CMR TECHNICAL CAMPUS
UGC AUTONOMOUS
B. Tech. I Sem Regular & Supply End Examinations, January-2024
Applied Physics
Common to ECE, CSM, CSD, AIML, CSC

Time: 3 Hours **Max. Marks: 60**

Note

i. This Question paper contains Part- A and Part- B.
ii. All the Questions in Part A are to be answered compulsorily.
iii. All Questions from Part B are to be answered with internal choice among them.

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PART-A

10 X 01 = 10 Marks

			Marks	CO	BL
1.	a	Define Photoelectric effect?	1	CO1	L1
	b	Define Heisenberg's uncertainty Principle?	1	CO1	L1
	c	Classify types of Semiconductors?	1	CO2	L1
	d	Write the applications of LED.	1	CO2	L1
	e	Define the term Dielectric constant?	1	CO3	L1
	f	Define Magnetic moment?	1	CO3	L1
	g	Explain Surface to Volume ratio?	1	CO4	L2
	h	Write applications of nanomaterials.	1	CO4	L1
	i	What is population Inversion?	1	CO5	L1
	j	Define the term Attenuation?	1	CO5	L1

PART- B

5 X 10 = 50 Marks

			Marks	CO	BL
2.	a	Explain how Davisson–Germer's experiment verified the existence of matter waves?	7	CO1	L2
	b	What is de Broglie hypothesis and deduce an expression for de Broglie wavelength in terms of kinetic energy?	3	CO1	L2
		OR			
3	a	Show that the energies of a particle in a potential box are quantized?	8	CO1	L2
	b	Calculate the first two permitted levels of an electron, in a one-dimensional box of 1 Å.	2	CO1	L3
4	a	Obtain an expression for carrier concentration of electrons in	10	CO2	L2

		an intrinsic semiconductor.			
		OR			
5	a	Explain the V-I characteristics of Zener diode?	3	CO2	L2
	b	Explain working principle and structure of avalanche photo diode.	7	CO2	L2
6	a	What is electronic polarization? Derive an expression for it?	8	CO3	L2
	b	Write a note on Piezo electricity?	2	CO3	L2
		OR			
7	a	Distinguish between Soft and Hard magnetic materials?	7	CO3	L2
	b	Write a note on multiferroics?	3	CO3	L2
8	a	Explain synthesizing of nano materials by using Ball milling method?	3	CO4	L2
	b	Explain how the nano particles are synthesized using CVD technique?	7	CO4	L2
		OR			
9		Explain the construction and working of SEM with the help of neat diagram?	10	CO4	L2
10	a	Derive the relation between Einstein's Co-efficient?	7	CO5	L2
	b	Write few applications of lasers?	3	CO5	L1
		OR			
11	a	Explain in detail different types of Optical fibers?	7	CO5	L2
	b	Write a note on different types of losses in Optical fibers?	3	CO5	L2