

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2170312

Date: 29/11/2018

Subject Name: Medical Optics

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.

		MARKS
Q.1	(a) Define (1) Fiber Optics (2) Cone of Acceptance (3) Numerical Aperture.	03
	(b) Explain Electromagnetic Spectrum.	04
	(c) Enlist Applications Of Fiber Optics and Describe Total Internal Reflection with a neat Diagram.	07
Q.2	(a) What is Snell's Law?	03
	(b) Give Advantages of Optical Fibers over Copper wires.	04
	(c) Explain Propagation of light along the fiber cable with proper diagram	07
	OR	
	(c) Explain the Losses in Optical Fibers.	07
Q.3	(a) What is cleaving process?	03
	(b) Difference between ordinary light source and laser light.	04
	(c) What is the full form of LASER? Explain the Principle of Laser.	07
	OR	
Q.3	(a) Enlist medical applications of CO2 laser.	03
	(b) Explain different types of Connectors used in optical fiber	04
	(c) Write a short note on He-Ne laser.	07
Q.4	(a) Draw main parts of laser mechanism system.	03
	(b) Write a short note on Fluorescence endoscopy.	04
	(c) Explain Laser Safety Fundamentals.	07
	OR	
Q.4	(a) Explain Photodynamic therapy.	03
	(b) Explain these terms: Laser Interaction with Tissue: Reflection, Absorption, and Scattering	04
	(c) Explain thermal interaction between Laser and tissue.	07
Q.5	(a) What is Photoablation?	03
	(b) Describe Fiber optic Laser system in Ophthalmology.	04
	(c) Explain Therapy by Thermal interaction between laser and Tissue.	07
	OR	
Q.5	(a) Explain Fiber optic Laser system in cardiovascular disease briefly.	03
	(b) describe any 4 Endoscopic applications in medical field	04
	(c) Explain Flexible Endoscopes Structure and Function in detail.	07
