

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020****Subject Code:2173904****Date:30/01/2021****Subject Name:Photonics****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) What do you mean by Light-Material interaction?	03
	(b) Explain: type of light scattering.	04
	(c) Explain: Fiber optics and their applications.	07
Q.2	(a) Define: Photorefractive materials.	03
	(b) Explain: Avalanche photodiodes.	04
	(c) Explain : Optoelectronic tweezers.	07
Q.3	(a) Draw schematic representation of three-dimensional photonic crystals.	03
	(b) Differentiate : absorption and transmittance	04
	(c) Write a short note on solar cell, in the vicinity of light interaction with material.	07
Q.4	(a) What do you mean by Interference and Polarization light?	03
	(b) Explain: various parameters associated with medical uses of LASER.	04
	(c) Explain: Principle and operation of LED in the vicinity of photonics.	07
Q.5	(a) What do mean by Nano photonics?	03
	(b) Explain : Pockels effect	04
	(c) Write a short note Bio-Nano photonics.	07
Q.6	(a) Define: Photo excitation	03
	(b) Draw the sketch of Charge coupled device.	04
	(c) Write a short note on Adiabatic nanofabrication for nanostructure synthesis.	07
Q.7	(a) What you mean by semiconductor optoelectronic devices?	03
	(b) Explain : Photosynthesis	04
	(c) Write a short note on Optoelectronic tweezers (OET).	07
Q.8	(a) What do you mean by Kerr effect?	03
	(b) Write down various medical applications associated with UV Radiation.	04
	(c) Write a short note on Phototransistor.	07
