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GUJARAT TECHNOLOGICAL UNIVERSITY BE SEMESTER-V EXAMINATION-SUMMER-2015

Subject code: 150301 Date: 07/05/2015 **Subject Name: Biomaterials & Implants** Time: 02.30pm-05.00pm Total marks: 70 **Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 0.1 07 (a) Define following terms: 1) Biocompatibility 2) Biomaterial 3) Implant 4) Prosthesis 5) Orthosis 6) Biological Material 7) Autografts **(b)** Explain tissue response to implants. 07 **Q.2** Write a short note on Ti-Ni Aloys. 07 (a) Classify different types of materials which are used as biomaterials on **07 (b)** the basis of its applications, properties, advantages & disadvantages. **07 (b)** Explain surface properties of biomaterials & their testing. Q.3 (a) Enlist material selection criteria for biomaterial & explain it in detail. 07 Write a short note on biomaterial hydrogels 07 **(b)** 0.3 Write a short note on stainless steel. 07 Explain biocompatibility of synthetic vascular implant material **07 (b)** 0.4 Explain corrosion of metallic implants. 07 What is biodegradable ceramics? Explain any one in detail. **07** OR (a) Describe different type of biomaterials used in dental implants. **07 Q.4** 07 **(b)** What polymerization? Explain condensation and addition polymerization. Q.5 (a) Describe glass ceramics with formation & properties of it. 07 (b) What is shape memory effect? Explain properties and applications of **07** NITINOL. OR (a) Write a short note on Mechanical Heart valves prostheses. **07** Q.5Write a short note on PMMA. 07 **(b)**
