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Question Paper Code : 90459

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Fifth Semester

Electrical and Electronics Engineering

OMD 551 – BASIC OF BIOMEDICAL INSTRUMENTATION

(Common to Information Technology/Computer Science and Engineering/ Computer and Communication Engineering/Electronics and Communication Engineering/Electronics and Telecommunication Engineering)

(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Draw the waveform of action potential.
2. Mention the different types of surface electrodes.
3. Draw the ECG waveform and specify its amplitude.
4. Differentiate unipolar and bipolar mode of EEG recordings.
5. What is need for bio amplifier in signal conditioning circuits ?
6. List out the advantages of differential bio-amplifier.
7. Write the principle behind the indicator dilution method of cardiac output measurement.
8. Mention the commonly used method to measure the pulse rate.
9. Write the principle involved in colorimeter.
10. Draw the schematic diagram of auto analyzer.

PART – B (5×13=65 Marks)

11. a) Explain in detail about the origin of bio potential and its propagation with relevant diagrams.

(OR)

b) Draw the equivalent circuit of Metal Microelectrode and explain its working principle.

12. a) Describe the characteristics, lead system and waveform of ECG.

(OR)

b) Explain in detail about the EEG characteristics, waveforms and 10-20 electrode system.

13. a) Draw and explain the block diagram of isolation amplifier.

(OR)

b) Illustrate the concept of elimination of power line interference in biosignals.

14. a) Explain any two methods of respiratory measurement with a neat diagram.

(OR)

b) Give a detailed account on Auscultatory method of blood pressure measurement.

15. a) Explain the construction and working principle of spectrophotometer.

(OR)

b) Describe the automated method of blood cell counter.

PART – C (1×15=15 Marks)

16. a) Design a suitable ECG amplifier circuit and mention its parameters.

(OR)

b) Illustrate the concept of Pulse rate measurements using suitable transducers.
