BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2025)

CLASS: IMSc **SEMESTER : IVTH**
BRANCH: PHYSICS **SESSION : MO/2025**

SUBJECT: PH213R1 MATHEMATICAL PHYSICS-II

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Define the singular points of a second order linear differential equation.	[2]	2	1
Q.1(b)	Establish the parity relation of Bessel function.	[3]	2	3
Q.2	Using Frobenius method, formulate the solution of simple harmonic equation.	[5]	2	6
Q.3	Develop the relation between Beta and Gamma functions.	[5]	1	6
Q.4	Solve Laplace's equation in two dimensional cartesian coordinate system, using separation of variable method.	[5]	2	3
Q.5(a)	What do you mean by a partial differential equation? Give an example.	[2]	2	1
Q.5(b)	Give the definitions of function and functional. Write down Euler-Lagrange equation.	[3]		1

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