Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VI EXAMINATION – SUMMER 2026

Subject Code:3163208 Date:03-06-2026

Subject Name: Optical Communication

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Define (1) Refractive Index (2) Numerical Aperture (3) Critical Angle	**03**
	(b)	Enlist advantages of Optical Fiber Communication.	**04**
	(c)	Draw and describe the block diagram of Optical Communication systems.	**07**
Q.2	**(a)**	Define the following terms related to photo detector: 1) Responsivity 2) Quantum efficiency 3) Cut-off wavelength	**03**
	(b)	Discuss the EYE diagram in brief	**04**
	(c)	Write a short note on optical receiver operation.	**07**
		OR	
	(c)	Describe the principle used in the photo detector.	**07**
Q.3	**(a)**	Explain Snell's Law in brief.	**03**
	(b)	List advantages of single mode fibers over multimode fibers.	**04**
	(c)	Compare Step Index and Graded Index fibers.	**07**
		OR	
Q.3	**(a)**	What is Population Inversion?	**03**
	(b)	Explain the surface emitter LED in brief.	**04**
	(c)	Compare LED and LASER.	**07**
Q.4	**(a)**	Explain set up for the measurement of attenuation.	**03**
	(b)	Discuss limitations on BER in optical transmission systems.	**04**
	(c)	Write short note on EDFA	**07**
		OR	
Q.4	**(a)**	Enlist advantages of OTDR method over other techniques.	**03**
	(b)	Discuss optical power loss model for a point-to-point link.	**04**
	(c)	Write short note on Raman Amplifier.	**07**
Q.5	**(a)**	Explain optical switching in brief.	**03**
	(b)	Discuss about Optical Add-Drop Multiplexer (OADM).	**04**
	(c)	Write a short note on Synchronous Optical Network (SONET).	**07**
		OR	
Q.5	**(a)**	Explain Optical coupler in brief.	**03**
	(b)	Explain the basic principles of WDM and DWDM with respect to optical fiber system.	**04**
	(c)	Explain Mach-Zehnder Interferometer (MZI) in detail.	**07**

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