Sub code:R25BS002		R25

AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(UGC - Autonomous)

(Approved by AICTE, Recg. by Govt. of T.G & Affiliated to JNTU, Hyderabad) NAAC "A" Accredited Institute

B.TechI Year I Semester Regular Examinations, December/January 2025-26

ENGINEERING PHYSICS

(Common to EEE, MECH, ECE, CSE (CS), CSE (AI&ML), CSE (DS))

Time: 3hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of ten questions from 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART-A

(10 Marks)

			BT Level	Marks
1.	a	Write the bragg's law with diagram?		2M
	b	Explain de Broglie hypothesis of matter waves?		2M
	c	What is quantum computing?		2M
	d	What is spontaneous magnetization?		2M
	e	List out the properties of laser		2M

PART-B

(50 Marks)

2.		What are the bravais lattices?		10M
		OR		
3.		Explain in detail about types of qualitative defects in crystal ?		10M
4.		Show that the solution of schrodinger's equation for a particle in an infinite potential well leads to the concept of quantization of energy?		10M
		OR		
5.		Explain the postulates of quantum mechanics?		10M
6.		Explain the geometrical representation of a qubit with a neat diagram of the bloch's sphere?		10M
		OR		
7.		Explain the dirac notation of quantum bit and define superposition?		10M
8.		Explain briefly the various types of polarization in dielectrics?		10M
		OR		
9.		What is the hysteresis loop? What does it represent?What is the significance?		10M
10.		Describe the basic optical communication system?		10M
		OR		
11.		Explain the production of lasers by ruby crystal?		10M