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**University Examinations 2015/2016**

**SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF PURCHASING AND SUPPLIES MANAGEMENT**

**SMB 3225: QUANTITATIVE METHODS I**

**DATE: AUGUST, 2016 TIME: HOURS**

**INSTRUCTIONS:** *Answer question* ***one COMPULSORY*** *and any other* ***two*** *questions*

**QUESTION ONE - (30 MARKS)**

1. Define the term statistics. (1 Mark)
2. State three sources of primary data. (3 Marks)
3. The data in table 1 shows the price for commodities A, B and C in 2013 and 2014.

Commodity Price in 2013 Price in 2014

A 100 120

B 30 35

C 500 580

D 90 115

From the data construct a price index for 2014 taking 2013 as the base commodity price.

(3 Marks)

1. The value of supplies (in millions) to different branches of an organization in an year were;

150,80, 90, 130, 200, 240, 60, 100 , 210, 50.

1. Determine the mean. (2 Marks)
2. Determine the variance for the data. (3 Marks)
3. Given the sets;

A =

B =

U =

1. List the three sets. (3 Marks)
2. Determine (2 Marks)
3. What per annum compound interest is required to give a sum of 2011357 shillings from an investment of 100,000 in 5 years time. ( 4 Marks)
4. Solve the inequality; (2 Marks)
5. Discuss four functions of statistics in a business organization. (4 Marks)
6. A company makes sales equaling 1.6 million in year 2000, 2.4 million in the year 2001 and 4 million in 2002. Draw a pie chart to represent the data. (3 Marks)

**QUESTION TWO (20 MARKS)**

1. The cost of 3 keyboards and 2 mice is Kshs 7200 . If 4 keyboards and 1 mouse cost Ksh 7600. Find the cost of two key boards and mouse. (4 Marks)
2. A group consisting of x members decided to raise Ksh 480,000 by equal contribution to start a business. Before the actual payment was made four of the members pulled out and each of those remaining had to pay an additional Ksh 20,000. Determine the original number of members. (4 Marks)
3. Solve the inequality and present it on a number line. (4 Marks)
4. A company projects that its profits will grow by 10 percent per annum. If its current profit is Ksh. 4,000,000, Determine the total projected profits in 10 years. (4 Marks)
5. Differentiate the following terms;
6. Population and sample (2 Marks)
7. Cross sectional and time series data. (2 Marks)

**QUESTION THREE (20 MARKS)**

1. State four sources of secondary data. (4 Marks)
2. The advertisement costs (in million) for 35 companies in one year were as follows;

1 0 2 3 4 5 6

7 2 3 4 1 2 5

8 4 5 10 6 3 2

7 6 5 3 3 7 8

9 7 9 4 5 3 4

1. Draw a frequency distribution table for their data. (3 Marks)
2. Draw a frequency polygon for the data. (3 Marks)
3. Draw a cumulative frequency curve for the data. (4 Marks)
4. Determine the median of the data from the cumulative frequency curve.(1 Mark)
5. Define the terms;
6. Absolute mean deviation (1 Mark)
7. Standard deviation (1 Mark)
8. State the appropriate measurement scale for the following variables;
9. Age of a person (1 Mark)
10. Temperature (1 Mark)
11. Gender (1 Mark)

**QUESTION FOUR (20 MARKS)**

1. The table below shows the profits made by 200 companies in 2006.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Profits (million) | 1. <10
 | 10-< 20 | 20-< 30 | 30-< 40 | 40-< 50 | 50-<60 | 60-<70 |
| No. of companies | 5 | 12 | 30 | 45 | 50 | 37 | 21 |

For this data;

1. Determine the mean (4 Marks)
2. Determine the median (4 Marks)
3. Determine the mode (4 Marks)
4. Determine the standard deviation (4 Marks)
5. Determine the coefficient of variation for the weight of boys to girls given the data below;

(4 Marks)

Boys Girls

 Number 100 50

 Mean Weight 60 kg 45kg

 Variance 9 7

**QUESTION FIVE (20 MARKS)**

1. Briefly discuss four factors that should be considered during the construction of price index numbers. (4 Marks)
2. The table shows the sales of biscuits, bread and cakes in a bakery in million.

Year Biscuits Bread Cakes Total

2010 80 150 90 320

2011 100 180 100 380

2012 90 200 120 410

2013 110 220 110 440

2014 12 250 130 500

From the data;

1. Draw a multiple bar chart. (4 Marks)
2. Draw a component bar chart. (4 Marks)
3. Draw a line graph for the year total sale (3 Marks)
4. State one advantage and one disadvantage of using pie charts in data presentation

(2 Marks)

1. State 3 disadvantages of interviews as a method of data collection. (3 Marks)