

1903/102

1906/102

1922/102

1926/102

**BUSINESS CALCULATIONS AND STATISTICS**

November 2022

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 4 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. Sam and Rose shared some money in the ratio of 3:4, respectively. Rose received Ksh 24,500. Calculate the amount Sam received. (2 marks)
2. The marked price of a computer is Ksh 64,000. The computer is sold to a customer at 10% discount. Calculate the amount paid by the customer for the computer. (2 marks)
3. State two divisions of Statistics. (2 marks)
4. Juma is 6 years older than Joseph. The sum of their ages is 38. Determine Juma's age. (2 marks)
5. Roseline earns Ksh 68,000 per month. She pays  $18\frac{1}{2}\%$  of her salary as income tax. Calculate how much she pays as income tax. (2 marks)
6. State two types of frequency distribution. (2 marks)
7. Lillian bought 216 bananas at Ksh 20 for every 4 bananas. She sold all the bananas at Ksh 40 for every 6 bananas. Determine the percentage profit. (2 marks)
8. Highlight two methods used in the construction of weighted index numbers. (2 marks)
9. The cash price of a fridge is Ksh 58,200. A customer bought it on hire purchase by paying a deposit of Ksh 17,700 and 7 equal monthly instalments of Ksh 7,225. Determine by how much more he paid, as compared to the cash price. (2 marks)
10. Distinguish between primary data and secondary data. (2 marks)
11. A Ugandan lady came to Kenya with Ush 2,554,835. She converted all the money at the rate of Ksh 1 = Ush 37.75. Calculate the total amount she received, in Kenya shillings. (2 marks)
12. Given that the series: q, r, s is a Geometric Progression (GP), determine the value of r in terms of q and s. (2 marks)
13. State two limitations of Rank order method as a measure of correlation. (2 marks)
14. The probability that Achonjo will go to school next Monday is  $\frac{1}{5}$  and the probability that Jane will not go to school next Monday is  $\frac{2}{5}$ . Determine the probability that Achonjo and Jane will not go to school next Monday. (2 marks)
15. State two types of variables used in data presentation. (2 marks)

16. Musa scored a mean of 65 marks in six tests. He scored the following marks in the first five tests: 75, 38, 49, 53 and 80. Determine the median mark. (2 marks)
17. The profit of LT Insurance Company after taxation is Ksh 27,000, 950. The company expects the profit to grow by Ksh 950,000 yearly. Calculate the profit realized in the 9th year. (2 marks)
18. The following data shows the prices of shares of Cool Base limited for 6 days.

Day	Mon	Tue	Wed	Thur	Fri	Sat
Prices (K.sh)	220	230	228	180	220	290

Determine the co-efficient of range.

19. Anita deposited a sum of money in a bank that pays interest at the rate of 12% per annum, compounded annually. After 4 years, she received Ksh 695,600. Calculate the sum of money Anita deposited. (2 marks)
20. Differentiate the following equation:  
 $y = x^3 + 18x^2 - 3x + 10$  (2 marks)

### SECTION B (60 marks)

*Answer ALL the questions in this section.*

21. (a) Explain **four** limitations of applying Statistics in business. (8 marks)
- (b) A salesman is paid commission at the rate of 3% on sales above Ksh 30,000, up to Ksh 160,000. For sales above Ksh 160,000, he is paid a commission at a different rate. During a certain month, he sold goods worth Ksh 296,000 and was paid a total commission of Ksh 9,340. Determine the rate of commission for sales above Ksh 160,000. (7 marks)
22. (a) Explain **three** sources of Statistical errors. (6 marks)
- (b) In January 2018, a firm employed 120 staff, of whom, 68 were men. During the year, 19 staff members left, and 14 of these were men. The total recruited during the year was 15, out of whom, 4 were women. During the year 2019, the number of men who left declined by 5 compared to the year 2018, and no woman left. 8 more men but 3 fewer women were employed than the previous year. The total number of employees as at 31 December 2019 was 127.

Present the above information in a tabular form.

(9 marks)

23. (a) Indimuli, Francis and Boslo, each working alone would take 15 days, 20 days and 30 days, respectively, to complete a certain task. All the three men started working together but after 2 days, Indimuli left and the other two men were to complete the task.

Calculate how many more days the remaining men would take to complete the task.

(7 marks)

- (b) The following table shows the marks obtained by ten students in two examinations.

Economics	78	36	98	25	75	82	92	62	65	39
Statistics	84	51	91	69	68	62	86	58	35	49

Calculate the Spearman's rank correlation co-efficient.

(8 marks)

24. (a) The marked price of a fridge is Ksh 85,000. A discount of 17% is allowed when it is bought in cash. If bought on hire purchase, a deposit of kSH 18,400 and 11 equal monthly instalments of Ksh 7,400 is paid. Anne bought the fridge on hire purchase and Esther paid cash for a similar fridge.

(i) Calculate the amount paid by each customer.

(ii) Determine the difference in the amounts paid by Anne and Esther. (7 marks)

- (b) The following information shows the monthly sales of Pema General Stores for the year 2019.

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Sales in Ksh '000'	42	45	60	64	58	70	80	75	60	48	55	95

Draw a graph of time series to present the above data.

(8 marks)

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