

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- V (New) EXAMINATION – WINTER 2019

Subject Code: 2150301

Date: 25/11/2019

Subject Name: Biomaterials & Implants

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.

		MARKS
Q.1	(a) Define: 1) Biocompatibility 2) Biomaterial	03
	(b) Describe Surface Properties of Biomaterials.	04
	(c) Explain Artificial Heart Valve in detail.	07
Q.2	(a) Explain the types of Cobalt based alloys.	03
	(b) Explain metallic corrosion process with necessary schematic.	04
	(c) What is Shape memory effect? Write a short note on Stainless Steel as Biomaterial.	07
OR		
	(c) Explain types of Dental metals with properties & applications.	07
Q.3	(a) What is composite? Explain Composite Biomaterials in brief.	03
	(b) Write a short note on Nano-biomaterials and their applications.	04
	(c) What is Polymerization? Explain types of Polymerization reaction.	07
OR		
Q.3	(a) Explain Polyethylene with its applications.	03
	(b) Write a short note on Hydrogels.	04
	(c) What is Surface Reactive Ceramics? Write a short note on Glass ceramic.	07
Q.4	(a) Explain Blood Biomaterial Interaction.	03
	(b) Explain biological effects of Implants on Human Body.	04
	(c) Describe various methods for testing & evaluating Biocompatibility.	07
OR		
Q.4	(a) Explain Carcinogenesis.	03
	(b) Explain Osteocompatibility and Odontocompatibility.	04
	(c) Explain Hypersensitivity and Genotoxicity testing.	07
Q.5	(a) Explain types of Suture material and wound dressing.	03
	(b) Write a short note on Contact lenses.	04
	(c) Explain Total Hip Replacement with neat diagram.	07
OR		
Q.5	(a) Write a short note on Artificial Blood.	03
	(b) Explain Vascular grafts with its application.	04
	(c) Describe Dental Implant modalities in detail.	07
