Reg. No. : | | | | | | | | | | |

Question Paper Code: 93B04

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Biomedical Engineering

19UBM304 – BIOMEDICAL INSTRUMENTATION

(Regulation 2019)

Duration: One hour Maximum: 30Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Needle electrode is used measure CO1- R

   (a) EEG (b) ECG (c) EMG (d) EOG

2. Conventionally, The electrode potential refers to CO1- R

   (a) Charge potential (b) Neutralization (c) Oxidation (d) Reduction

3. The Most prominent EEG wave pattern of an awake, relaxed adults whose eyes are closed CO2-R

   (a) Alpha (b) Beta (c) Delta (d) Theta

4. Which of them is a neurological disorder which is expressed muscularly? CO2- R

   (a) Dementia (b) Muscular Dystrophy (c) Paralysis (d) Alzheimer's

5. Which frequency is attenuated in a Low-Pass filter? CO3- R

   (a) High frequency (b) Low frequency

   (c) Mid-Range frequency (d) No frequency

6. W is a neurological disorder which is expressed muscularly? CO3- R

   (a) Dementia (b) Muscular Dystrophy (c) Paralysis (d) Alzheimer's

7. Fluoroptic temperature sensors work on the principle of _____ CO4- R

   (a) Thermistor (b) Thermocouple (c) Optical fiber (d) RTD

8. A normal heart rate in an adult at rest is _____ CO4- R

   (a) 120 (b) 80 (c) 62 (d) 75

9. For constructing the glucose sensor, which of the following is used as a gel? CO5- U

   (a) Urea (b) Urease (c) Acrylamide (d) Polyacrylamide

10. Which of the following is the physico-chemical component? CO5- U

(a) Enzymes (b) Anti-bodies (c) Transducer (d) Cells or tissues

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11.	With neat sketch, Draw the electrical equivalent circuit of micro electrode and explain its electrical nature.	CO1- U	(8)
12.	Discuss the working of typical EMG recording setup and typical waveforms.	CO2- Ana	(8)
13.	Write short notes on Band pass filtering.	CO3- U	(8)
14.	Explain the principle of operation of an ultrasonic blood flow meter.	CO4- U	(8)
15.	Write basic principle and operation of blood glucose sensors.	CO5- U	(8)