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| **Student’s Name** | **Student’s ID** | **Group Number** | **Lecturer’s Name** |
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| **Question Number** | **I** | **II** | **III** | **IV** | **Total** |
| **Mark** |  |  |  |  |  |

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| **Question I: A. Choose the correct answer. (8 Marks)**   1. **is equal to** 2. **(b)** 3. **(d) None of the previous** |
| 1. **If  then  is equal to** 2. **1 (b)** 3. **(d) None of the previous** |
| 1. **equals**   **(a) (b)**  **(c) (d) None of the previous**   1. **The value of is**   **(a) (b)**  **(c) (d) None of the previous** |
| 1. **The partial fractions of are**   **(a) + (b) +**  **(c) + (d) None of the previous** |
| 1. **If is the rectangular coordinates representation of a point, then a corresponding polar coordinates representation is** 2. **(b)**   **(c) (d) None of the previous** |
| 1. **If is a polar coordinates representation of a point, then the corresponding rectangular representation is** 2. **(5,0) (b) (-5,0)**   **(c) (0,5) (d) None of the previous** |
| 1. **The plane curve**  **is a circle** **with center** 2. **(b)**   **(c) (d) None of the previous** |
| **B. Prove that for any real numbers (2 Marks)** |
| **C. Find the value of that satisfies the conclusion of the Integral Mean Value Theorem on [0,3] for**  **(2.5 Marks)**  **D. Find the value of that satisfies the equation =3. (1.5 Marks)** |
| **Question II: A. Compute the following integrals**  **(i) (4 Marks)** |
| **(ii) (3 Marks)** |
| **(iii) (4 Marks)**  **(iv)**   **(3 Marks)** |
| **B. Determine whether the following improper integrals converge or diverge**  **(i) (2.5 Marks)** |
| **(ii) (2.5 Marks)** |
| **QUESTION III**   1. ***Sketch* and *Find*  *the area* of the region bounded by the graphs of (5 Marks)**   **and .** |
| 1. **Let R be the region in the first quadrant bounded by the graphs of**   ***Sketch R*  and *Find the volume* of the solid resulting by revolving R about**   1. **the axis.** 2. **the axis. (6 Marks)** 3. **Find the arc length of the portion of the curve of from to (4 Marks)** |
| **QUESTION IV**  ***Sketch* and *find the area* of the region bounded by the graph of for****. (5 Marks)**  Good Luck☺ |