SREE VIDYANIKETHAN ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to JNTUA, Ananthapuramu)

I B.Tech II Semester (SVEC-16) Regular/Supplementary Examinations June - 2018

ENGINEERING PHYSICS

[Civil Engineering, Mechanical Engineering, Computer Science and Engineering, Information Technology and Computer Science and Systems Engineering]

Time: 3 hours **Max. Marks: 70**

Answer One Question from each Unit.
All questions carry equal marks.

UNIT-I

1	a)	Write about different types of optical fibers.	6 Marks
	b)	What are the advantages and disadvantages of an optical fiber?	4 Marks
	c)	Write industrial applications of LASERS.	4 Marks
		(OR)	
2	a)	What is acceptance angle and derive condition for accepting the light to propagate through the optical fiber by means of total internal reflection?	6 Marks
	b)	Define total internal reflection. Explain it with diagram.	4 Marks
	c)	Explain the applications of LASERS in engineering.	4 Marks

UNIT-II

3		Derive time-independent Schrodinger wave equation and apply it to obtain the solution for a particle in a one-dimensional well of infinite height.	14 Marks
		(OR)	
4	a)	Explain Fermi-Dirac distribution of electrons in various energy levels and its effect of temperature.	8 Marks
	b)	Distinguish Conductors, Insulators and Semiconductors based on their band formation.	6 Marks

UNIT-III

5	a)	Write a brief description of various types of polarization in dielectric materials with neat diagrams.	8 Marks
	b)	Explain the frequency dependence of various types of polarizations with a neat graph.	6 Marks
		(OR)	
6	a)	Write short note on drift and diffusion current. Derive the relation between mobility and diffusion constant.	8 Marks
	b)	Write the process of current generation in a solar cell and its applications.	6 Marks

UNIT-IV

7	a)	Differentiate between Noise, Music and Sound. Explain the main characteristics of a musical sound.	8 Marks
	b)	Explain the difference between ordered sound and disordered sound.	6 Marks
		(OR)	
8	a)	Describe an expression for the intensity of sound waves.	6 Marks
	b)	Define Reverberation. Discuss Sabine's formula for Reverberation time.	8 Marks

UNIT-V

9	a)	What is nanoscience and nanotechnology? What is the difference between the two?	8 Marks
	b)	Discuss the importance of nanoscience in various fields. Give examples where nanoscience plays an important role.	6 Marks
		(OR)	
10	a)	List various approaches and methods to synthesize nano particles.	6 Marks
	b)	Describe the synthesis of nano materials using ball-milling method with a sketch. Write advantages and disadvantages.	8 Marks

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