



Date: 30-10-2018

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

PART A

ANSWER ALL THE QUESTIONS

10×2=20

1. What are electrodes? Name their types.
2. Name the various types of active transducers.
3. What are the different modes of operation of a differential amplifier.
4. Write a note on isolation amplifier.
5. Draw the block diagram of short wave diathermy unit.
6. Name the ailments that are cured by ultrasonic diathermy.
7. What is electrotherapy technique?
8. What is the role of a pacemaker?
9. Two input voltages of 10 V and 8 V are applied to the two input resistors of a summing amplifier. The input resistors are 10kΩ and the feedback resistor is 1kΩ. Determine the output voltage.
10. Name the symptoms that can be diagnosed by analyzing electroencephalography (EEG)?

PART B

ANSWER ANY FOUR QUESTIONS

4×7.5=30

11. Discuss the different characteristics of the recording system for analyzing the Biosignals.
12. Explain the different types of surface electrodes and their uses.
13. Give the construction and working of a lithium cell used in a pacemaker battery.
14. Write short notes on (i) microwave diathermy
(ii) therapeutic effect of heat.
15. Explain the working of an operational amplifier as a non inverting amplifier.
16. (a) What is a strain gauge?
(b) List the factors for an efficient strain gauge transducer.

PART C

ANSWER ANY FOUR QUESTIONS

4×12.5 = 50

17. What are the factors that should be taken into account in designing of a medical instrument?
- 18.(a) Draw and explain a bridge voltage amplifier and discuss its linearity (9.5 marks).
(b) List the characteristics of an operational amplifier.(3 marks)
19. Draw a typical electrocardiogram and explain its different parts.
20. What are the various types of waveforms used for the stimulation of nerves and muscles to carry out treatment of various diseases.
21. Draw the block diagram of electrosurgical diathermy unit and explain its special features.
- 22.(a) Give the origin of brain waves.(8 marks)
- (b) What are the requirements for physiological signal amplifiers?(4.5 marks)

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