

(3 Hours)

Max marks: 80

- (1) Question No. 1 is compulsory.
- (2) Answer any three out of remaining five questions.
- (3) Figures on the right indicate full marks.
- (4) Assume data wherever necessary.

- Q1. (a) Discuss applications of Composites. [05]  
(b) Write short note on Heart Valves [05]  
(c) What are thermoplastic and thermosetting resins? [05]  
(d) Discuss applications of Cobalt Chromium alloys [05]
- Q2. (a) Discuss biocompatibility testing for Titanium and its alloys. [10]  
(b) Discuss applications of titanium and its alloys. [10]
- Q3. (a) Explain biological testing of Biomaterials. [10]  
(b) What are various surface properties of Biomaterials? Explain any one technique to test these surface properties. [10]
- Q4. Discuss properties of Biomaterials used for the following applications. [20]  
(i) Hydrogels.  
(ii) Polyethylene.
- Q5. (a) Discuss in details classification and manufacturing process of composites. [10]  
(b) What is shape memory effect? Explain various properties and applications of Nitinol. [10]
- Q6. Write short notes on : (Any four) [20]  
(a) Sutures.  
(b) Degradable Bioceramics.  
(c) Bone cement.  
(d) Alumina.  
(e) Silicone.