

Time: 3Hr

Max.Mark:100

Answer ALL Questions

Part –A (10x2=20 Marks)

1. Define "Biocompatibility"
2. What are the characteristics of Magnetorheological fluids?
3. Define "Pseudoelasticity"
4. Define "Thromogenicity "
5. Comment on "Therapeutic index"

*State True or False. Justify*

6. Human blood plasma is highly corrosive than salt water.
7. PVDF has limited scope of application than PZT
8. SMA plastics involves martensite transformation
9. Titanium is used in making of artificial heart valve.
10. Externally regulated drug delivery system is the best.

Part – B (5x16 = 80 Marks)

- 11 (i) Wolff's Law (4)  
(ii) Host reaction to biomaterial implantation (12)
- 12a (i) Brief on the various mechanism of Electrorheological behaviour (10)  
(ii) Brief on design parameters of electro-rheological fluids (6)
- OR
- 12b Explain the mechanism involved in piezoelectric materials. (16)
- 13a Elaborate the mechanism of shape memory effect exhibited by Nitinol. (16)
- OR
- 13b Discuss on several of application of shape memory alloys with examples. (16)
- 14a (i) Write short notes on the following  
Classification of dental implants (6)  
(ii) Highlight the material selection and processing for better host response in case of total hip replacement prosthesis. (10)
- OR
- 14b Brief on the mechanism of blood coagulation and control mechanism. (16)

**15a (i)** Brief on different methods of treatment for skin regeneration. **(10)**  
**(ii)** List the type of implants used in ophthalmology. **(6)**

**OR**

**15b** Brief on the mechanism and application of various type of drug delivery system **(16)**