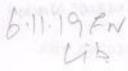


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Question Paper Code: 90459

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)

- Draw the waveform of action potential.
- 2. Mention the different types of surface electrodes.
- 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.
- Write the principle behind the indicator dilution method of cardiac output measurement.
- 8. Mention the commonly used method to measure the pulse rate.
- Write the principle involved in colorimeter.
- 10. Draw the schematic diagram of auto analyzer.

 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)

- 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.