

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

Subject Code:3160409

Date:03-06-2026

Subject Name:Nanobiotechnology

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) What do mean by Hydrogel?	03
	(b) Explain: BioMEMS	04
	(c) Write a short note on landmark evolutions in the field of nanomedicine.	07
Q.2	(a) Define: Biomaterials.	03
	(b) Write a short note on Shape-Memory Alloys and state their applications.	04
	(c) Write a short note on biodegradable polymers.	07
	OR	
	(c) Write a short note on Bioactive and Biodegradable ceramics.	07
Q.3	(a) What do you mean by Tissue Engineering?	03
	(b) Explain: Role of Iron Oxide-based magnetic nanoparticles in nanobiotechnology.	04
	(c) Write a short note on gold nanoparticles as drug carriers.	07
	OR	
Q.3	(a) Define: Nanoarrays	03
	(b) Explain: use of Calcium Phosphate Nanoparticles	04
	(c) Write a short note on magnetic hyperthermia.	07
Q.4	(a) Define: Nanomedicine	03
	(b) Explain the role of metals and alloys in the vicinity of biomaterials.	04
	(c) Write a short note on magnetic nanoparticles in the vicinity of nanomedicine.	07
	OR	
Q.4	(a) List out the name of materials that come under Third Generation biomaterials.	03
	(b) List out properties of magnetic materials used in nanomedicine.	04
	(c) Explain: Magnetic Chemotherapy	07
Q.5	(a) Define: Biocompatibility	03
	(b) Explain: Encapsulated magnetic nanoparticles.	04
	(c) Write a short note on Magnetic Gene transfer.	07
	OR	
Q.5	(a) What do you mean by microfabrication?	03
	(b) Give classification of nanobiotechnologies.	04
	(c) Write a short note on nanocrystal silver in the vicinity of drug delivery and nanomedicine.	07