GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V EXAMINATION - WINTER 2015

Subject Code: 150301 Date: 05/12/			2015	
T	ime: struct	to Name: Biomaterials & Implants 10:30am to 1:00pm Total Marks: 70 tions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.		
Q.1	(a)	Write a short note on bioresorbable & biologically derived materials.	07	
	(b)	Explain material selection criteria for biomaterial.	07	
Q.2	(a)	Define following terms:	07	
	(b)	1) biocompatibility 2) biomaterial 3) filler 4) prosthesis 5) orthosis 6) biological material 7) shape memory effect What is polymerization? Explain condensation and addition polymerization.	07	
		OR		
	(b)	Classify different types of materials which are used as biomaterials on the basis of its applications, properties, advantages & disadvantages.	07	
Q.3	(a)	Explain roll biomaterials to drug delivery system.	07	
	(b)	Explain properties and applications of nitinol.	07	
		OR		
Q.3	(a)	Describe structure and manufacturing process of Ti based alloys.	07	
	(b)	Explain corrosion of metallic implants in detail.	07	
Q.4	(a)	Write a short note on intraocular lens and contact lens.	07	
	(b)	Explain properties and composition of artificial long bones and Joints.	07	
		OR		
Q.4	(a)	Explain relatively bioinert ceramics and also give their uses.	07	
	(b)	Explain tissue reaction to external materials and blood/biomaterial Interaction.	07	
Q.5	(a)	Explain any two artificial heart valves.	07	
	(b)	Describe different type of biomaterials used in dental implants.	07	
		OR		
Q.5	(a)	Write a short note on biomaterial surface properties.	07	
	(b)	Give brief note on rehabilitation devices used for physiological functions of human body systems- improvement or replacement.	07	
