

1903/102
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BUSINESS CALCULATIONS AND STATISTICS
July 2019
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN SUPPLY CHAIN MANAGEMENT
CRAFT CERTIFICATE IN BUSINESS MANAGEMENT
CRAFT CERTIFICATE IN PROJECT MANAGEMENT
CRAFT CERTIFICATE IN HUMAN RESOURCE MANAGEMENT

MODULE I

BUSINESS CALCULATIONS AND STATISTICS

3 hours

INSTRUCTIONS TO CANDIDATES

*This paper consists of **TWO** sections; A and B.
Answer **ALL** questions in **BOTH** sections in the answer booklet provided.
All questions carry equal marks.
Candidates should answer the questions in English.*

This paper consists of 5 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (40 marks)

Answer ALL the questions in this section.

1. State the **two** divisions of Statistics. (2 marks)
2. A tailor sold a dress for Ksh 1,450 and made a profit of 25%. Calculate the cost price of the dress. (2 marks)
3. Differentiate between price index number and quantity index number. (2 marks)
4. Calculate the sum of the sequence: 3, 5, 7, 9 ... up to 200th term. (2 marks)
5. A job can be completed in 20 days by 15 men, working 4 hours per day. Determine the number of days it will take 10 men, working 5 hours per day, to complete the same job. (2 marks)
6. An agent earns a commission of 5% on sales. In a given week, the agent made sales of Ksh 250,000. Determine the amount of commission earned. (2 marks)
7. The marked price of a television set is Ksh 25,000. A tax of 25% is added to the marked price. Determine the selling price of the television set. (2 marks)
8. Solve for the value of y in the following equation:

$$3(y + 8) = 36$$
 (2 marks)
9. The cost of a photocopying machine is Ksh 240 000. The machine is depreciated at the rate of 17% per annum. Determine the value of the machine after 5 years. (2 marks)
10. Distinguish between absolute error and relative error, as used in Statistics. (2 marks)
11. State the meaning of interquartile range. (2 marks)
12. An American tourist had \$ 4,500 when he arrived in Kenya. He converted all the dollars into Kenya shillings. He spent Ksh 375,000 and converted the balance into sterling pounds. Determine the amount he received, in sterling pounds.
 Take: 1 dollar = Ksh 120
 1 sterling pound = Ksh 134 (3 marks)
13. Differentiate the equation: $Y = \frac{1}{x^3}$, with respect to x . (1 mark)
14. The marks scored by 7 students in a Statistics test were: 57, 94, 80, 58, 66, 75 and 60. Calculate the mean mark. (1 mark)

15. State **two** uses of regression analysis. (2 marks)
16. Mwema bought a refrigerator on hire purchase terms by paying a deposit of Ksh 12,000. The balance was to be paid in 36 equal monthly instalments of Ksh 2,400 each. The hire purchase price exceeded the cash price by 25%. Determine the cash price. (3 marks)
17. The letters of the word 'article' are arranged randomly. Determine the probability that the letters *a*, *i* and *e* may occupy even places. (2 marks)
18. State **two** characteristics of a well prepared graph. (2 marks)
19. A company insured a machine at Ksh 296,000,000. The annual premium was at the rate of Ksh 4 per Ksh 1,000. Calculate the amount of the annual premium. (2 marks)
20. State **two** methods of classifying statistical data. (2 marks)

SECTION B (60 marks)

Answer ALL the questions in this section.

21. (a) Explain **four** uses of index numbers in an economy. (8 marks)
- (b) The following information relates to the income of employees in a firm.

Income (Ksh '000')	Number of Employees
Less than 50	54
50 - 70	100
70 - 90	140
90 - 110	300
110 - 130	230
130 - 150	125
Above 150	51

Calculate the:

- (i) 1st quartile;
 (ii) 3rd quartile;
 (iii) quartile range. (7 marks)

22. (a) Loice deposited Ksh 1, 200, 000 in a savings account for two years. The money earns interest at the rate of 5% per annum, compounded annually. Determine the amount of money she received when interest was compounded:
- (i) semi annually;
 (ii) quarterly. (6 marks)

- (b) The following are the ranks of 15 students in two examinations: Statistics and Accounting:

Student (x)	Ranks	
	Statistics	Accounting
1	1	10
2	2	7
3	3	2
4	4	6
5	5	4
6	6	8
7	7	3
8	8	1
9	9	11
10	10	15
11	11	9
12	12	5
13	13	14
14	14	12
15	15	13

Determine the Spearman's Rank Correlation Coefficient. (9 marks)

23. (a) The marked price of a sofa set is Ksh 40,000. A cash discount of 5% is allowed on cash purchases. The sofa set may also be sold on hire purchase terms by paying a deposit of Ksh 10,000 and the balance in 24 equal monthly instalments. The hire purchase price is more than the cash price by 12.5%.

Determine the:

- (i) hire purchase price;
 (ii) amount of monthly instalment;
 (iii) difference between the hire purchase price and the cash price. (6 marks)

(b) The following table represents marks scored by a candidate in five subjects. The subjects were assigned weights of 1, 2, 1, 3 and 3, respectively:

Subject	Marks
Communication skills	60
Entrepreneurship	75
Statistics	63
Accounting	59
Business law	55

Calculated the weighted arithmetic mean. (9 marks)

24. (a) Outline **three** factors that a researcher should consider before collecting statistical data. (6 marks)

(b) A sample study of coffee consumption by residents of two towns: A and B, revealed the following information:

- Town A: Females were 40%; total coffee drinkers were 45%. Male non-coffee drinkers were 20%.
- Town B: Males were 55%; male non-coffee drinkers were 30%; and female coffee drinkers were 15%.

Present the above information in a tabular form. (9 marks)

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