

SEAT NO: _____

GANPAT UNIVERSITY
B.TECH. 4th SEM. BIOMEDICAL AND INSTRUMENTATION ENGINEERING
REGULAR EXAMINATION MAY/JUNE 2012
2BM405: Biomaterials and Implants

TIME: 3 Hours

Total marks: 70

INSTRUCTIONS:

1. Use separate answer sheets for the two sections
2. Figures on the right side indicate marks
3. Please explain with the help of diagram wherever it is necessary
4. Each sub-question carries equal marks

SECTION – I

Que.1. Write answers of the following questions. 12

- A. Explain the concept of contact angle measurements to determine the surface properties of biomaterial.
- B. Explain the need of in-vivo assessment of tissue compatibility.
- C. Explain the salient features of the surface of material.

OR

Que.1. Write answers of the following questions. 12

- A. Explain the Atomic Force Microscopy.
- B. Write a note on surface reactive ceramics.
- C. Explain the corrosion of metallic implants.

Que.2. Write answers of the following questions. 11

- A. Detailed note on smart hydrogels.
- B. Write a note on Ti based alloys.

OR

Que.2. Explain in detail the in-vitro tests for biocompatibility. 11

Que.3. Short notes 12

- A. Electrospinning
- B. Creep and viscous flow
- C. Calcium phosphate as bio-ceramic
- D. Dental metals

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SECTION – II

Que.4. Write answers of the following questions.

12

- A. Discuss two types of Fixation devices are used in Orthopedic implant.
- B. Discuss classification of Sutures & explain it.
- C. Write about Glaucoma & Artificial tears.

OR

Que.4. Write answers of the following questions.

12

- A. Enlist the types of Orthopedic implants with its application & also draw & explain types of fractures.
- B. Write about Tissue adhesives in detail.
- C. Write about stent & balloon angioplasty in detail.

Que.5. Write answers of the following questions.

11

- A. Write about the biological effects of implants on the human body.
- B. Write about Bileaflet valve with its advantages & disadvantages.
- C. Explain any two categories from Endosseous implant design.

OR

Que.5. Write answers of the following questions.

11

- A. Discuss application of Biomaterials on Organ level & System level.
- B. Write about Inferior vena cava filter & Blood substitute.
- C. Write about Subperiosteal Implant design in detail.

Que.6. Short notes

12

- A. Ventricular Assist Device
- B. Contact Lens
- C. Total Hip replacement

-----END OF THE PAPER-----