

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

CLASS: I.M.Sc.
BRANCH: CHEMISTRY

SEMESTER: I
SESSION: MO/2022

SUBJECT: PH109 PHYSICS-I

TIME: 2 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)	Illustrate the Differential form of Gauss Law.	[2]	1,2 2
Q.1(b)	Apply the Gauss Law to find the electric field due to a uniformly charged infinite sheet.	[3]	1,2 3
Q.2(a)	Explain the polarization of dielectrics with the help of figure.	[2]	1,2 2
Q.2(b)	Show that electric field is a conservative field.	[3]	1,2 2
Q.3(a)	What is Ampere Circuit law?	[2]	1,2 1
Q.3(b)	Find the energy density of magnetic field.	[3]	1,2 1
Q.4(a)	What do you understand by Poynting Vector?	[2]	1,2 1
Q.4(b)	Plane $y = 1$ carries current $K = 50az$ mA/m. Find H at (a) (0,0,0) (b) (1,5,-3)	[3]	1,2 1
Q.5(a)	Estimate the B.E. of a neutron in the ${}_3\text{Li}^7$ nucleus. Given: ${}_3\text{Li}^7 = 7.016004$, ${}_3\text{Li}^6 = 6.015125$, $m_n = 1.008665$	[2]	3 5
Q.5(b)	What are the different classifications of nucleus? Discuss with examples.	[3]	3 1

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