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



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

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| **Code :** | **17MA2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **LAPLACE TRANSFORMS, FOURIER SERIES 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. | Evaluate | CO1 | 10 |
| b. | Find . | CO1 | 10 |
| **(OR)** | | | | |  | | | |  | (OR) |
| 2. | a. | Evaluate by using Laplace transforms. | CO1 | 10 |
| b. | Find the Laplace transforms of the periodic function , where is a constant. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Find | CO1 | 10 |
|  | b. | Solve , given . | CO4 | 10 |
| **(OR)** | | | | |  |  | CO1 |
| 4. | a. | Using convolution theorem evaluate . | CO2 | 10 |
|  | b. | Find . | CO1 | 10 |
|  |  |  |  |  |
| 5. |  | Find the Fourier Transform of  Also evaluate . | CO2 | 20 |
| **(OR)** | | | | |  |  | CO3 |
| 6. |  | Find the Fourier Transform of given by . Hence show that (i)  (ii) . | CO5 | 20 |
|  |  |  |  |  |
| 7. | a. | Expand when  in a Fourier series of periodicity . | CO3 | 10 |
|  | b. | Find  and  for the function in . | CO3 | 10 |
| **(OR)** | | | | |  | | | |  | (OR) |
| 8. | a. | Find for the function | CO3 | 5 |
|  | b. | Find the Fourier series of the function in . | CO3 | 15 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Find half range Fourier cosine and half range Fourier sine series for the function in . | CO3 | 5 |
|  | b. | Compute the first three harmonics of the Fourier series for f(x) from the following data  x 0  f(x) 1.0 1.4 1.9 1.7 1.5 1.2 1.0 | CO6 | 15 |