Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI • EXAMINATION - WINTER • 2014

Su	ıbject	Code: 161005 Date: 03-12-2014	
Ti	-	Name: Optical Communication 2:30 pm - 05:00 pm Total Marks: 70 ns:	
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Explain the elements of an optical fiber transmission link with the functional description of each block.	07
	(b)	Mention the advantages and applications of optical fiber communications.	07
Q.2	(a) (b)	Compare step index fibers and graded index fibers. Compare Ray theory and Electromagnetic mode theory for light propagation through fiber.	07 07
	<i>-</i> .	OR	
	(b)	Explain the fiber fabrication technique along with the schematic of a fiber drawing apparatus.	07
Q.3	(a) (b)	Explain the principle, characteristics and operation of avalanche photodiode. List the types of Light Emitting Diodes used in optical system and explain any one of them with required figure.	07 07
Q.3	(a)	OR Discuss the various dispersion mechanisms that contribute to pulse broadening during the fiber transmission.	07
	(b)	Discuss briefly the distributed-feedback(DFB) laser diode with neat sketch.	07
Q.4	(a) (b)	Write the differences between LEDs and LASERs. Discuss optical power loss model for a point to point link. OR	07 07
Q.4	(a) (b)	What are Eye diagrams? Explain different eye pattern features with diagrams. Explain (1) fusion splicing, (2) V-grove splicing.	07 07
Q.5	(a) (b)	Explain Semiconductor optical Amplifiers (SOAS). Write short notes on Synchronous Optical Fiber Networks(SONET). OR	07 07
Q.5	(a)	Explain Optical Time Domain Reflectometry (OTDR) method with its benefits over other techniques.	07
	(b)	Write a brief note on Optical Couplers.	07
