**Code No.BS202HS**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution)**

**B.E. (CE/ECE/EEE/CSE/AI&DS/MECH) II-Semester (Supplementary) Examination, FEB-2024**

**Subject: ENGINEERING MATHEMATICS-II**

**Time: 3 hours Max.Marks:60**

**Note: Missing data, if any, maybe suitably assumed.**

**PART-A**

|  |  |  |  |  |
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| **Q.No** | **Question** | **Marks** | **CO**  | **BTL** |
| 1. a) | Define Absolute and conditional convergence | 2 | CO1 | L1 |
| b) | Test for convergence  | 2 | CO1 | L4 |
| c) | Solve  | 2 | CO2 | L3 |
| d) | Solve  | 2 | CO2 | L3 |
| e) | Solve  | 2 | CO3 | L3 |
| f) | Solve $y^{"}+4y^{'}+13y=0$ | 2 | CO3 | L3 |
| g) | Define Error Function | 2 | CO4 | L1 |
| h) | Define ordinary and singular points of an equation | 2 | CO4 | L1 |
| i) | Find the Laplace Transform of$ t^{2}e^{-2t}$ | 2 | CO5 | L1 |
| j) | State Convolution Theorem of Laplace Transform | 2 | CO5 | L1 |

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**PART-B**

**Answer Any Five questions**. **(5X8M=40M)**

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| **Q.No** | **Question** | **Marks** | **CO**  | **BTL** |
| **2.** | a) Test for convergence  | **5** | **CO1** | **L4** |
| b)Test the series  | **3** | **CO1** | **L1** |
| **3.** | a). Find the General solution of  | **5** | **CO2** | **L1** |
|  | b). Solve (4D2-4D+1)=0, when x=0, y=-2 and . | **3** | **CO2** | **L3** |
| **4.** | Show that the family of confocal conics  is self-orthogonal, where is the parameter. | **8** | **CO2** | **L2** |
| **5.** | Solveby the method of variation of parameters | **8** | **CO3** | **L3** |
| **6.** | Solve  | **8** | **CO3** | **L3** |
| **7.** | Find the power series solution about x=0, of the differential equation  | **8** | **CO4** | **L4** |
| **8.** | a).Find the solution of initial value problem  | **5** | **CO5** | **L1** |
| b).Find the Laplace transform of  | **3** | **CO5** | **L1** |
| **9.** | a). Prove β(m,n) =$ \frac{Γm Γn}{Γm+n}$  | **5** | **CO5** | **L2** |
| b). Show that  | **3** | **CO4** | **L2** |

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