MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

I B.Tech I Sem Regular/Supply End Examination, April 2022
Applied Physics
(ECE, CSC, CSD)

Time: 3 Hours.   Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
   Each question carries 10 marks and may have a, b as sub questions.

PART- A
                                                (10*2 Marks = 20 Marks)

1.	a)	State the significance of quantum mechanics.	2M	CO1	L1
	b)	What are the demerits of wave function .	2M	CO1	L1
	c)	Define diffusion current.	2M	CO2	L1
	d)	Draw Fermi level position in N-type semiconductor.	2M	CO2	L2
	e)	List out few applications of LED.	2M	CO3	L1
	f)	Draw V-I Characteristics of solar cell.	2M	CO3	L2
	g)	Define Coherence.	2M	CO4	L1
	h)	What is total internal reflection.	2M	CO4	L1
	i)	Explain Polarization in dielectrics.	2M	CO5	L2
	j)	Define permeability.	2M	CO5	L1

PART- B
                                                (10*5 Marks = 50 Marks)

2	a)	Explain Wave-particle duality.	5M	CO1	L2
	b)	Write a note on Black body radiation.	5M	CO1	L1

OR

3		Discuss Davisson and Germer's experiment.	10M	CO1	L6

4	a)	Distinguish between Intrinsic and Extrinsic semiconductors.	5M	CO2	L4
	b)	Discuss working principle of p-n junction diode at various bias.	5M	CO2	L6

OR

5		Describe construction and principle of operation of Bipolar Junction Transistor.	10M	CO2	L6

6	a)	Explain radiative and non-radiative recombination mechanisms in semiconductors.	5M	CO3	L2
	b)	Distinguish between Avalanche photodiode and Solar cell.	5M	CO3	L4

OR

7	Write a note on PIN diode.	10M	CO3	L1

8	a)	Explain Population and Population inversion	5M	CO4	L2
	b)	What are the characteristics of lasers?	5M	CO4	L1

OR

9	With neat diagram describe construction and principle of Carbon dioxide (CO_2) laser.	10M	CO4	L6

10	a)	Discuss various Types of polarizations.	5M	CO5	L6
	b)	Discuss Domain theory of ferro magnetism.	5M	CO5	L6

OR

11	Derive an expression for Internal fields in a solid.	10M	CO5	L5

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