

JAMIA HAMDARD
Department of Computer Science & Engineering
School of Engineering Sciences & Technology
New Delhi – 110062

Odd Semester Examination 2024

Paper Name: Applied Physics
Time: 2.5 Hours

Paper Code: BTCSEAI-101/BTECE-101
Maximum Marks: 60

Section A

Attempt ALL Questions

(4 × 5 = 20)

Q.No.	Questions	CO	BL
1	What is a wave function? What are the necessary conditions of physically acceptable wave function?	3	2
2	With the help of diagrams, explain the three radiative processes that may occur when light interacts with matter.	5	2
3	What are the conservative and non-conservative forces?	2	2
4	Explain the phenomenon of interference of light. What are the conditions to obtain sustained interference?	4	2

Section B

Attempt any FOUR Questions

(4 × 10 = 40)

Q.No.	Questions	CO	BL
1	(i) Obtain the radius of m th dark ring in a Newton's ring experiment. (ii) Calculate the radius of curvature of a lens in a Newton's rings experiment if the diameter of 10 th dark ring is 0.5 cm and the wavelength of light used is 6×10^{-5} cm.	4	4
2	What are the different components of laser? Explain them with the help of diagrams.	5	2
3	Write Maxwell's equation in integral form. Deduce them in differential form. Also, discuss their physical significance.	1	4
4	Starting with the time-dependent Schrodinger equation, derive time-independent Schrodinger wave equation.	3	4
5	What are damped oscillations? Find the differential equation for damped oscillations and discuss its solutions.	2	4
6	Write down the Maxwell's equation in matter. Obtain the propagation equation for electromagnetic waves in matter and determine the velocity of propagation.	1	4

BL: Bloom's Taxonomy Level (1-Remembering, 2-Understanding, 3-Applying, 4- Analysing, 5-Evaluating, 6- Creating).