Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–II • EXAMINATION – SUMMER • 2014

Subject Code: 1723104 **Date: 20-06-2014**

Subject Name: Advance Biomaterials

Time: 02:30 pm - 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 listed terms:- **07**

1. Vacuum forming
2. Thrombus
3. Crimping
4. Bone cement
5. Chemogradient surface
6. Plasticizer
7. Hyperthermia

(b) Enlist synthetic polymers and their applications in the field of biomedical engineering. Also explain biodegradable polymers. **07**

Q.2 **(a)** Write a note on Non-Blood-Interfacing Implants for Soft Tissues. **07**

(b) Enlist various types of mechanical heart valves. Explain any two in detail. **07**

OR

(b) Enlist and explain the most common problems with Implanted Prosthetic Heart Valves. **07**

Q.3 **(a)** Define Implant. Briefly explain Retinal Implant. **07**

(b) Write a note on Corrosion of Metallic Implants. **07**

OR

Q.3 **(a)** Write a short note on contact lens. **07**

(b) Briefly describe Total Artiýcial Hearts (TAHs). **07**

Q.4 **(a)** Enlist the uses of Biodegradable ceramics? Explain composition of any Biodegradable ceramics. **07**

(b) List various components used for designing HIP prosthesis. **07**

OR

Q.4 **(a)** Enlist and explain different Polymers use for Dental application. **07**

Q.4 **(b)** What are the reasons for failure of hip joints? Explain briefly. **07**

Q.5 **(a)** Write a brief note on Sterility and Infection related issues for Biomaterials. **07**

(b) Explain inflammation, carcinogenicity and Hypersensitivity of biomaterials. **07**

OR

Q.5 **(a)** Write a descriptive note on Long Bone Repair. **07**

(b) Explain below listed terms: **07**

1. Prosthetic Intervertebral Disk
2. Prostheses for Limb Salvage

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