2428/204
STATISTICS
June/July 2011
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN SOCIAL WORK AND COMMUNITY DEVELOPMENT

MODULE II

STATISTICS

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
  Answer booklet;
  Scientific calculator;

Answer any FIVE of the following EIGHT questions;
ALL questions carry equal marks.
Maximum marks for each part of a question are as shown.

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.

Turn over

1. (a) Explain **five** areas of business and commerce where statistics are extensively used.

(10 marks)

(b) The table below shows the monthly advertising expenditure with the corresponding sales volume.

Month	January	February	March	April	May
Advertising expenditure (sh million)	1.2	1.8	1.0	1.3	1.8
Sales Volume (sh. million)	10.2	9.5	11.0	12.0	10.0

(i) Determine the regression line of sales volume on advertising expenditure.

(8 marks)

(ii) During the 8th month, the company expects to spend sh. 1,500,000 on advertisement. Calculate the expected sales volume.

(2 marks)

2. (a) State **six** sources of published data.

(6 marks)

(b) The data below relates to materials consumed by redcross of Kenya recently.

Minimum usage	16,000 units per week
Maximum usage	30,000 units per week
Lead time	12-16 weeks
Economic Order Quantity	470,000 units
Normal usage	10,000 units per week
Re-order Quantity	60,000 units
Maximum Stock Level	70,000

Calculate:
(i) re-order level;
(ii) minimum stock level;
(iii) maximum stock level;
(iv) maximum lead time.

(14 marks)

3. (a) Explain **five** factors that necessitate most organizations to have good inventory management systems.

(10 marks)

(b) In June 2008, Alfar Company employed 150 staff of whom 90 were men. During the year 20 staff members left and 15 of these were men. The total recruitment during the year was 15 out of whom 5 were women.

During 2009 wastage declined by 5 amongst men compared with 2008 and no women left. 10 more men but 4 fewer women were recruited than in the previous year. The total number employed on 1st January 2010 amounted to 100.

Arrange the above information in concise tabular form showing all relevant totals and sub-totals.

(10 marks)

4. (a) Highlight **five** disadvantages of quartiles positional averages. (10 marks)

   (b) The distribution of sales of Omega Company are as shown below:

Sales	Number of Companies
4 - 8	1
8 - 12	9
12 - 16	21
16 - 20	47
20 - 24	52
24 - 28	30
28 - 32	20
32 - 36	5

   Calculate:

   (i) the mean sales;

   (ii) the standard deviation. (10 marks)

5. (a) Describe **seven** steps that need to be undertaken in cases where primary data must be obtained. (14 marks)

   (b) (i) Outline **two** major approaches to probability. (2 marks)

       (ii) A social work graduate applies for a job in two firms y and z. The probability of her being selected in company y is 0.7 and being rejected at Z is 0.5. The probability of at least one of her application rejected is 0.6. What is the probability that she will be selected in one of the firms? (4 marks)

6. (a) Explain **four** causes of error in sampling. (6 marks)

   (b) The data below shows the sales of rubber shoes made by Keinowear Limited for years 2006, 2007 and 2008.

Period		Sales in Ksh.
2006	1st quarter	23,350
	2nd quarter	23,450
	3rd quarter	22,630
	4th quarter	24,800
2007	1st quarter	25,230
	2nd quarter	25,110
	3rd quarter	24,370
	4th quarter	25,400
2008	1st quarter	26,860
	2nd quarter	27,610

(i) Draw a graph to illustrate the above data and on it superimpose a graph of the four quarterly moving average. (12 marks)

(ii) Comment on the reliability of the sales. (2 marks)

7. (a) A company in Malindi is considering investing in a project whose initial cash outlay is Sh. 1,500,000. The expected net cash flows are as follows:

Year	Net Cash Flow (sh)
1	200,000
2	500,000
3	300,000
4	400,000
5	600,000

The firms cost of capital is 13.5%

Determine:
(i) the net present value of the project at discount rates of 9% and 10% respectively;
(ii) the internal rate of return (IRR);
(iii) whether the company should invest on the project. (12 marks)

(b) Explain **four** reasons why presenting data in graphical form is more superior to diagrammatical presentation. (8 marks)

8. (a) Highlight **six** points which have to be followed while constructing a network diagram. (12 marks)

(b) There are 1,000 students in Omega college. Out of 20,000 in the whole University, in a study 200 were found alcoholist in the college and 1,000 in the whole university. Prove whether the data reveals a significant difference between proportions of alcoholists in Omega college and University. (8 marks)