

GANPAT UNIVERSITY
B.TECH. 4TH SEM. BIOMEDICAL AND INSTRUMENTATION ENGINEERING
CBCS REGULAR EXAMINATION MAY/JUNE 2014
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

SECTION – I

- Que.1 Write answers of the following questions. 12**
- A Explain the bulk properties of materials.
 - B Explain various polymerization techniques.
 - C Write a note on titanium based alloys.

OR

- Que.1 Write answers of the following questions. 12**
- A Write a note on synthetic nondegradable polymers.
 - B Explain the semi-inner bioceramics.
 - C Write a note on elusion test of in-vitro biocompatibility.
- Que.2 Write answers of the following questions. 11**
- A Explain any two methods of medical fiber production techniques.
 - B Explain the process and mechanism of bioerosion of polymeric implants.

OR

- Que.2 Write answers of the following questions. 11**
- A Explain the processing, finishing, testing and evaluation of medical fibers.
 - B Explain in detail the blood material interactions.
- Que.3 Write answers of the following questions. 12**
- A Explain the creep and viscous flow.
 - B Provide the classification of composite materials.
 - C Write a note on osteocompatibility.
 - D Explain the in-vivo test for the implantation.

SECTION - II

Que.4 Write answers of the following questions. 12

- A Give classification of Artificial Heart Valves. Explain different Mechanical heart valves in detail. 6**
- B What is dental implant? Explain types of dental implants in detail. Enlist Different Materials used in dental implants. 6**

OR

Que.4 Write answers of the following questions. 12

- A What is cardiac implant? What is VAD? Explain construction and working of VAD with neat Diagram. 6**
- B What is joint? Why knee joint replacement is done? Explain knee joint replacement implant and procedure. 6**

Que.5 Write answers of the following questions. 11

- A Explain synthetic implants used in facial surgery. 5**
- B Discuss different material used for contact lens. Mention required characteristics of contact lens. 6**

OR

Que.5 Write answers of the following questions. 11

- A Define Transplant. Explain the reason for transplant rejection and types of transplant rejection. 4**
- B Write a short note on dental impression materials. 3**
- C What is pacemaker? When patient needs pacemaker? Explain different parts of pacemaker. 4**

Que.6 Write answers of the following questions. 12

- A Mention various eye implants with their application. 4**
- B Explain different types of endosseous implants in detail with neat diagram. 4**
- C Define following terms: 4**
- a) Myopia
- b) Cataract
- c) Stenosis
- d) Allograft

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