

ENROLLMENT NO

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B.Tech (CSE)
I Year / II Semester Examination
Engineering Physics

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

1.	Multiple Choice Questions (MCQs)	[01×15=15]
I	Que: Which of the following can be considered as relativistic speed- (a) 0.9 C (b) 0.6 C (c) 0.5 C (d) 0.4 C	
II	Que: The Galilean Transformation is ideal for- (a) Relativistic speeds (b) Normal speeds (c) Both (d) None	
III	Que: In time dilation, the time- (a) Increases (b) Decreases (c) Remains Same (d) None of above	
IV	Que: Curl of a constant value (say 4) will be- (a) 0 (b) 1 (c) 2 (d) 3	
V	Que: The mass energy relation is- (a) $E = mc^2$ (b) $E = 2mc^2$ (c) $E = 3mc^2$ (d) None	
VI	Que: An electromagnetic wave, contains- (a) Only Magnetic field (b) Only electric field (c) Both (d) None	
VII	Que: In vacuum, (a) $\nabla \cdot E = 0$ (b) $\nabla \cdot E = 1$ (c) $\nabla \cdot E = 2$ (d) $\nabla \cdot E = 3$	
VIII	Quantum mechanics deals with (a) Macro Objects (b) Micro Objects (c) Nano objects (d) None of these	
IX	In quantum Mechanics, Hamiltonian gives- (a) Kinetic Energy (b) Potential Energy (c) Sum of both (d) None	
X	If radiation is falling on an Ideal Black body, it reflects- (a) All radiations (b) Few parts of radiations (c) Both (d) No part of radiation	
XI	Plank's constant was introduced in- (a) Quantum Mechanics (b) Classical Mechanics (c) Both (d) None	
XII	LASER light can be produced from - (a) Highly Coherent sources (b) Highly incoherent sources (c) Both (d) None	
XIII	He-Ne LASER operates using - (a) Gases (b) Crystals (c) Both (d) None	
XIV	RUBY LASER operates by using- (a) Gases (b) Crystal (c) Both (d) None	
XV	In newton's rings, bright fringes happen because of- (a) Diffraction (b) Constructive interference (c) Destructive interference (d) None	
2.	Answer in long (any three)	[10×3=30]
I	Explain black body radiation. Briefly describe the Stefan's law.	
II	Write expression of Maxwell's equations in vacuum and conducting medium	
III	What you understand by LASER. Provide characteristics of LASER. Explain RUBY LASER	
IV	Derive the expression for Galilean Transformation. Briefly describe the length contraction	
3.	Answer in short (any five)	[5×5=25]
I	Describe stimulated emission	
II	Define absorption of radiation	
III	Write down the time dependent and time independent Schrodinger's equation	
IV	Write down Stefan's law	
V	What you understand by time dilation, explain.	
VI	Define pointing vector	
VII	Write down the continuity equation for current density	
