**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

 **Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.mucst.ac.ke**](http://www.mucst.ac.ke) **Email:** **info@mucst.ac.ke**

**University Examinations 2014/2015**

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR CERTIFICATE IN BUSINESS ADMINISTRATION

**SMA 1100: BASIC BUSINESS MATHEMATICS**

**DATE: APRIL 2015 TIME:** $1\frac{1}{2}$ **HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***three*** *questions*

**QUESTION ONE (30 MARKS)**

1. Find the value of x that satisfy the linear equation $7x-10=25$ (2 marks)
2. solve the following simultaneous equations algebraically

$$3x-y=-5$$

 $ 3x+2y=28$ (3 marks)

1. If A= and B= find
2.  (1 mark)
3.  (1 mark)
4. Find the standard deviation for 6, 8, 9, 10, 11, 11, 14, 6 (3 marks)
5. Use formula method to solve the quadratic equation  (3 marks)
6. If A= B= and C=
7. Draw a venn diagram representing set A, B, and C together with the known elements (2 marks)
8. Find the universal set for sets A, B, and C (1 mark)
9. Use graphical method to estimate the mode of

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| f | 5 | 12 | 24 | 42 | 30 | 26 |

 (4 marks)

1. Calculate the amount accrued for Sh. 4500 on a simple interest of 12% for 4 years (3 marks)
2. A progression is given by 6, 11, 16, 21, 26, 31.....Find
3. the value of the 10th term (2 marks)
4. The sum of the first 20 items (2 marks)
5. Use graphical methods to solve the linear equation $4-x=6x+2$ (3 marks)

**QUESTION TWO (10 MARKS)**

1. If A= B= and C= and a universal set u= find:
2. 
3. 
4. 
5. 
6.  (5 marks)
7. If A= B= and C= with a universal set defined as u= find
8. A
9. 
10. A
11. (A
12.  (5 marks)

**QUESTION THREE (10 MARKS)**

The data below gives successful sales made by salesman employed in a certain firm

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Class  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 |
| Frequency  | 1 | 14 | 23 | 21 | 15 | 6 |

Calculate

(i) The mean (4 marks)

(ii) The mode (2 marks)

(iii) Standard deviation (4 marks)

**QUESTION FOUR (10 MARKS)**

Use graphical methods to estimate

1. The mode (5 marks)
2. The median (5 marks)

of the data given in the table below

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 |
| f | 2 | 14 | 29 | 43 | 3 | 9 |

**QUESTION FIVE (10 MARKS)**

Solve the quadratic equation $x^{2}-5x+4=0$ by

1. Factorization method (3 marks)
2. Graphical method (4 marks)
3. Formula method (3 marks)

**QUESTION SIX (10 MARKS)**

Define the following terms as used in set theory. In each case give an example

1. A set (2 marks)
2. Subsets (2 marks)
3. Number of a set (2 marks)
4. Set equality (2 marks)
5. A universal set (2 marks)