to represent 1 unit on x - axis and 1 cm to represent 5 units on y - axis. (3 marks)

5. The probability that Owino will be selected to play for his institute's football team is $\frac{7}{10}$. If not selected to play for the football team, the chance of being selected for the hockey team is $\frac{4}{9}$. What is the probability that he will not be selected for either of the team. (3 marks)

6. The price of a laundry machine to be imported from Netherlands was quoted as 7,805 Dutch Guilders. Express this in Kenyan shillings given that 1 Dutch Guilder = Ksh 27.0769. Round off the answer to the nearest Kenyan shillings. (3 marks)

7. Table 2 represents masses to the nearest kilogramme of fish supplied in a hotel in a day.

Table 2

| | | | | |
|--------------------|-------|---------|---------|---------|
| Mass (kg) | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 |
| No. of fish | 6 | 20 | 8 | 2 |

Represent the information on a histogram. (3 marks)

8. Table 3 shows marks scored by students in a mathematics test.

Table 3

| Marks | Frequency |
|---------|-----------|
| 5 - 9 | 2 |
| 10 - 14 | 13 |
| 15 - 19 | 31 |
| 20 - 24 | 23 |
| 25 - 29 | 14 |
| 30 - 34 | 6 |
| 35 - 39 | 1 |

Calculate the mean score.

(3 marks)

9. Calculate the variance of the following set of scores 2, 6, 4, 3, 2 and 1.

(3 marks)

10. With relevant examples, explain the meaning of discrete data.

(3 marks)

SECTION B: FOOD SCIENCE AND NUTRITION (30 marks)

Answer ALL the questions in this section in the spaces provided.

11. State **three** properties of sugars.

(3 marks)

12. Identify **three** types of animal fats used in cooking.

(3 marks)

13. Describe the chemical composition of proteins.

(3 marks)

14. State **one** function of each of the following in the body:

(a) thiamin;

(1 mark)

(b) sodium;

(1 mark)

(c) phosphorus.

(1 mark)

15. Define the following terms:

(i) digestion;

(1 mark)

(ii) basal metabolism;

(1 mark)

(iii) food allergy.

(1 mark)

16. Highlight **three** symptoms of rickets. (3 marks)
17. Identify **three** enzymes responsible for digestion in the small intestine. (3 marks)
18. State **three** characteristics of spoiled food. (3 marks)
19. Highlight **three** reasons for preserving food. (3 marks)
20. Explain **three** nutrients required in higher amounts for people living with HIV/AIDS. (3 marks)

SECTION C: FOOD AND BEVERAGE PRODUCTION (40 marks)

*Answer **THREE** questions from this section in the spaces provided.*

Question 21 is compulsory.

21. (a) State **three** guidelines in the use of non-stick metal pans. (3 marks)
- (b) Highlight **three** benefits of work schedules. (3 marks)
- (c) Identify **four** ways used to conserve energy during cooking. (4 marks)
22. (a) Highlight **three** measures taken to keep the kitchen waste bin hygienic. (3 marks)
- (b) State **four** uses of sugar in cookery. (4 marks)
- (c) Describe **four** types of soups. (8 marks)
23. (a) State **three** reasons for using herbs and spices in the diet. (3 marks)
- (b) State **two** advantages of each of the following methods of cooking:
- (i) braising; (2 marks)
- (ii) baking. (2 marks)
- (c) Explain **four** guidelines for roasting a beef joint. (8 marks)
24. (a) Identify **three** types of salad dressings. (3 marks)
- (b) Differentiate between the following:
- (i) glazing and basting; (2 marks)
- (ii) fricassée and meunière. (2 marks)
- (c) Explain **four** factors to consider when planning meals for the elderly. (8 marks)