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**University Examinations 2015/2016**

FIRST YEAR FIRST SEMESTER EXAMINATION FOR CERTIFICATE IN ELECTRICAL INSTALLATION

**SME 1150: MATHEMATICS II**

 **DATE: NOVEMBER 2015 TIME: 11/2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. A matrix A is given as 
2. The determinant of A (2 Marks)
3. the inverse of A (2 Marks)
4. Solve for the unknown in the following:

 (4 Marks)

1. Determine whether or not the following lines are parallel:
2. 

 (2 Marks)

1. 

 (2 Marks)

1. The number of people who attended an agricultural show in one day was 510 men, 1080 women and some children. When the information is represented on a pie chart, the combined angle for men and children was 216o. Find the angle representing the children. (4 Marks)
2. Solve the equation

 (3 Marks)

1. Use matrix method to solve the following pairs of simultaneous equations



 (4 Marks)

1. Three years ago, Juma was three times as old as Ali. In two years time, the sum of their ages will be 62. Determine their present ages. (4 Marks)
2. Draw the graph of straight lines passing through the following points (use same Cartesian Plane)
3.  (1 Mark)
4.  (1 Mark)
5.  (1 Mark)

**QUESTION TWO (10 MARKS)**

1. A 24-hectare farm is divided as follows:

Coffee -4ha Bananas – 5ha

Grass – 3ha Homestead – 0.5ha

Maize – 7ha Vegetables – 4.5ha

Draw a pie chart to represent this information (6 Marks)

1. The total population of animals in a farm is given as 1,800. Out of these, 1200 are chicken, 200 cows, 300 goats and 100 ducks. Represent this information in a pie chart. (4 Marks)

**QUESTION THREE (10 MARKS)**

1. Given that  . Find C, such that B.C=A (5 Marks)
2. Find inverse of the matrix hence or otherwise, solve the equation



 (5 Marks)

**QUESTION FOUR (10 MARKS)**

1. Complete the table below for the function 

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -4 | -3 | -2 | -1 | 0 | 1 | 2 |
| y |  |  |  |  |  |  |  |

 (3 Marks)

1. On the grid provided, draw the graph of the function  (3 Marks)
2. Use your graph to estimate the roots of the equations below
3.  (2 Marks)
4.  (2 Marks)

**QUESTION FIVE (10 MARKS)**

Plot the graphs of straight lines represented by the following equations

1.  (3 Marks)
2.  (4 Marks)
3.  (3 Marks)

**QUESTION SIX (10 MARKS)**

Find whether the following lines are parallel or not

1. 

 (2 Marks)

1. 

2y+4x-6=0 (2 Marks)

1. 

 (2 Marks)

1. 

 (2 Marks)

1. 

 (2 Marks)