

22219

11819

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answer with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **10**
- a) Draw any two types of crystal structure of solids.
- b) List any two applications of stainless steel.
- c) Define the term Biomaterials and give its any two examples.
- d) Define the term wear and give its any two types.
- e) State the need of cardiac pacemaker.
- f) Suggest implants for following disorder –
- (i) To improve appearance of damaged eyes or to change colour or enhance eye colour.
- (ii) Treatment of oral basement.
- g) List any two application's of collagen in dentistry.

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- 2. Attempt any THREE of the following:** **12**
- a) List any four properties of carbon.
 - b) Draw a neat labelled structure of bone.
 - c) Describe the concept of tissue grafting.
 - d) Explain the concept of contact angle method used for surface testing with neat diagram.
- 3. Attempt any THREE of the following:** **12**
- a) List any four applications of Titanium based alloy.
 - b) Suggest type of implant for the following:
 - (i) Site of missing or extracted teeth to restore original function.
 - (ii) Mandibular reconstructions.
 - (iii) To provide support for dentures.
 - (iv) To stabilize fractured bone until natural healing process have restarted sufficient strength.
 - c) List any two materials used for following implants:
 - (i) Cardiovascular implants.
 - (ii) Ophthalmic implants.
 - d) List any four applications of acrylic polymer.
- 4. Attempt any THREE of the following:** **12**
- a) Explain the process of total hip replacement.
 - b) List any two properties and applications of alumina.
 - c) List mechanical properties of Bone.
 - d) List materials used for following:
 - (i) Contact Lenses
 - (ii) Catheters
 - e) How to measure corrosion rate of metal's. Explain any one method in detail.

5. Attempt any TWO of the following:**12**

- List surface properties of Biomaterials and explain any two.
- Draw neat labelled structure of tooth also list the materials used for filling and restoration.
- List various types of polymers. Also write two application and two properties of Hydrogel.

6. Attempt any TWO of the following:**12**

- Describe in vivo and in-vitro methods to test the Biomaterials.
- Describe knee joint with neat diagram and also explain the process of knee joint replacement.
- Identify and write down the name following polymer chains.

