

ANURAG Engineering College
(An Autonomous Institution)

I B.Tech II Semester Supplementary Examinations, January– 2025

ENGINEERING PHYSICS
(COMMON TO CIVIL, EEE & MECH)

Time: 3 Hours

Max. Marks: 75

Section – A (Short Answer type questions)

(25 Marks)

Answer All Questions

	Course Outcome	B.T Level	Marks
1. Define damped harmonic oscillations and give an example?	CO1	L1	3M
2. What do you understand by the quality factor of a harmonic oscillator?	CO1	L2	2M
3. What do you understand by the division of amplitude type of interference? Give two examples?	CO2	L1	2M
4. Explain the concept of polarization by double refraction?	CO2	L2	3M
5. What are the different types of optical fibres based on refractive index profile?	CO3	L1	2M
6. What is population inversion, explain?	CO3	L2	3M
7. What is coordination number explain with examples?	CO4	L1	2M
8. What is the Bragg's law of X-Ray diffraction?	CO4	L2	3M
9. Explain the Bhor's magnetron?	CO5	L1	2M
10. Derive the relation between D, E and P?	CO5	L2	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks.

(5 X 10M = 50M)

11. A) Derive the equation of motion for critically damped harmonic oscillator and the energy decay in the case of damped harmonic oscillator?	CO1	L2	10M
OR			
B) Derive an equation for the motion of a transverse wave? What are stationary waves give an example?	CO1	L2	10M
12. A) Derive the conditions for dark and bright rings in Newton's rings experiment in the reflected light.	CO2	L2	10M
OR			
B) Explain the concept of diffraction? Explain different types of polarization mechanisms?	CO2	L2	10M
13. A) What is total internal reflection explain? Explain different types of losses in optical fibres?	CO3	L2	10M
OR			
B) Explain about the construction and working of a He-Ne laser with neat diagrams?	CO3	L2	10M
14. A) Explain seven crystal systems with Bravais lattice with neat diagrams?	CO4	L2	10M
OR			
B) Explain about powder method of X-Ray diffraction?	CO4	L3	10M

15. A) Classify magnetic materials in detail? Distinguish between soft and hard magnetic materials? CO5 L3 10M
- OR**
- B) Derive an expression for ionic polarizability? CO5 L3 10M