

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020****Subject Code:2170312****Date:30/01/2021****Subject Name:Medical Optics****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Define Fiber Optic. Give its application in Biomedical Engineering.	03
	(b) Define Critical Angle. What is Total Internal Reflection?	04
	(c) Explain Losses in Optical Fiber.	07
Q.2	(a) Define Numerical Aperture, Window and Cone of Acceptance.	03
	(b) Explain Meridional, Axial and Skew Ray with diagram.	04
	(c) Write a short note on Dispersion and methods to prevent it.	07
Q.3	(a) Compare Laser Light with Ordinary Light.	03
	(b) Compare Star coupler with Tee Coupler.	04
	(c) Write a short note on different types of Connectors.	07
Q.4	(a) Write a short note on Fluorescence Endoscopy.	03
	(b) Write a short note on Laser Safety.	04
	(c) Write a short note on Laser Physics.	07
Q.5	(a) Give application of Indirect Physical Sensor.	03
	(b) Explain the Therapy by Thermal Interaction between Lasers and Tissues.	04
	(c) Write a short note on Video endoscopy.	07
Q.6	(a) Explain Laser Interaction with Tissue.	03
	(b) Explain the Therapy by Non Thermal Interaction between Lasers and Tissues.	04
	(c) Explain Endoscopic Imaging System with a neat diagram.	07
Q.7	(a) Give application of Indirect Chemical Sensor.	03
	(b) Give application of Direct Physical Sensor.	04
	(c) Explain application of Fiber Optic in Neurosurgery.	07
Q.8	(a) Write a short note on Endoscopic Ultrasound Imaging.	03
	(b) Give application of Direct Chemical Sensor.	04
	(c) Explain application of Fiber Optic in Ophthalmology.	07
