Reg. No.

Question Paper Code : X10874

B.E./B.Tech. DEGREE EXAMINATIONS NOVEMBER / DECEMBER 2020

Fifth Semester

Electrical and Electronics Engineering

OMD551 Basic of Biomedical Instrumentation

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

(Regulation 2017)

Time: 3 Hours   Answer ALL Questions   Max. Marks 100

PART- A (10 x 2 = 20 Marks)

1. What is all or none law?
2. Define half cell potential.
3. Differentiate unipolar and bipolar electrode.
4. Give the frequency and amplitude range of biosignals.
5. Enumerate the need of bio amplifier.
6. What is power line interference?
7. What is pulse rate?
8. How cardiac output is calculated?
9. Give the applications of colorimeter.
10. List the parameters that can be measured non-invasively.

PART- B (5 x 13 = 65 Marks)

11. a) Explain the origin of biopotential and its propagation.

(OR)

b) Discuss about the different types of electrodes and its equivalent circuit.

12. a) Discuss about the 12 leads ECE measurement system.

(OR)

b) Explain about 10-20 EEG measurement system.

13. a) Discuss about
    i. Isolation amplifier (8)
    ii. Differential amplifier (5)

(OR)

b) Explain about right leg driven ECG amplifier.

14. a) Explain the indirect blood pressure measurement method.

(OR)

b) Describe about ultrasound blood flow measurement method.

15. a) Discuss about blood cell counter

(OR)

b) Brief about
    i. Auto analyzer (8)
    ii. Blood gas analyzer (5)

PART- C (1 x 15 = 15 Marks)

16. a) i. Discuss about micro electrodes and its equivalent circuit (8)
       ii. Explain Einthoven's triangle (7)

(OR)

b) Write short notes on
    i. Impedance matching circuit (5)
    ii. Respiration rate measurement technique (10)