Total No. of Questions : 6]

P16

TE/INSEM/APR-19 T.E. (Mech) (Semester - II) **302050 : MECHATRONICS** (2015 Pattern)

Time : 1 Hour]

Instructions to the cundidates:

- Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 1)
- 2) Neat diagrams must be drawn wherever necessary.
- Figures to the right indicate full marks. 3)
- All questions carry equal marks. **4**)
- Assume suitable data, if necessary. 5)
- Use of electronic pocket calculator and steam tables is allowed. **6**)
- *Q1*) a) Explain need for mechatronics in mechanical industries.
 - For temperature measuring sensor, input is temperature and output is b) volt. [4]

The sensor Transfer Function (TF) is given as 0.01 volt/degree.

Find :

- Sensor output voltage if temperature is 600°F i)
- Temperature for 3.5 ii)

OR

- A linear resistance potentiometer is 50mm long and uniformly wound *Q2*) a) with wire having resistance of $10K\Omega$. Under normal conditions, the slider is at the centre of the potentiometer. Find the linear displacement when the resistance of the potentiometer is (i) 3850Ω (ii) 7560Ω . If minimum 2.48.20.20051 2.48.20051 measurable resistance is 10Ω . Comment on the displacement direction. Find the resolution of potentiometer in mm [6]
 - Define : b)
 - Resolution i)
 - ii) Sensitivity.

[Max. Marks : 30

P.T.O.

[4]

SEAT No. :

[Total No. of Pages : 2

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