

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022****Subject Code:3170314****Date:12-01-2023****Subject Name:LASER and Fiber Optics in Medical Technology****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) Describe term: Refraction & Critical Angle.	03
(b) Explain Electromagnetic Waves-Spectrum.	04
(c) Describe Transmission of light through straight transparent slab and bend slab.	07
Q.2 (a) Describe numerical aperture.	03
(b) Explain Total internal reflection.	04
(c) Explain Rayleigh scatter & Fresnel reflection in detail.	07
OR	
(c) Write a short note on Laser Physics..	07
Q.3 (a) Discuss about types of laser.	03
(b) How laser light is different from ordinary light source?	04
(c) Explain construction and working of any one type of medical laser.	07
OR	
Q.3 (a) Discuss about optical resonators.	03
(b) Explain terms: Hyperthermia, Welding.	04
(c) Give explanation on therapy by Non-thermal interaction between laser light and the tissue.	07
Q.4 (a) Explain Wood's lamp technique for tissue diagnosis.	03
(b) Explain Photodynamic therapy.	04
(c) Write a short note on Angioscope.	07
OR	
Q.4 (a) Enlist different kind of endoscopes.	03
(b) Describe Fluorescence endoscopy in brief.	04
(c) Explain fundamentals of endoscopic imaging system.	07
Q.5 (a) Enlist features of Common Endoscope.	03
(b) What is laser lithotripsy?	04
(c) Write a short note on fiber-optic biomedical sensor.	07
OR	
Q.5 (a) Explain Photocautery.	03
(b) Explain any one application of indirect Fiber optic Sensor.	04
(c) Explain Fiber optic Laser system in cardiovascular disease.	07
