

Con. 2527-09.

(REVISED COURSE)

VR-3352

(3 Hours)

[Total Marks : 100

N.B. : (1) Attempt any five questions.

(2) Figures to the right indicate full marks.

(3) Assume suitable data wherever required with justification.

1. (a) Describe the various surface properties of biomaterials used with the help of examples. 10
(b) Why metals are less biocompatible than polymers and ceramics ? How we can improve surface properties of metals ? 10
2. (a) Describe composition of materials used as bone substitute. 10
(b) State biomedical uses of alumina. List advantages and disadvantages of ceramic implants. 10
3. (a) Explain in detail processing steps of leathers. 8
(b) Explain use of wood and binding biomaterials in prosthesis and orthotics devices. 12
4. (a) Give composition and biomedical uses of stainless steel alloys. 10
(b) Give the structure and composition of tooth. Compare the mechanical properties of enamel and dentin. 10
5. (a) Design a prosthetic heart valve. Specify with reasons materials selected for each part. 10
(b) Write short notes on :- 10
(i) Bone Cement
(ii) Hydrogels.
6. (a) Explain the composition and application of Ti and Ti based alloys. 10
(b) Explain types, composition and properties of cobalt based alloys. 10
7. (a) Illustrate the function of cardiac pacemaker and describe the materials used for different parts of the cardiac pacemaker. 10
(b) What is corrosion and passivity ? Explain experimental setup used for measurement of corrosion rate. 10
