

4874-07.

(REVISED COURSE)

CD-5865

(3 Hours)

[Total Marks : 100]

- (1) Question No. 1 is **compulsory**.
- (2) Attempt any **four** questions out of remaining **six** questions.
- (3) **Figures** to the **right** indicate **full** marks.

Write short notes on any **four** of the following :-

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- (a) pH Electrode
- (b) ISFETs
- (c) ECG, EEG, ENG Electrodes
- (d) pCO<sub>2</sub> Electrode
- (e) Microelectrodes.

- Explain the principle and working of electromagnetic blood flow meter. 10
- What is Tick's principle ? Explain rapid injection indicator dilution method for measuring cardiac output. 10
- Explain with neat sketches the laws governing thermocouples. 10
- Explain the different methods of thermistor linearization. 10
- Explain with suitable diagram the construction and working of LVDT. Draw the block diagram of phase shift detection system. 12
- Give one application of LVDT. 8
- Explain with suitable diagram Blood Pressure Measurement using ultrasound. 8
- Explain the construction and working of unbonded strain gauge. Derive the expression for gauge factor. 12
- What is Doppler Shift ? Explain with suitable diagram Transit Time Ultrasonic Flow measurement. 10
- Explain using suitable diagram different types of flow probes. 10
- Differentiate with suitable examples :- 8
- (i) Active and passive transducers.
  - (ii) Primary and secondary transducers.
- Explain with the help of block diagram the various factors that should be taken into consideration for selecting a transducer for Biomedical Application. 12