

- N.B : (1) Question No. 1 is Compulsory.  
 (2) Attempt any 4 questions out of remaining 6 questions.  
 (3) Figures to the right indicate full marks.  
 (4) Assume suitable data wherever necessary.  
 (5) Draw sketches / diagrams wherever necessary.  
 (6) Use legible handwriting. Use blue / black ink.

1. (a) Explain the classification of Biomaterials. [05]  
 (b) What are thermoplastic and thermosetting resin? [05]  
 (c) Explain the classification of bio-ceramics? [05]  
 (d) Which materials are used for soft tissue replacements, discuss their properties. [05]
2. (a) Explain how surface properties of Biomaterials tested [10]  
 (b) Explain the methods of biological testing of biomaterials [10]
3. (a) Explain the properties and applications of Stainless steel. [10]  
 (b) Explain various experiments carried for its biocompatibility testing [10]
4. (a) Explain the properties and applications of Titanium and its alloys. [10]  
 (b) Explain various experiments carried for its biocompatibility testing. [10]
5. (a) Explain how materials can be protected from corrosion. [05]  
 (b) Explain the classification of polymers. [05]  
 (c) Explain which material is suitable as a bone cement, give its properties. [05]  
 (d) What are bioglass? What are its applications? [05]
6. Write short notes on : - [20]
  - (a) PMMA
  - (b) Properties of Nitinol
  - (c) Cobalt based alloys
  - (d) Hydrogels.
7. Write short notes on : - [20]
  - (a) Silicone rubber.
  - (b) Alumina.
  - (c) Carbon implants.
  - (d) Wood and binding materials.