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Question Paper Code: UB406

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Professional Elective

Biomedical Engineering

21BMV406 ASSISTIVE AND AUGMENTATIVE TECHNOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Differentiate between mechanical valve and Bioprosthetic valve. CO1-U
2. Mention the Indications for Valve Replacement. CO1-U
3. Explain Osmosis process in detail CO1-U
4. Which patient need dialysis process in frequent times. CO1-U
5. Define Pure tone audiogram. CO1-U
6. Define Air conduction. CO1-U
7. List out the challenges of Prosthetic devices. CO1-U
8. Define Feedback in Orthotic systems. CO1-U
9. What is meant by Latency? CO1-U
10. What are applications of VR. CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the Principle of External Counter Pulsation(ECP),Clinical benefits and its contradictions in detail. CO1-U (16)
- Or**
- (b) Demonstrate understanding of the function and operation of prosthetic heart valves, including how they facilitate blood flow through the heart. CO1-U (16)

12. (a) Explain the role of portable dialyzer monitoring in patient care, demonstrating understanding of its function and benefits. CO1-U (16)
- Or**
- (b) Explain the mechanism by which a hemodialyzer works, including the role of the semipermeable membrane and dialysate. CO1-U (16)
13. (a) Explain hearing aids function to improve hearing for individuals with hearing loss? CO1-U (16)
- Or**
- (b) How does DSP technology improve the performance of hearing aids and explain with its block diagram. CO1-U (16)
14. (a) Compare the effectiveness of different hand prosthetic devices in terms of durability, functionality, and user satisfaction. What factors contribute to the differences? CO3-Ana (16)
- Or**
- (b) What are the differences between real-time and delayed feedback in orthotic systems? How do these differences impact the effectiveness of the system? CO3-Ana (16)
15. (a) Analyze how AR technology used by healthcare professionals in healthcare industry in surgery. CO3-Ana (16)
- Or**
- (b) Analyze and discuss about the impact of AR and VR in healthcare feild. CO3-Ana (16)

