SECTION A (40 marks)

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

1. A sales lady is entitled to a basic salary of Ksh.9,000 per month and a commission of $12\frac{1}{2}$ % on total sales made. In the month of December 2015, she sold 200 items at Ksh.180 per item. Calculate the total earnings for that month. (2 marks)

2. A job can be completed by 20 workers in 50 days. Determine the number of workers required to complete the same job in 25 days. (2 marks)

3. State **two** properties of a good measure of central tendency. (2 marks)

4. Mary bought a radio at Ksh.3,000 and later sold it at Ksh.3,800. Determine the percentage profit that she made. (2 marks)

5. State **two** factors that may lead to non-sampling errors. (2 marks)

6. A business man imported 1,000 radios from Japan at a cost of 2,500 Japanese Yen per radio. He incurred additional expenses totalling to Ksh.40,000. Calculate the total cost of the consignment, in U.S. dollars.

   Take 1 U.S dollar = Ksh 89.8
   100 Japanese Yen = Ksh 59.80.

   (3 marks)

7. The cash price of a refrigerator is Ksh.18,000 and its hire purchase price is $33\frac{1}{3}$% higher. The payments on hire purchase terms include a deposit and 18 monthly instalments of Ksh.950 each. Determine the amount of the deposit. (2 marks)

8. Determine the value of x in the following equation:

   $4x + 20 - 8(13 - x) = 0.$ (1 mark)

9. A clerk earns Ksh.200 per hour. He works for 8 hours a day. Calculate the total earnings if he works for 23 days. (1 mark)

10. An employee's life is assured for Ksh.600,000 at a monthly premium of Ksh.2,000. Calculate the percentage annual premium on the sum assured. (2 marks)

11. List **two** uses of statistics in business decision making. (2 marks)

12. The following are the sales, in thousands of shillings, made by 15 salesmen.

11	33	22	29	27
18	26	14	25	19
25	27	5	19	10

Using the data above, prepare a frequency distribution table, starting with classes 5 - 10, 10 - 15, ... (3 marks)

13. State **two** advantages of using diagrams in data presentation. (2 marks)

14. David borrowed a sum of money at a simple interest rate of 12% per annum. He repaid a total of Ksh.160,000 after 3 years. Calculate the sum of money that he had borrowed. (3 marks)

15. A basket contains 4 Nokia phones and 5 Samsung phones. One phone is picked at random from the basket. Determine the probability of picking a Nokia phone. (2 marks)

16. The following are prices of four computers in a given firm. Ksh.19,200, Ksh.21,000, Ksh.30,000 and Ksh.25,000. Calculate the coefficient of range of the prices. (2 marks)

17. Two Human Resource officers of a firm ranked two groups of employees in order of merit for promotion purposes as follows:

Employee	Ranking by Officer I	Ranking by Officer II
A	9	10
B	3	4
C	1	2
D	5	6

Compute the Rank Co-efficient of Correlation. (3 marks)

18. State **two** uses of price index numbers in business organizations. (1 mark)

19. Integrate the following expression:

$$\int x(2x+1)\,dx.$$ (1 mark)

20. A business intends to raise his capital to Ksh.20,000. He deposited Ksh.1,500 at the beginning of the first month in an interest free account and Ksh.500 at the beginning of each subsequent months. Determine the number of years it will take him to raise the amount.

(2 marks)

SECTION B (60 marks)

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

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

(i) equally likely events;
(ii) elementary events;
(iii) collectively exhaustive events;
(iv) mutually exclusive events.

(8 marks)

(b) The table below shows the prices and quantities demanded of commodities; A, B and C, for the years, 2011 and 2012, in a region.

Commodity	2011		2012	
	Price / kg Ksh	Quantity Kg	Price / kg Ksh	Quantity Kg
A	150	10	200	12
B	200	25	250	30
C	300	15	400	20

(i) Using 2011 as the base year, calculate the Paasche's price index.

(ii) Comment on the result in (i) above. (7 marks)

22. (a) The procurement officer of a textile factory intends to purchase a sewing machine on hire purchase terms. The cash price of the machine is Ksh.10,000 while the hire purchase price includes a down payment of Ksh.3,000 and 15 monthly instalments of Ksh.600 each. Calculate the hire purchase interest.

(7 marks)

(b) The data below shows the profits of three products; X, Y and Z, manufactured by three different factories. A, B and C.

Profit (Ksh. million)

Factory	Product X	Product Y	Product Z
A	3	4	2
B	1.6	2.6	2
C	1.4	1.8	1.4

Present the data above in the form of a component bar chart.

(8 marks)

23. (a) The table below shows the monthly wages of junior employees of a company.

Monthly wages (Ksh' in hundreds)	Number of employees
40 - 45	2
45 - 50	12
50 - 55	10
55 - 60	18
60 - 65	8

Calculate the:

(i) average monthly wage.

(ii) modal monthly wage.

(8 marks)

(b) A tourist visiting East Africa had with him 30,000 Swiss francs. While in Kenya, he converted the Swiss francs into Kenya shillings and incurred the following expenses:

- Paid bank charges at 2%
- Bought an African necklace for 3 US dollar
- Bought an African basket for £4.

Before leaving for Uganda, he converted the remaining money into Uganda shillings. Determine the total amount of Uganda shillings that he received.

Use the following conversion table:

1 swiss franc	=	Ksh.60.8
1 US dollar	=	Ksh.89.8
1 Sterling pound	=	Ksh.136
1 Ksh.	=	Ug. Sh.30

(7 marks)

24. (a) The table below shows the scores awarded to a firm based on cost incurred and profitability:

Costs (Ksh '000') x:	2	5	3	6	4
Profitability (Ksh '000') y:	1	3	8	7	5

Determine the regression equation of y on x.

(9 marks)

(b) The procurement officer of Yazin Limited bought a computer at Ksh.25,000. He later sold it for Ksh.30,000.

Calculate the:

(i) mark-up;

(ii) margin percentage.

(6 marks)