

**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF MATHEMATICS AND ACTURIAL SCIENCES**

**UNIVERSITY EXAMINATION FOR CERTIFICATE IN BRIDGING IN MATHEMATICS**

**NAIROBI CITY CAMPUS**

**SEMESTER1 2016/2017**

**COURSE TITLE: ELEMENTARY CALCULUS**

**COURSE CODE: SMA 0103**

**TIME 1 HOUR 30 MINUTES**

**EXAM VENUE: 9TH FLOOR**

**DATE: 14/12/2016**

**TIME: 2 HOURS**

**EXAM SESSION: 9 AM- 10:30 AM**

**INSTRUCTIONS**

1. Answer question **one** (compulsory) and any other **two questions**
2. Candidates are advised not to write on the question paper
3. Candidates must hand in their answer booklets to the invigilator while in the examination room.

**Question One**

1. Define the following terminologies
2. Rate of change (2 marks)
3. Derivative (2 marks)
4. Velocity (2 marks)
5. Acceleration (2 marks)
6. Distance (2 marks)
7. Use the first principle to differentiate the following functions
8. (3 marks)
9. (5 marks)
10. Determine the second order derivative of the following functions
    * 1. (7 marks)
      2. (5 marks)

**Question Two**

1. For the function identify the stationary points (7 marks)
2. Identify the stationary point for the function (7 marks)
3. The demand for the product of a firm varies with the price that the firm charges for the product. The firm estimate that annual total revenue R(stated on 1000’s)as a function the price P is given by
4. Determine the price which should be charged in order to maximize total revenue (4 marks)
5. What is the total maximum revenue? (2 marks)

**Question Three**

1. Evaluate the following
2. (7 marks)
3. (7 marks)
4. If find
5. (3 marks)
6. (3 marks)

**Question Four**

Evaluate the following integrals:

1. (5 marks)
2. (5 marks)
3. (7 marks)
4. (3 marks)