

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2015/2016**

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF

BACHELOR OF EDUCATION

**SMA 3152: CALCULUS II**

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

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

**QUESTION ONE (30 MARKS)**

1. Find the indefinite integral
2.  (3 marks)
3.  (3 marks)
4.  (3 marks)
5.  (4 marks)
6. The graph of from  to  is revolved about the x-axis. Find the area of the resulting surface. (3 marks)
7. Integrate the function with respect to x.

 (5 marks)

1. Find the area of the region bounded by the graph of the equations  and  (5 marks)
2. Find the integral  (4 marks)

**QUESTION TWO (20 MARKS)**

1. Express  in partial fractions. Hence find  (7 marks)
2. Find the integral
3.  (6 marks)
4.  (7 marks)

**QUESTION THREE (20 MARKS)**

1. Find the indefinite integral  (5 marks)
2. Integrate  (8 marks)
3. Integrate  (7 marks)

**QUESTION FOUR (20 MARKS)**

1. Calculate the length of the arc of the function  for  (6 marks)
2. The region bounded by the y-axis, the graph of the equation  and the lines y = -1 and y = 1 is revolved about the x-axis. Find the volume of the resulting solid. (7 marks)
3. Approximate the integral  using Simpson’s rule with 4 sub-intervals (7 marks)