Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) - EXAMINATION – SUMMER 2016

Subject Code:2150301 **Date:21/05/2016**

Subject Name:Biomaterials & Implants

Time:02:30 PM to 05:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define below given terminologies: 1. Shape memory effect 2. Xenografts 3. Steric hindrance 4. Wolff 's law 5. Chemogradient surface 6. Galvanic corrosion 7. Plasticizer	**07**
	(b)	Describe the surface properties of biomaterials.	**07**
Q.2	**(a)**	Explain the process of polymerization. Enlist and describe the characteristics of bio-erodible polymers.	**07**
	(b)	Write a short note on Bio-active glass.	**07**
		OR	
	(b)	Describe Hard-Tissue Replacement technique for manufacturing bioceramic materials.	**07**
Q.3	**(a)**	What is stress corrosion cracking? Explain electrochemical aspects of corrosion of metallic implants.	**07**
	(b)	Enlist and explain any three Blood compatible polymers.	**07**
		OR	
Q.3	**(a)**	Describe the manufacturing process of Stainless Steel & CoCr Alloy based metallic implants.	**07**
	(b)	Explain physical and chemical surface modification methods to improve biocompatibility for polymeric biomaterials.	**07**
Q.4	**(a)**	Enlist and explain Titanium based alloys and their applications.	**07**
	(b)	Explain various techniques of biomaterial testing.	**07**
		OR	
Q.4	**(a)**	Explain various artificial heart valves with necessary diagrams.	**07**
	(b)	Describe the functions and characteristics of artificial blood.	**07**
Q.5	**(a)**	Write a brief note on intra Ocular Lenses.	**07**
	(b)	Explain the allergic foreign body response of biomaterials to human body.	**07**
		OR	
Q.5	**(a)**	Write a brief note on Bionic Eye and its' applications.	**07**
	(b)	Explain the process of total hip replacement surgery.	**07**

****