

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2015/2016**

THIRD YEAR, FIRST SEMESTER EXAMINATION FOR THE CERTIFICATE IN ELECTRICAL INSTALLATION

**SME 1150: MATHEMATICS II**

**DATE: APRIL 2016 TIME:11/ 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Given that   and  Find:
2. 2A+B (2 marks)
3. AB (2 marks)
4. BC-AB (2 marks)
5. Draw the graph of , taking values of x between o and -5 and hence solve the  using the graph. (4 marks)
6. Calculate the area of a triangle whose sides are 4.2cm, 5.8cm and 6.0cm. (3 marks)
7. Calculate the volume of a cone whose perpendicular height is 6cm and base radius 5cm. (3 marks)
8. Calculate the transpose of  (2 marks)
9. Given that  show that AA-1=I (3 marks)
10. Calculate the value of and using matrix method (3 marks)





1. Calculate the area of the curved surface of a cone whose radius is 3cm and height 4cm. (3 marks)
2. In a certain school, the lessons for each week are allocated as below (3 marks)

English 4 mathematics 5 science 6

French 4 German 4 others 13

Draw a pie chart to represent the information above.

**QUESTION TWO (10 MARKS)**

1. Calculate the perimeter of the figure below (2 marks)
2. Draw a linear graph of the equation and use the graph to determine the value of x. (3 marks)
3. Calculate the values of and if

 (3 marks)

1. Calculate the area of the triangle below (2 marks)

**QUESTION THREE (10 MARKS)**

1. A window in the form of a semicircle with diameter as base has a radius of 30cm. Calculate its perimeter (2 marks)
2. Calculate the total surface area of a cone of base radius 6cm and height 8cm. (2 marks)
3. Solve the simultaneous equations graphically. (4 marks)





1. Calculate the volume of a sphere whose radius is 7cm. (2 marks)

**QUESTION FOUR (10 MARKS)**

1. Given that  and  ` calculate;
2.  (2 marks)
3. 3A-C (2 marks)
4. A survey of the occupations of the men in certain club produced the following information

Accountants 1 Bankers 3 Doctors 3

Engineers 7 Lawyers 4 Salesmen 5

Draw a bar graph to display this data. (3 marks)

1. Calculate the total surface area of a closed cylinder of radius 7cm and height 10cm. (3 marks)

**QUESTION FIVE (10 MARKS)**

1. Draw the graph of  and use it to solve  (3 marks)
2. Calculate the volume of the figure below. (2 marks)
3. Calculate the inverse of the matrix below (3 marks)
4. Calculate the perimeter of the polygon below. (2 marks)