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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14MA2004** | **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. | Find | CO1 | 7 |
| b. | Evaluate | CO1 | 5 |
| c. | Find | CO1 | 8 |
| (OR) | | | | |
| 2. | a. | Find | CO1 | 5 |
| b. | Find the Laplace Transform of the periodic function with period  . | CO1 | 8 |
| c. | Evaluate . | CO1 | 7 |
| 3. | a. | Find . | CO1 | 10 |
|  | b. | Solve , given . | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Using convolution theorem evaluate . | CO1 | 10 |
|  | b. | Find . | CO1 | 5 |
|  | c. | Find | CO1 | 5 |
| 5. | a. | Find the Fourier Transform of  Also evaluate . | CO3 | 15 |
|  | b. | Using Parsevals’s identity, prove that . | CO3 | 5 |
| (OR) | | | | |
| 6. |  | Find the Fourier Transform of given by . Hence show that (i)  (ii) . | CO3 | 20 |
| 7. | a. | Expand when in a Fourier series of periodicity . Hence deduce . | CO3 | 10 |
|  | b. | Find the Fourier series of | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Find the Fourier series of in  of periodicity . Hence deduce . | CO2 | 15 |
|  | b. | Find for the function | CO2 | 5 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Find half range Fourier cosine and half range Fourier sine series for the function in . | CO2 | 8 |
|  | b. | Develope the first three harmonicsof 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 | CO2 | 12 |

ALL THE BEST