Name: _____ Index No: _____/_____

2428/204
STATISTICS
Oct./Nov. 2015
Time: 3 hours

Candidate's Signature:_____

Date: _____

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN SOCIAL WORK AND COMMUNITY DEVELOPMENT
MODULE II

STATISTICS

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 **EIGHT** questions in **TWO** sections; **A** and **B**.*
*Answer **FIVE** questions; choosing at least **TWO** questions from each section in the spaces provided in this question paper.*
All questions carry equal marks.
Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1	20	
	2	20	
	3	20	
	4	20	
B	5	20	
	6	20	
	7	20	
	8	20	
	TOTAL SCORE		

This paper consists of 20 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

*Answer at least **TWO** questions from this section.*

1. (a) Highlight **five** advantages of perpetual inventory system. (5 marks)

(b) The table below gives the monthly wage distribution in Nairobi's industrial area.

Wage per month in Ksh. "00"	No of persons
35 - 45	15
46 - 55	23
55 -65	42
65 - 75	52
75 - 85	76
85 - 95	117
95 - 105	220
105 - 115	82
115 - 125	14
125 - 135	2

Using the above statistics, calculate pearsonian measure of skewness. (15 marks)

2. (a) A marketing survey carried out in Kisumu city's housing estate showed that of all the households; 70 percent had a radio, 35 percent had a car, 45 percent had a telephone and 20 percent had a television set. Determine the probability that a household chosen at random:

(i) owned a car, radio and telephone; (4 marks)

(ii) owned a car, given that they had a television set; (3 marks)

(iii) owned a telephone given that they had a car and television set. (3 marks)

(b) Discuss **five** ways in which management of an organization may use statistics. (10 marks)

3. (a) The following table shows the output data of a factory in Port Victoria.

Months	Output (Units) x	Cost (Ksh.) y
July	20,000	164,000
August	16,000	140,000
September	24,000	180,000
October	22,000	170,000
November	18,000	146,000

(i) Using the least square method, determine the regression line y on x. (7 marks)

(ii) Estimate the cost if 18,000 units are produced. (2 marks)

(iii) Calculate the correlation co-efficient and comment on the results. (5 marks)

(b) Explain the meaning of the following types of probability:

(i) prior probability; (2 marks)

(ii) conditional probability; (2 marks)

(iii) marginal probability. (2 marks)

4. (a) A random survey of 100 members of Fighter Group of Companies shows the number of members who attended the last three annual general meetings as follows:

Meetings attended	Number of people
• 2010 only	10
• 2010 and 2012	20
• 2010 and not 2011	25
• 2010	40
• 2012	45
• 2012 but not 2011	10
• None of the three meetings	25
• All meetings	5

(i) Present the above information in a conscious tabular form. (4 marks)

(ii) Calculate the proportion of members who attended:

I. 2011 meetings (2 marks)
II. Two consecutive meetings (2 marks)
III. 2012 but not 2011 (2 marks)

(b) Explain **five** advantages of standard deviation as a measure of dispersion. (10 marks)

SECTION B

*Answer at least **TWO** questions from this section in the spaces provided.*

5. (a) Estimate the population mean at 95 percent confidence level where sample data are:

(i) sample size 25; standard deviation 15; mean 950; (5 marks)

(ii) 30 out of 57 parts were defective. (5 marks)

(b) Explain the steps involved in hypothesis testing. (10 marks)

6. (a) Describe **five** causes of bias in sampling. (10 marks)

(b) A construction company is intending to construct an engineering workshop. The tasks have been considered as follows:

Task	Immediate predecessors	Duration in days
A	-	10
B	-	12
C	A	10
D	A	09
E	A	13
F	A, B	17
G	C	12
H	C, D	14
I	E	13
J	G, H	12
K	H	10
L	I	14
M	F, I	13

(i) Draw a network to represent the information. (6 marks)

(ii) Determine the critical path and the project duration. (4 marks)

7. (a) Manyatta Highway Developers borrowed 40 million shillings to complete a new workshop. The rate of interest is 15 percent per annum and the loan is to be repaid within 5 years.

(i) Determine the simple interest accrued on the loan after 3 years. (3 marks)

(ii) Determine simple interest accrued when the loan matures. (4 marks)

(iii) Determine the compound interest accrued on the loan when it matures. (5 marks)

(iv) The rate of simple interest that would yield the same amount of interest as the compound interest at maturity of the loan. (4 marks)

(b) Outline **four** components of a time series. (4 marks)

8. (a) The following details relate to material MN5 used by Innocent Ltd.

	Kgs
Re-order level	3,200
Maximum stock level	5,180
Re-order quantity	3,500
Minimum consumption per week	240
Maximum consumption per week	400

Calculate:

(i) maximum lead time; (2 marks)

(ii) minimum lead time; (3 marks)

(iii) minimum stock level; (4 marks)

(iv) average stock level. (3 marks)

(b) (i) Explain the meaning of the term Network Analysis. (2 marks)

(ii) Explain the meaning of each of the following types of events:

(1) node; (2 marks)

(2) burst; (2 marks)

(3) head event. (2 marks)