**Code No.BS202HS**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution)**

**B.E. (CE/ECE/EEE/CSE/AI&DS/MECH) II-Semester (AICTE) Examination, SEPTEMBER-2023**

**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)** | Test for convergence  | **2** | **CO1** | **L4** |
| **b)** | Discuss the convergence of the series | **2** | **CO1** | **L4** |
| **c)** | Find the orthogonal Trajectories of the family of curves | **2** | **CO2** | **L3** |
| **d)** | Solve  | **2** | **CO2** | **L3** |
| **e)** | Solve  | **2** | **CO3** | **L3** |
| **f)** | Solve y’”-3y”+3y’-y=ex | **2** | **CO3** | **L3** |
| **g)** | Define Error Function | **2** | **CO4** | **L1** |
| **h)** | classify the singular points of the equations  | **2** | **CO4** | **L2** |
| **i)** | Find the Laplace Transform of  | **2** | **CO5** | **L1** |
| **j)** | State Convolution Theorem of Laplace Transforms. | **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). Define Absolute & Conditional convergence. | **3** | **CO1** | **L1** |
| **3.** | a).Find the General solution of  | **4** | **CO2** | **L1** |
| b). Solve (4D2-4D+1) =0, when x=0, y=-2 and | **4** | **CO2** | **L2** |
| **4.** | a).Find the orthogonal trajectories of family of parabolas x2=4ay. |  **4** | **CO2** | **L3** |
| b).Solve (D2-4D+3)y =2xe3x + 3excos2x | **4** | **CO3** | **L2** |
| **5.** | Solve by method of variation of parameters (D2+4)y=tan2x | **8** | **CO3** | **L2** |
| **6.** |  Prove $Γ\frac{1}{2}$ = $\sqrt{π}$ | **8** | **CO4** | **L4** |
| **7.** | Find the power series solution about the origin , of the differential equation  | **8** | **CO4** | **L3** |
| **8.** | a). Find  | **5** | **CO5** | **L1** |
|  | b). Find the Laplace transform of  | **3** | **CO5** | **L1** |
| **9.** | Find the solution of initial value problem | **8** | **CO5** | **L1** |

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