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



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

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| **Code: 17MA1004** |  | **Duration : 3hrs** |  |
| **Sub. Name: CALCULUS AND TRANSFORMS** |  | **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. | If  find | CO1 | 10 |
| b. | Find the nth derivative of | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Determine ‘c’ lying between a and b, using Mean Value theorem if, a=0 and b=1/2. | CO1 | 10 |
| b. | Expand  about in Taylor’s series. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Evaluate | CO2 | 10 |
| b. | Find the area of ellipse  using double integral. | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Prove that | CO2 | 10 |
| b. | Find the volume of tetrahedron bounded by the coordinate planes and the plane *x+y+z=a.* | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Solve | CO3 | 10 |
| b. | Solve | CO3 | 10 |
| **(OR)** | | | | |
| 6. | a. | Solve | CO4 | 10 |
| b. | A body originally at 70 cools down to 50 in 20 minutes,the temperature of the airbeing 40. What will be the temperature of thebody after 40 minutes from the original? | CO4 | 10 |
|  |  |  |  |  |
| 7. | a. | Find the Laplace Transform of | CO6 | 10 |
| b. | Find | CO6 | 10 |
| **(OR)** | | | | |
| 8. | a. | Find the Laplace transform of | CO6 | 10 |
| b. | Find | CO6 | 10 |
|  | | **Compulsory**: |  |  |
| 9. |  | Obtain the Fourier series expansion of  Hence deduce the following:       3) | CO6 | 20 |