

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM
(AUTONOMOUS)**

I B.Tech I Semester Supplementary Examinations, July - 2024

**ENGINEERING PHYSICS
(Common to CE & MECH)**

Time: 3 hours

Max. Marks: 70 M

**Answer ONE Question from each Unit
All Questions Carry Equal Marks**

Q. No.		Questions	BTL	CO	Marks
UNIT – I					
1.	a)	State and explain Bragg's law of X-ray diffraction.	K2	CO1	7 M
	b)	Estimate the packing fractions of face centered cubic and body centered cubic structures.	K2	CO1	7 M
OR					
2.	a)	Develop an expression for interplanar spacing between the parallel planes (hkl) of a cubic system.	K2	CO1	7 M
	b)	Describe the Bragg's X-ray spectrometer.	K2	CO1	7 M
UNIT – II					
3.	a)	Interpret the origin of magnetic moment at the atomic level.	K2	CO2	7 M
	b)	Illustrate hysteresis loop observed in ferromagnetic materials.	K2	CO2	7 M
OR					
4.	a)	Develop an expression for Lorentz field relating to a dielectric material.	K3	CO2	7 M
	b)	Develop the relation between dielectric constant and polarizability of atoms in a dielectric material.	K3	CO2	7 M
UNIT – III					
5.	a)	Explain the various factors affecting acoustics of buildings and their remedies.	K2	CO3	7 M
	b)	Define absorption coefficient and determine the absorption coefficient of a material.	K2	CO3	7 M
OR					
6.	a)	Describe the production of ultrasonic waves by magnetostriction method.	K2	CO3	7 M
	b)	Interpret pulse echo technique to detect a flaw in the specimen.	K2	CO3	7 M
UNIT – IV					
7.	a)	Illustrate the construction and working of He-Ne LASER.	K2	CO4	7 M
	b)	Explain about the characteristics of a LASER beam.	K2	CO4	7 M
OR					
8.	a)	Explain the principle and working of Piezoelectric sensor.	K2	CO4	7 M
	b)	Discuss the principle and working of temperature sensor.	K2	CO4	7 M

UNIT – V					
9.	a)	Describe the principle and working of Scanning Tunnelling Electron Microscopy.	K2	CO5	7 M
	b)	Interpret the preparation of carbon nano tubes by using Arc Discharge method.	K2	CO5	7 M
OR					
10.	a)	Explain Sol-Gel technique used for synthesis of nanomaterials.	K2	CO5	7 M
	b)	Describe the principle and working of Atomic Force Microscopy.	K2	CO5	7 M