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



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

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| **Code :** | **16MA1002** | **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. | Determine ‘c’ lying between a and b, using Mean Value theorem if  in (0,4). | CO1 | 10 |
| b. | Find the nth derivative of | CO1 | 10 |
| (OR) | | | | |
| 2. |  | Expand  as a Taylor series about (i)  (ii) . | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | Prove that . | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Evaluate , where V is the volume of the tetrahedron whose vertices are (0,0,0),(0,1,0),(1,0,0) and (0,0,1). | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Solve . | CO3 | 10 |
| b. | Solve | CO3 | 10 |
| (OR) | | | | |
| 6. |  | Solve | CO4 | 20 |
|  |  |  |  |  |
| 7. | a. | Find . | CO6 | 10 |
| b. | Find the Laplace Transform of . | CO6 | 10 |
| (OR) | | | | |
| 8. | a. | Evaluate  and | CO1 | 10 |
| b. | Find | CO2 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Obtain the Fourier series expansion of | CO6 | 20 |