**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.must.ac.ke**](http://www.must.ac.ke) **Email:** **info@must.ac.ke**

**University Examinations 2015/2016**

FIRST YEAR FIRST SEMESTER EXAMINATION FOR CERTIFICATE IN BRIDGING MATHEMATICS

**SMA 0002: GEOMETRY**

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

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

**QUESTION ONE (30MARKS)**

1. Define the following terms as applied in geometry:
2. A vector (1 Mark)
3. Area (1 Mark)
4. An angle (1 Mark)
5. Find the area of the quadrilateral below in m2. (4 Marks)
6. Given the points A(3,1), B(-6,2). Find:
7.  (1 Mark)
8.  (2 Marks)
9. Given find without tables or calculators tan Q and Cos Q (3 Marks)
10. Given and find the modulus of vector . (3 Marks)
11. Find the angles marked by letters x, y and z. Give reasons for your answer. O represents the centre of the circle. (6 Marks)
12. Solve a triangle ABC where dimensions are 8cm by 9cm by 7cm. (5 Marks)
13. Solve  (3 Marks)

**QUESTION TWO (10MARKS)**

1. (i) Using a ruler and a pair of compasses only, construct triangle ABC, such that AB=6CM, <ABC=75o and <BAC=671/2o (3 Marks)

(ii) Drop a perpendicular from C to AB, hence measure its height. (2 Marks)

1. (i) Calculate the area of triangle ABC above. (3 Marks)

(ii) Draw an inscribed of triangle ABC. (2 Marks)

**QUESTION THREE (10 MARKS)**

Three towns, A, B and C are such that town B is 180km from A on a bearing of 1100, while town C is 200km from B on a bearing of 230o. By scale drawing,

1. Show the position of the three towns. (4 Marks)
2. What is the distance between A and C? (2 Marks)
3. What is the bearing of C from A? (2 Marks)
4. How long would a vehicle travelling at speed of 80km/hr take to travel from A to C? (2 Marks)

**QUESTION FOUR (10 MARKS)**

1. In a triangle ABC, and N is on AC such that AN:NC=2:5, while M is on AB such that $BN$ and $CM$ intersect at $x.$ find in terms of vector and only:
2.  (1 Mark)
3.  (1 Mark)
4.  (2 Marks)
5. Given that and express $BX$ in two ways hence, find the values of constant $h $and $k$. (6 Marks)

**QUESTION FIVE (10 MARKS)**

1. Find the area of the common region in the intersecting circles below. (6 Marks)

AB=18CM

1. (i) Convert 2.3c into degrees. (2 Marks)

(ii) State two applications of angles. (2 Marks)