

SEAT NO: \_\_\_\_\_

**GANPAT UNIVERSITY**  
**B.TECH. 4<sup>TH</sup> SEM. BIOMEDICAL AND INSTRUMENTATION ENGINEERING**  
**CBCS REGULAR EXAMINATION MAY/JUNE 2013**  
**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 Write a note on odontocompatibility.
- B Write a note on polymerization techniques.
- C Wet spinning.

OR

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

- A Explain the shape memory alloys.
- B Write a note on relatively bioinert ceramics.
- C Compare and contrast all the invitro assessment tests of tissue compatibility.

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

- A Explain in detail the process of bioerosion of polymer.
- B Enlist all invivo tests for detecting tissue compatibility and explain any three.

OR

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

- A Explain various mechanical properties and testing of materials.
- B Explain the applications of smart polymers.

**Que.3 Write answers of the following questions. 12**

- A Write a note on thrombogenicity.
- B Classify the composites.
- C Define: Biomaterials, Biocompatibility, Plastic deformation, Carcinogenicity



**SECTION - II**

Que.4 Write answers of the following questions. 12

- A Describe in detail blood compatibility of synthetic vascular implant materials.
- B Enlist the biological effects of the implants on the human body and explain each in brief.
- C The surface of the intima is negatively charged because.....

OR

Que.4 Write answers of the following questions. 12

- A Define the following term: auto graft, xeno graft, isograft, baroreceptor, chemoreceptor, regurgitation.
- B Enlist the all types of mechanical heart valve. And explain each in brief.

Que.5 Write answers of the following questions. 11

- A Write the short note on viscoelastic solution.
- B Draw the schematic diagram of endosteal and subperiosteal dental implant. And explain about subperiosteal dental implant.

OR

Que.5 Write answers of the following questions. 11

- A Enlist the types of the contact lenses. And explain about rigid lenses and elastomeric lenses in detail.
- B Write the short note on impression materials used in dental implants.

Que.6 Write answers of the following questions. 12

- A With neat diagram explain total knee replacement.
- B Write the short note on prevention of rejection of tissue graft.
- C Provide the brief description of ethylene oxide (EO) processing plant and how EO sterilization kills germs on medical device?

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