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Reg. No: ☐☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year I Semester Supplementary Examinations December-2021
ENGINEERING PHYSICS
(Common to CE & AGE)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Write a note on gradient of a scalar field.	L1	6M
	b	Show that F = - grad V.	L4	6M

OR

2	a	State and explain Kepler's laws of planetary motion.	L1	8M
	b	If the Earth be one half of its present distance from the sun, what will be the number of days in a year?	L4	4M

UNIT-II

3	a	Define the following	L1	5M
		i) Elasticity ii) isotropic materials iii) rigid body iv) Plasticity v) Hooke's law		
	b	What is stress? Explain different types of stresses.	L1	7M

OR

4	a	Deduce an expression for energy stored per unit volume in stretched wire.	L4	7M
	b	Estimate the work done in stretching a wire of cross section 1.25 mm^2 and length 1.9 m through 0.14 mm. The Young's modulus of wire is 45 x10^9 N/m^2.	L4	5M

UNIT-III

5	a	Define reverberation and reverberation time.	L1	4M
	b	Derive Sabine's formula for reverberation time.	L4	8M

OR

6	a	Describe the piezoelectric effect.	L1	4M
	b	Explain the production of ultrasonics by piezoelectric method.	L3	8M

UNIT-IV

7	a	Define simple harmonic motion. Give three examples.	L1	4M
	b	Derive the equation of motion of simple harmonic oscillator.	L4	8M

OR

8	a	Distinguish between damped and forced oscillations.	L2	6M
	b	Explain the phenomenon of resonance with suitable examples.	L1	6M

UNIT-V

9	a	Explain the synthesis of nanomaterials by ball milling method.	L3	8M
	b	Discuss the advantages of nanomaterials.	L1	4M

OR

10	a	Explain the principle of Scanning Electron Microscopy (SEM).	L3	8M
	b	Write any two applications of SEM.	L1	4M

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