KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE

SMA 200 : CALCULUS II

DATE: Monday 21st November 2016

TIME: 2.00p.m – 4.00p.m

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INSTRUCTIONS

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

**Question One (30marks**)

1. Evaluate (4marks)
2. Let , find F’(4). (4marks)
3. Use tabular integration to evaluate (5marks)
4. Find the area of the region between the parabola and the line (6marks)
5. Use trapezoidal rule with n=4 to estimate (5marks)
6. Find (6marks)

**Question two (20marks)**

Evaluate the following integrals

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

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**Question three (20marks)**

1. Compute the area enclosed by the curves and (6marks)
2. Find the length of the catenary from x=0 to x=1. (6marks)
3. Find the volume generated by revolving area bounded by the parabola and it’s latus rectum about the y – axis. (8marks)

**Question four (20marks)**

1. State two fundamental theorems of calculus. (4marks)
2. Evaluate where (6marks)
3. A particle moves along a line so that its velocity at time t is (measured in meters per second)
4. Find the displacement of the particle during the time period 1. (4marks)
5. Find the distance travelled during this time period. (6marks)

**Question five (20marks)**

1. Approximate by trapezoidal rule if the error is to be less than 0.005 (7marks)
2. i) Evaluate using a trapezoidal rule with n=4. (3marks)

ii)Repeat 5b)i) above using Simpson’s rule with n=4. (5marks)

1. Investigate the convergence of (5marks)

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