

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

**CLASS: BTECH/IMSC.  
BRANCH: BT/CHEMICAL/CIVIL/MECH/PROD/FT**

**SEMESTER: I  
SESSION: MO/2022**

**SUBJECT: PH113 PHYSICS**

**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)	Explain polarization of light.	[2]	1	II
Q.1(b)	Develop the condition for maxima and minima due to interference in thin parallel film. (Oblique incidence)	[3]	1	III
Q.2(a)	Explain why Newton's rings are circular in nature.	[2]	1	II
Q.2(b)	Formulate the expression for intensity distribution due to double slit Fraunhofer diffraction pattern.	[3]	1	VI
Q.3(a)	Define Gauss's law. Develop the differential form of Gauss's law from its integral form.	[2]	2	I
Q.3(b)	Formulate the relation between E and V in differential form. Show that electrostatic field is conservative in nature.	[3]	2	VI
Q.4(a)	Explain equation of continuity. Define displacement current.	[2]	2	V
Q.4(b)	Develop the boundary condition between B & H in magnetostatics across an interface separating two media having different permeabilities.	[3]	2	III
Q.5(a)	Define postulates of special theory of relativity.	[2]	3	I
Q.5(b)	Construct Lorentz transformation equations of space and time coordinates.	[3]	3	VI

::: 17/01/2023 :::M