

Biomedical Instrumentation-I

QP Code 14907

(3 Hours)

[Total Marks : 80

- N.B.:** (1) Question No. 1 is **compulsory**.
 (2) Answer any **three** out of remaining **five** questions.
 (3) **Figures** to the **right** indicate **full** marks.
 (4) Assume **suitable** data wherever **necessary**.



1. (a) Explain Beer Lambert's law. 5
 (b) Explain any one pneumotachometer. 5
 (c) Draw and explain pHelectrode. 5
 (d) Explain any one type of oxygenator. 5
2. (a) Draw and explain using suitable diagram coulter's blood cell counter. 10
 (b) Explain using suitable block diagram working of Heart Lung bypass machine. 10
3. (a) Explain using suitable block diagram evoked response audiometry system. 10
 (b) Explain using a spirogram various Lung volumes and capacities. 10
4. (a) Explain the optical ray diagram of spectrophotometer and describe any one dispersive device. 10
 (b) Explain using suitable circuit diagram power supply section of any analytical instrument providing 6V, 1 Amp regulated supply for source lamp. 10
5. (a) Explain in details protein separation technique using electrophoresis. 10
 (b) Explain various modes of ventilator. 10
6. Write short notes on (any four) :- 20
 - (a) Electromagnetic blood flow meter
 - (b) Indicator Dilution Technique for CO₂ measurement
 - (c) Impedance plethysmography
 - (d) Applications of ELISA
 - (e) pH electrode.

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