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Question Paper Code: 93B04

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2022

Third Semester

Biomedical Engineering

19UBM304 - Biomedical Instrumentation

(Regulation 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List the characteristics of resting potential. CO1 U
2. State the applications of medical instrumentation system? CO3 Ana
3. Define Evoked potentials. CO1 U
4. List the brain waves and their frequency. CO1 U
5. What is artifacts? CO2 A
6. What is power line interference? CO2 U
7. "The automation system needs sensors" – justify. CO3 Ana
8. What are the typical values of blood pressure and pulse rate of an adult? CO3 Ana
9. What is pH? Mention pH scale value? CO1 U
10. Compare ISFET and IGFET. CO3 Ana

PART – B (5 x 16= 80Marks)

11. (a) Draw a block diagram of a Bio-medical Instrument system and briefly explain the components.. CO1- U (16)
Or
(b) Define resting potential & Action potential. Explain how these potentials are generated in human body. CO1- U (16)
12. (a) Explain the working of EMG unit with neat Block diagram CO1- U (16)
Or
(b) Explain Different lead system for recording ECG. CO1- U (16)

13. (a) What is isolation amplifiers? With neat diagram explain in details any one type of isolation amplifier. CO1- U (16)
- Or
- (b) Discuss the working of Differential amplifier. Mention their importance in biomedical instrumentation. CO1- U (16)
14. (a) Discuss the principle and working of electromagnetic blood flow meter. CO2- App (16)
- Or
- (b) List the factors affecting the body temperature? CO2- App (16)
15. (a) Describe in detail about the biochemical sensors like pH, pO₂ and pCO₂. CO1- U (16)
- Or
- (b) Describe in detail about the biosensors and its principle. CO1- U (16)