Seat No. | | | | | | |

DBI1360

Mechatronics Systems
(New) (1230)

P. Pages : 2

Time : Three Hours **Max. Marks : 100**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt complete question at one place only.
5. All questions are compulsory and solve **any two** bit out of a, b, c in each question.
6. Assume suitable data if required.

UNIT - I

1. a) Explain the principle of operation of inductive transducers. Explain LVDT in detail. **10**

b) Explain Resistance temperature detector (RTD) with neat sketch. Also state it's advantages and disadvantages. **10**

c) Write short notes on :

i) Fibre optic transducers. **5**

ii) Capacitive transducers. **5**

UNIT - II

2. a) What do you mean by data acquisition system ? Explain generalised data acquisition system. **10**

b) Define an op-amp. Explain with neat block diagram. List the characteristics of ideal op-amp. **10**

c) Write short notes on :

i) X - Y Recorder. **5**

ii) Cathod ray oscilloscope. **5**

UNIT - III

3. a) What is synchronous motor ? Explain construction and working of synchronous motor with neat sketch. **10**

   b) What is actuator ? Explain hydraulic and pneumatic actuator. **10**

   c) Write short notes on :

      i) Journal bearing. **5**

      ii) Cam and follower. **5**

UNIT - IV

4. a) Define control system ? Explain open loop and closed loop control system with the help of general block diagram. **10**

   b) Differentiate between microprocessor and microcontroller. Explain in brief PLC. **10**

   c) Write short notes on :

      i) PID controller. **5**

      ii) Transfer function. **5**

UNIT - V

5. a) Define industrial Robot ? Explain different parts of Robot. **10**

   b) Explain the various ergonomic problems in new technology. **10**

   c) Write short notes on :

      i) Validation design. **5**

      ii) Servo actuator system. **5**

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