

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code: 3153907****Date: 29/01/2021****Subject Name: Fabrication Of Nano- Devices****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 tunneling ?	03
(b) Differentiate : Quantum wells and Wires.	04
(c) Describe various applications associated with Biosensors.	07
Q.2 (a) Define: Schottky devices	03
(b) Describe : Single walled carbon nanotubes	04
(c) Write a short note application associated with semiconducting nano devices.	07
Q.3 (a) Define : Nano manipulation	03
(b) Write down criteria for the choice of materials for gas sensor.	04
(c) Write a short note on Magnetic Nanoparticles.	07
Q.4 (a) State advance applications associated with Graphene.	03
(b) Explain : Sensitivity of gas sensor.	04
(c) Write short note photonic band gap systems and its applications.	07
Q.5 (a) What do you mean by Nano robotics.	03
(b) Differentiate : Nanotubes, and Nano fibers.	04
(c) Write a short note on experimental aspects associated with gas sensing.	07
Q.6 (a) Define: Biosensor?	03
(b) Write short note on Metal/oxide nanoparticles and its applications.	04
(c) Write shot note on lithographic technique.	07
Q.7 (a) Define : Single Electron Transistors	03
(b) Explain use of mask in lithography technique.	04
(c) Write a short note on protein based biosensor.	07
Q.8 (a) What do you mean by resonant tunneling ?	03
(b) Describe : principles of DNA based biosensors	04
(c) Write a short note on Carbon Nanotube based logic gates.	07