Course Code: 1910004 **Roll No:** **MLRS-R19**

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 Supply End Examination, April 2022

Applied Physics

(ECE)

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)	Give the significance of Quantum Mechanics.	2M	CO1	BL1
	b)	What are the limitations of wave function?	2M	CO1	BL1
	c)	Define Fermi energy level at TK.	2M	CO2	BL2
	d)	Draw energy level diagram of PN Junction diode.	2M	CO2	BL1
	e)	How the concentration of the charge carrier various in different layers of PIN diode?	2M	CO3	BL2
	f)	Draw symbol of diode and LED.	2M	CO3	BL1
	g)	What is the role of He & N_2 gases in CO_2 Laser system	2M	CO4	BL2
	h)	Define angle of acceptance of a given optical fiber.	2M	CO4	BL1
	i)	Define polarization.	2M	CO5	BL1
	j)	The magnetic susceptibility of aluminum is $2.3X10^{-5}$. Find the permeability.	2M	CO5	BL1

PART- B

(10*5 Marks = 50 Marks)

2	What is Black body radiation? Explain in detail.	10M	CO1	BL4
	OR			
3	Explain Born's interpretation of the wave function.	10M	CO1	BL4
4	Explain formation of PN junction diode.	10M	CO2	BL4
	OR			
5	Discuss construction, principle of operation of BJT.	10M	CO2	BL2
6	With neat diagram discuss construction and principle of LED.	10M	CO3	BL2
	OR			

7	With a neat sketch, describe construction and principle of semiconductor lasers.	10M	CO3	BL2
8	Derive an expression of Numerical Aperture.	10M	CO4	BL6
	OR			
9	Describe the construction and working of Ruby laser.	10M	CO4	BL2
10	Derive an expression of continuity equation.	10M	CO5	BL6
	OR			
11	Discuss domains theory of ferromagnetism.	10M	CO5	BL2

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