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



**End Semester Examination – Nov / Dec – 2019**

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|  |  |  |  |
| **Code :** | **17MA1002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CALCULUS AND STATISTICS** | **Max. Marks :** | **100** |

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | | **Marks** |
| 1. | a. | Solve | CO2 | | 10 |
| b. | Using method of variation of parameter, solve . | CO2 | | 10 |
| **(OR)** | | | | | |  |  |  | (OR) |
| 2. | a. | Solve the Euler’s differential equation . | CO2 | | 10 |
| b. | Solve  and | CO2 | | 10 |
|  |  |  |  | |  |
| 3. | a. | Evaluate  over the area inclined between the circles and . | CO3 | | 10 |
| b. | Evaluate | CO3 | | 10 |
| **(OR)** | | | | | |  |  | (OR) | (OR) |
| 4. | a. | Change the order of integration and evaluate | CO3 | | 10 |
| b. | Find the volume of the solid bounded by the plane x=0,y=0, z=0 & x+y+z=1. | CO3 | | 10 |
|  |  |  |  | |  |
| 5. | a. | Prove that and hence deduce the duplication formula | CO1 | | 10 |
| b. | Prove that | CO1 | | 10 |
| **(OR)** | | | | | |  |  | (OR) | (OR) |
| 6. | a. | State and prove the relation between Beta and Gamma function. | CO1 | | 15 |
| b. | Prove that . | CO1 | | 5 |
|  |  |  |  | |  |
| 7. | a. | Solve | CO4 | | 10 |
| b. | Form a partial differential equation by eliminating arbitrary function from | CO4 | | 10 |
| **(OR)** | | | | | |  |  | CO3 | (OR) |
| 8. | a. | Solve | | CO4 | 10 |
| b. | Solve | | CO4 | 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 | | | CO5 | 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. | | CO6 | 10 |