

1903/102

1906/102

1922/102

**BUSINESS CALCULATIONS AND STATISTICS**

November 2018

Time: 3 hours



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**CRAFT CERTIFICATE IN SUPPLY CHAIN MANAGEMENT  
CRAFT CERTIFICATE IN BUSINESS MANAGEMENT  
CRAFT CERTIFICATE IN PROJECT 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. The cost price of a computer is Ksh. 5,000 more than the cost price of a printer. The total cost of the two items is Ksh. 22,000. Calculate the cost of the computer. (2 marks)
2. John paid a total of Ksh. 4,820 on the bills for electricity and water. The amount paid for water bill was  $\frac{1}{4}$  of the amount paid for electricity bill. Determine the amount paid for water bill. (2 marks)
3. A sales agent is paid 10% commission on the first Ksh. 100,000 of sales and 3% on sales above Ksh. 100,000. In the month of January 2018, his total sales were Ksh. 565,200. Determine his commission for the month. (3 marks)
4. The value of a residential property is Ksh. 3.6 million. The property is insured at Ksh. 2 for every Ksh. 1,000, per month. Determine the premium payable per annum. (2 marks)
5. A trader bought 100 calculators at Ksh. 775 each. He sold half of the calculators at Ksh. 950 each. He sold the remaining half at a total of Ksh. 45,500. Determine the amount of profit that he made. (2 marks)
6. A television set (TV) is sold on hire purchase terms. A deposit of Ksh. 15,000 is required and the balance is paid in 15 monthly instalments of Ksh. 5,000. Calculate the hire purchase price of the TV set. (2 marks)
7. State two qualities of a good measure of central tendency. (2 marks)
8. A business lady bought 30 handbags at a cost of Ush. 77,500 each in Uganda. Determine the total cost of the handbags, in Kenya shillings.  
Take 1 Ksh = Ush 31. (2 marks)
9. Determine the values of the next two terms in the following sequence:  
128, 32, 8, \_\_\_\_\_, \_\_\_\_\_ (3 marks)
10. State two uses of index numbers. (2 marks)
11. Integrate the following function:  $\int (4x^3 - 3x^2 + 1) dx$ . (1 mark)
12. Differentiate between the terms, discrete series and continuous series, as used in the classification of data. (2 marks)
13. The weekly production of departments A, B and C of a firm are 50,000 units, 48,000 units and 72,800 units, respectively. Present this information in a pie chart. (2 marks)
14. Outline two uses of statistics in a business organization. (2 marks)

15. The sales by a fruit vendor for six days were:  
Ksh. 540, Ksh. 470, Ksh. 380, Ksh. 600, Ksh. 560 and Ksh. 430.  
Determine the median sales for the week. (2 marks)
16. The correlation coefficient between two variables is given as:  $r = -0.92$ . Interpret this value of  $r$ . (1 mark)
17. A department in a firm is producing two separate independent products. The probability that either of the products will be completed on time is 0.4. Determine the probability that just one product will be completed on time. (2 marks)
18. A businessman invested Ksh. 680,000 in a bank that pays a compound interest at the rate of 12% per annum. Determine the amount in his account at the end of 4 years, if compound interest is paid semi-annually. (2 marks)
19. The marked price of a bicycle is Ksh. 5,000. Peter paid Ksh. 4,500 after he was allowed a trade discount.  
Calculate the percentage of trade discount allowed to Peter. (2 marks)
20. Distinguish between the terms, range and skewness, as used in measures of dispersion. (2 marks)

### SECTION B (60 marks)

*Answer ALL the questions in this section.*

21. (a) Explain **four** methods that are used to collect primary data. (8 marks)
- (b) The table below shows prices and quantities of food items in a region for the years 2006 and 2016, respectively.

Commodities	2006		2016	
	Price (Ksh)	Quantities (Kg)	Price (Ksh)	Quantity (Ksh)
Rice	80	320	100	400
Wheat	48	360	72	480
Maize	20	600	40	720

Taking the year 2006 as the base year:

- (i) calculate the Laspeyre's price index;  
(ii) interpret the result in (i) above. (7 marks)

22. (a) The income statistics of Matu County for three years are shown in the table below:

Year	Income in Ksh '000'		
	Agriculture	Industry	Others
2013	70	45	60
2014	90	75	70
2015	100	95	100

Present the information above in a multiple bar chart.

(6 marks)

- (b) The information below shows the results of two tests, Test I and Test II, scored by 10 applicants in an interview for a job in a factory:

Applicant	A	B	C	D	E	F	G	H	I	J
Test I	90	87	85	84	81	75	69	61	51	48
Test II	88	85	93	79	70	87	55	84	39	59

- (i) Calculate the Spearman's Rank Order Correlation Coefficient.

- (ii) Interpret the result in (i) above.

(8 marks)

23. (a) A firm produces and sells  $x$  units of a product. The demand function of the firm is given  $P = 20.8 - 2.6x$

Where  $x$  is quantity produced and sold, in hundreds of units. Determine the level of production that maximises total revenue.

(8 marks)

- (b) Explain **four** limitations of using statistics in business.

(8 marks)

24. (a) Grade A tea costs Ksh. 120 per kg while Grade B tea costs Ksh. 165 per kg. The two grades of tea are mixed to produce a mixture that sells at Ksh. 180 per kg. The profit on selling the mixture is 25%. Determine the ratio at which the two grades of tea are mixed.

(6 marks)

- (b) An employee of a company earns a monthly salary of Ksh. 60,000 and a house allowance of Ksh. 25,000 per month. His earnings are taxed as per the table below:

Amount per month (kg)	Tax rate % age
Up to 12,298	10
Next 11,587	15
Next 11,587	20
Next 11,587	25
47,059 and above	30

He is entitled to a personal relief of Ksh. 1,408 per month. Determine the amount of tax payable per month. (9 marks)

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