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K – 4370

Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, September 2020

08.606 Elective II (b) BIOMEDICAL INSTRUMENTATION (E)

(2008 Scheme)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Draw an action potential waveform and discuss about depolarisation and repolarisation.

2. Write short notes on the types of transducers for pressure measurement.

3. Explain the difference between polarisable and non-polarisable electrodes.

4. Explain the theory of electrode skin interface.

5. Discuss the functional organisation of peripheral nervous system.

6. Write short notes on EMG and EEG signals.

7. Explain Cardiac vector.

8. Compare A-mode and B mode display in Ultra sound.

P.T.O.

9. List the advantages and disadvantages of MRI scan.

10. Discuss the principle and applications of diathermy.

(10 × 4 = 40 Marks)

PART – B

Answer **any one** full question from each module

Module I

11. (a) Explain with the help of figures various bio potential electrodes used in biomedical engineering. **10**

(b) Discuss the method of respiration rate measurement. **10**

OR

12. (a) Explain the working of an ultrasonic blood flow meter based on transit time principle. **10**

(b) Describe any one method for heart rate measurement in detail with neat diagrams. **10**

Module II

13. (a) Draw the block diagram of ECG Machine and explain the functions of each block. Explain an ECG waveform. **10**

(b) Explain 10-20 electrode placement system of EEG measurement with neat diagram. **10**

OR

14. (a) List out the applications of EEG. **5**

(b) Explain the various lead systems used in recording of ECG signals. **15**

Module III

15. (a) Explain physiological effects of electric currents and write brief notes on various susceptibility parameters. **10**

(b) Discuss about hemodialysis. **10**

OR

16. (a) What do you mean by fibrillation? Explain Cardiac defibrillator with schematic diagram. **10**

(b) With block diagram explain X-ray machine. **10**

(3 × 20 = 60 Marks)