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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2019

Subject Code: 2150301 **Date: 06/06/2019**

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.**

			MARKS
Q.1	**(a)**	Give Characteristics and application of NITINOL.	**03**
	(b)	Define Polymer & Explain free radical Polymerization.	**04**
	(c)	Write a short note on PMA & PMMA.	**07**
Q.2	**(a)**	Define: Biomaterial & Give Classification of Biomaterial.	**03**
	(b)	Differentiate between Bioresorbable & Nonresorbable Biomaterials Give applications of each.	**04**
	(c)	Describe Composition, Manufacturing process & application of Stainless steel based alloys.	**07**
		OR	
	(c)	Describe Composition, Manufacturing process & application of Titanium & TI based alloys.	**07**
Q.3	**(a)**	Define Biocompatibility. And Enlist various Compatibility parameters for Implants.	**03**
	(b)	Describe Inflammatory response of Biomaterial on Human body with suitable Example.	**04**
	(c)	Write a short note on Galvanic Corrosion.	**07**
		OR	
Q.3	**(a)**	Define: Genetoxicity, Pyrogenecity & Hemocompatibility	**03**
	(b)	Explain composition & application of Hydrogel.	**04**
	(c)	Write a short note on Dental Amalgam.	**07**
Q.4	**(a)**	What is Vascular Grafting? Define: Autograft, Allograft, Xenograft.	**03**
	(b)	Explain applications of metals & ceramic in dental Implants.	**04**
	(c)	Write a short note on Glass Ceramic.	**07**
		OR	
Q.4	**(a)**	Draw neat labeled diagram of tooth.	**03**
	(b)	Explain characteristics of various suture materials.	**04**
	(c)	Explain Calcium Phosphate & Alumina as Ceramic Biomaterial.	**07**
Q.5	**(a)**	Describe Structure & properties of Particulate Composites.	**03**
	(b)	Write a Technical note on Contact Lense.	**04**
	(c)	Explain Total Hip Replacement Implantation with necessary Diagram.	**07**
		OR	
Q.5	**(a)**	Describe Structure & properties of Fibrous Composites.	**03**
	(b)	Write a short note on IOL.	**04**
	(c)	Explain Total Knee Replacement Implantation with necessary Diagram.	**07**

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