17543

11718

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

Marks

1. (A) Attempt any THREE : **12**

(a) Define biomaterial and classify ceramic biomaterial.

(b) Give the four properties of Zirconia.

(c) Draw labelled structure of Lungs.

(d) Give the composition of Teeth.

(B) Attempt any ONE : **6**

(a) List materials used for deep cavities and state the use of collagen in dentistry.

(b) Explain cellular events in bone healing process.

2. Attempt any FOUR : **16**

(a) Write any four historical developments of biomaterial.

(b) Describe the stress – strain curve for ductile material.

(c) List the four applications and two properties of Alumina.

(d) State two properties and four applications of carbon.

(e) Explain the need of cardiac pacemaker.

(f) Draw any two self – tapping dental implants.

3. Attempt any FOUR : **16**

(a) Explain the contact angle method.

(b) Give the meaning of thermal treatments and sterilization.

(c) Give four applications of collagen.

(d) List prosthetic heart valves and draw any two.

(e) Explain bone regeneration with resorbable material.

4. (A) Attempt any THREE : **12**

(a) Explain the crystal structure of solids.

(b) Give four applications of acrylic polymer.

(c) Describe the structure of Heart.

(d) List any four mechanical properties of bone.

(B) Attempt any ONE : **6**

(a) Write properties of enamel and dentine and list materials used for filling and restoration.

(b) Explain total hip replacement and draw any two total hip replacement devices.

5. Attempt any FOUR : **16**

(a) List molecular bonds and sketch any two.

(b) State composition of stainless steel and give its two applications.

(c) Give four properties of Titanium based alloy.

(d) Write meaning of temporary fixation devices using two examples.

(e) Explain process of metallic corrosion.

(f) Give four materials used for joint replacement.

6. Attempt any FOUR : **16**

(a) Sketch labelled structure of typical bone.

(b) State the importance of eye shields.

(c) Give four materials and two applications of contact lenses.

(d) Explain mechanism of blood clot.

(e) Classify dialyzers and sketch any one.
