Name _____ Index No. _____/_____

1913/106
QUANTITATIVE METHODS
July 2015
Time: 3 hours

Candidate's Signature _____

Date _____

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN INFORMATION STUDIES

QUANTITATIVE METHODS

3 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.
Sign and write the date of examination in the spaces provided above.
*This paper consists of **TWO** sections; **A** and **B**.*
*Answer **ALL** questions in section **A** and any **FOUR** questions from section **B** in the spaces provided in this question paper.*
Maximum marks for each question are as shown.
*Do **NOT** remove any pages from this booklet.*
Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1-10	32	
B		17	
		17	
		17	
		17	
		Total Score	

This paper consists of 19 printed pages.

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

Turn over

SECTION A (32 marks)

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

1. Determine the value of the following expression:

$(3+9)^2 \div 6 \times 5$

(3 marks)

2. State **four** limitations of using telephone administered questionnaires as a method of primary data collection.

(4 marks)

3. Zainabu bought four dozens of tea spoons at Ksh. 5 per tea spoon and two kettles at Ksh. 120 each. Calculate the total cost. (3 marks)

4. Convert 1,925 cubic millilitres into cubic centilitres. (3 marks)

5. A rectangular fuel tank is 5 metres long, 3 metres wide and 1.2 metres high. The tank is filled with fuel. The fuel is sold at Ksh. 0.11 per cubic centimeter.

Calculate the total sales value of the fuel in the tank. (4 marks)

6. Explain each of the following terms as used in linear graphs.

(i) intercept;
(ii) gradient;
(iii) co-ordinates.

(3 marks)

7. Differentiate between permutation and combination, as used in probability theory. (2 marks)

8. The exchange rate of Kenya shillings (Ksh.) to the Sterling pound (£) on 1st January 2014, was 1 £ = Ksh. 140. On 31st March 2014, the exchange rate was 1 £ = Ksh. 145. Rukia had intended to import a machinery from Britain that cost £ 2,900 on either of the two dates. Evaluate the best date on which she should have made the import. (3 marks)

9. State **three** characteristics of the mode as a measure of central tendency. (3 marks)

10. A 50 kg bag of sugar costs Ksh. 3,250 in shop A while a 40 kg bag of similar sugar costs Ksh. 2,800 in shop B. Janet intends to buy 15 kg of sugar from either of the shops. Advise her on the shop to buy from. (4 marks)

SECTION B (68 marks)

*Answer any **FOUR** questions from this section in the spaces provided.*

11. (a) A task can be completed by 18 labourers in 15 days, working 10 hours a day. Determine the:

(i) additional number of labourers required to complete the same task in 10 days, working 9 hours a day.

(ii) time it will take 20 labourers working 10 hours a day to complete the same task.

(7 marks)

(b) A tourist had U.S. Dollars ($) 5,200 and Sterling pounds (£) 1,550 when he arrived in Kenya. He converted all the dollars and pounds into Kenya shillings and was charged a 2% commission. He spent Ksh. 458,000 while in Kenya. He converted half of the remainder into Euros (€) and the other half into Uganda shillings (Ush). The bank charged him a 1.5% commission.

Determine the number of:

(i) Euros that he received;

(ii) Uganda shillings that he received.

Take:
1 U.S. $ = Ksh. 86.5;
1 £ = Ksh. 142.8;
1 € = Ksh. 110
1 Ksh. = Ush. 28

(10 marks)

12. (a) Explain each of the following terms as used in probability theory

(i) simple event;
(ii) compound event;
(iii) theoritical probability;
(iv) empirical probability.

(8 marks)

(b) The table below shows the monthly salaries, in Kenya shillings, and the number of employees in a company.

Salaries (in (Ksh. '000)	**Number of employees**
1-10	5
11-20	16
21-30	20
31-40	25
41-50	32
51-60	18
61-70	12

Calculate the mean monthly salary. (9 marks)

14. (a) Halima bought 750 apples at a price of Ksh. 375 for every 25 apples. Her family ate 15 apples, 35 apples were donated to friends, while 10 apples were spoilt. The rest of the apples were sold in dozens at Ksh. 240 per dozen.

Determine the:

(i) Profit realized from the sales;
(ii) Profit as a percentage of the cost price.

(7 marks)

(b) The functional relationship between variables x and y is represented by the equation: $y = 4x - 3$. Taking the values of x to be $-3, -2, -1, 1, 2, 3$;

(i) draw a linear graph on a cartesian plane;

(ii) determine the:

I. slope of the equation;

II. y-intercept.

(10 marks)

15. (a) Convert the following:

(i) 7,200 metres into kilometres;

(ii) 105 kilograms into grammes;

(iii) 136 gallons into litres;

(iv) 20,700 seconds into hours.

(9 marks)

(b) Explain **four** advantages of using secondary data in research. (8 marks)