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Question Paper Code: 99B04

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Elective

Biomedical Engineering

19UBM904- BIOMATERIALS AND ARTIFICIAL ORGANS

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Distinguish in vitro analysis and in vivo analysis? CO1- U
2. Analyze the reason for neutrophils involved in healing process? CO3- Ana
3. Comparative analysis of surface reactive ceramics with resorbable ceramics. CO3- Ana
4. Explain stainless steels and their applications. CO1- U
5. List out the factors which can influence the mechanical properties of polymers. CO1- U
6. Analyze the reason for bis-glyceryl-methacrylate better than PMMA? CO3- Ana
7. Summarize the mechanism of Bioartificial Pancreas. CO3- Ana
8. Draw the flow chart of blood clotting pathway. CO1- U
9. Explain the principle of dialyzer membrane. CO1- U
10. Define the term artificial organs. CO1- U

PART – B (5 x 16= 80Marks)

11. (a) Summarize Biomaterials and analyze about the various mechanical properties of biomaterials. CO3- Ana (16)
- Or
- (b) Examine various concepts of in vitro approaches and their applications in clinical sectors and future research. CO3- Ana (16)

12. (a) Examine the various types of ceramic materials and their role in biomedical applications? CO3- Ana (16)
- Or
- (b) State your comments on dental implants? Review on dental materials and various combinations of amalgam for suitable dental materials. CO3- Ana (16)
13. (a) Analyze the various types of biopolymers and their role in the biomedical applications. CO3- Ana (16)
- Or
- (b) Analyze about Medical Textiles. Which spinning approach with functional mechanism is employed to make best synthetic fibers? CO3- Ana (16)
14. (a) Demonstrate the materials used for breast tissue replacement and their impacts on biological system? CO1- U (16)
- Or
- (b) Summarize on bone composition, properties and temporary fixation devices for orthopedic applications. CO1- U (16)
15. (a) Summarize a detailed note on mechanical properties of Aorta and Valves of artificial heart. CO1- U (16)
- Or
- (b) Summarize the functional mechanism of typical dialyzers and its various types. CO1- U (16)