Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination – June – 2017**

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| **Code :** | **14MA1002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CALCULUS AND STATISTICS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Solve . | CO1 | 10 |
| b. | Using method of variation of parameter, Solve . | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Sovle the Euler’s differential equation . | CO1 | 10 |
| b. | Solve  and | CO1 | 10 |
| 3. | a. | Change the order of integration and evaluate | CO2 | 10 |
| b. | Using triple integral, find the volume of the sphere | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Evaluate | CO2 | 10 |
| b. | Evaluate over the cardioids above the initial line. | CO2 | 10 |
| 5. | a. | Prove that and hence deduce the duplication formula | CO2 | 10 |
| b. | Evaluate | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | State and prove the relation between Beta and Gamma function. | CO2 | 15 |
| b. | Evaluate . | CO2 | 5 |
| 7. | a. | Solve | CO1 | 10 |
| b. | Form a partial differential equation by eliminating arbitrary function from | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | Solve . | CO1 | 10 |
| b. | Solve | CO1 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Find the mean, median and mode for the following distribution.   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | X | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | | f | 5 | 6 | 15 | 10 | 5 | 4 | 2 | 2 | | CO3 | 10 |
|  | b. | The two regression lines are 8x – 10y + 66 = 0 and 40x – 18y – 214 = 0 with the variance of x is 9. Find  (i) the mean values of x and y  (ii) the correlation coefficient between x and y.  (iii) find standard deviation of y. | CO3 | 10 |

ALL THE BEST