Name: _____ Index No: _____/_____

2428/204
STATISTICS
Oct/Nov 2012
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 the examination in the spaces provided above.
*This paper consists of **EIGHT** questions.*
*Answer a total of **FIVE** questions.*
***ALL** questions carry equal marks.*
All answers should be written in the spaces provided in this question paper.

For Examiner's Use Only

Question	1	2	3	4	5	6	7	8	TOTAL
Marks									

This paper consists of 12 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

1. (a) State and explain **three** types of correlation. (6 marks)

(b) The following data shows the expenditure on education between 1998 and 2007.

Year	Expenditure (Ksh million)
1998	148
1999	156
2000	160
2001	169
2002	176
2003	190
2004	202
2005	208
2006	216
2007	228

(i) Determine the regression equation which will enable one to forecast future expenditure on education. (10 marks)

(ii) Use the regression equation to forecast expenditure in the year 2010. (4 marks)

2. The following is the frequency distribution of the starting annual salary of a sample of 50 fresh graduates.

Annual Salary (Ksh '000)	Number of graduates
48 - 53	5
53 - 58	5
58 - 63	7
63 - 68	11
68 - 73	11
73 - 78	6
78 - 83	3
83 - 88	2

(i) Calculate the median starting salary. (7 marks)

(ii) Calculate the proportion of graduates whose starting salary exceeds sh 60,000. (7 marks)

(iii) What proportion of graduates earns less than sh 66,000. (6 marks)

3. (a) Explain the meaning of each of the following events as applied in probability:

(i) independent;
(ii) dependent;
(iii) mutually exclusive;
(iv) compound.

(8 marks)

(b) A community group plans to buy a posho mill after 3 years. The posho mill is expected to cost them Ksh 250,000. They deposit Ksh 100,000 at the beginning of the first year and Ksh 60,000 at the beginning of the second year. Calculate the amount which should be deposited at the beginning of the third year if compound interest is paid at the rate of 10% per annum, in order to enable them to buy the posho mill. (12 marks)

4. (a) Explain the meaning of each of the following statistical terminologies:

(i) chi-square test;
(ii) t-test;
(iii) point estimate;
(iv) interval estimate.

(8 marks)

(b) It is estimated that in socio-economic groups, 25% use credit cards. 10 persons are selected at random from these groups and are questioned on the use of credit cards. Determine the probability that:

(i) exactly **one** person uses credit card; (2 marks)
(ii) at least **one** person uses credit card; (3 marks)
(iii) more than 3 persons use credit cards. (7 marks)

5. (a) Describe each of the following types of sampling methods:

(i) simple random;
(ii) systematic;
(iii) multi-stage;
(iv) judgemental;
(v) quota.

(10 marks)

(b) A business college has a pass rate of 80% for a certain course. A large bank sends 64 employees on that course. Assuming that all students on that course are normally distributed; Calculate:

(i) a 95% confidence interval for the number expected to pass; (6 marks)

(ii) the total number expected to pass. (4 marks)

6. (a) State and explain **four** components of time series. (8 marks)

(b) The following distribution gives marks of students in a mid-term examination.

Class	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45
Frequency	10	20	27	36	52	42	18	6

Determine:

(i) the range; (1 mark)
(ii) the mean; (4 marks)
(iii) the standard deviation; (5 marks)
(iv) the co-efficient of variation. (2 marks)

7. (a) Explain the meaning of each of the following terms as applied in network analysis:

(i) project;
(ii) activity;
(iii) event;
(iv) network.

(8 marks)

(b) A project consists of the following activities:

Activity	Preceding activity	Duration(days)
A	-	9
B	-	10
C	B	4
D	A	10
E	A	5
F	A	9
G	E	7
H	D	8
I	C,F	7
J	G,H,I	8

(i) draw a network diagram for the project; (8 marks)

(ii) determine the activities on the critical path; (2 marks)

(iii) determine the normal project duration. (2 marks)

8. (a) State and describe **five** types of charts. (10 marks)

(b) State and explain **five** stages of data analysis in a scientific research. (10 marks)