

Total No. of Questions : 12]

P1062

SEAT No. :

[Total No. of Pages : 4

[4163] - 219

May - June 2012

T.E. (Mechanical Engg.)

MECHATRONICS

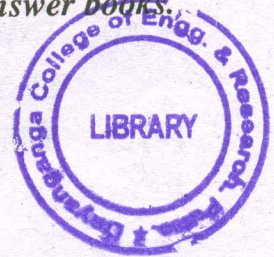
(2008 Pattern) (Sem. - II)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answers any 3 questions from Section - I and 3 questions from Section - II.
- 2) Answers to the two sections should be written in separate answer books.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.



SECTION - I

- Q1) a) Draw the block diagram of generalized measurement system and explain the function of each element. [6]
- b) What do you understand by active and passive transducers? Explain with suitable example. [6]
- c) Sensitivity of a thermocouple is $0.01V/^{\circ}C$. Find the output voltage if the temperature is $200^{\circ}C$. Also find temperature for 3.5V output. [4]

OR

- Q2) a) Explain thin film RTD with its diagram. [4]
- b) Explain capacitive type level measuring transducer. [6]
- c) An electrical resistance strain gauge of resistance 120Ω and gauge factor 2 is bonded to a specimen of steel. Calculate the resistance change of the gauge due to stress of $50MN/m^2$ (tensile) in the specimen. Modulus of elasticity $E = 200GN/m^2$. [6]
- Q3) a) Explain principle and working of LVDT with circuit diagram. [8]
- b) An optical encoder of 1500 ppr is rotating with a speed of 300rpm. Find out resolution of encoder and frequency of signals. [4]
- c) Write short note on inductive proximity sensor. [4]

OR

P.T.O.

