Exam.Code:0969
Sub. Code: 34523

2125

M.E. (Electronics and Communication Engineering)
First Semester
ECE-1102: Fiber-Optics Communication Systems
(For UIET only)

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.

x-x-x

1.	i.	Define numerical aperture in optical fibers.	2x5
	ii.	What is meant by group velocity?	
	iii.	What is the main difference between Step Index and Graded Index fibers?	
	iv.	What is an eye diagram?	
	v.	What is the significance of the threshold condition in laser diodes?	
		PART A	
2.	i.	Explain the need for optical transmission. Also, describe the architecture of a Fiber Optic Communication System.	7, 3
	ii.	Discuss the advantages of OFC over conventional communication systems.	
3.		Explain attenuation, dispersion (material, waveguide, polarisation), and nonlinear effects such as SRS and SBS in the Optical Fiber System.	10
4.	i.	Explain the working principle of optical transmitters.	5, 5
	ii.	Write short notes on Distributed Feedback (DFB) lasers.	
		PART B	
5.		Explain the principle of operation of p–n, p–i–n, and avalanche photodiodes in optical receivers.	10
6.		Describe the types, architecture, and working principle of Raman amplifiers. Also, describe the concept of amplifier noise.	10
7.	i.	Write short notes on NRZ and RZ modulation formats.	5, 5
	ii.	What is Wavelength Division Multiplexing (WDM)? How does it differ from Dense WDM (DWDM)?	

x-x-x