Q.P. Code: 19HS0848 **R19**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations July-2022

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**	Define dot product of two vectors and write their properties.	**L1**	**8M**
	b	Two vectors are given by A=4j–7k and B=5i+3j, find their dot product.	**L4**	**4M**
		OR		
2	**a**	State and explain Newton's laws of motion.	**L1**	**8M**
	b	Derive Newton's first law and third law from second law of motion.	**L4**	**4M**

UNIT-II

3	**a**	Define a) Young's modulus b) Bulk modulus c) Rigidity modulus d) Poisson's ratio	**L1**	**4M**
	b	Derive the relation between different elastic moduli.	**L4**	**8M**
		OR		
4	**a**	Define strain. Explain the types of strain.	**L1**	**8M**
	b	A wire of 3.0 m long and 0.625 sq.cm in cross section is found to stretch by 0.3 cm under a tension of 1200 kg. What is Young's modulus of the material of the wire?	**L4**	**4M**

UNIT-III

5	**a**	Describe the factors affecting the acoustics of buildings.	**L4**	**6M**
	b	Outline the remedies that must be followed for an acoustically good hall.	**L4**	**6M**
		OR		
6	**a**	What are ultrasonics? Mention their wavelength.	**L1**	**4M**
	b	Describe any one method of production of ultrasonics.	**L3**	**8M**

UNIT-IV

7	**a**	Define damped harmonic motion. Give examples.	**L1**	**4M**
	b	Derive and solve differential equation of damped harmonic oscillator.	**L4**	**8M**
		OR		
8	**a**	Explain logarithmic decrement, relaxation time and quality factor of an oscillator.	**L4**	**9M**
	b	The amplitude of a second pendulum falls to one half of its initial value in 150 seconds. Calculate the Q factor.	**L4**	**3M**

UNIT-V

9	**a**	Define Nano science and nanotechnology.	**L1**	**8M**
	b	Explain the basic principles of nanomaterials.	**L4**	**4M**
		OR		
10	**a**	Describe any one method of fabrication of nanomaterials.	**L3**	**8M**
	b	Write any four applications of nanomaterials.	**L1**	**4M**

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