Total No. of Questions : 12]

SEAT No. :

P2922

[Total No. of Pages : 3

[4958]-157
T.E.(Electronics)
SENSORS & INTERFACES
(2008 Course) (Semester-II)(304208)

Time :3Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answer to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
6) ***Assume suitable data if necessary.***

SECTION-I

Q1) a) Explain principle of flow measurement. Describe pitot tube used for flow measurement. **[8]**

b) Explain pH measurement with neat diagram. **[8]**

OR

Q2) a) Explain selection criterion for choosing a sensor/transducer. **[8]**

b) Explain incremental and absolute rotary encoders for angular velocity measurement. **[8]**

Q3) a) Explain with neat diagram I/P converter and P/I converter. **[8]**

b) Explain any one technique for level and humidity measurement. **[8]**

OR

Q4) a) A sensor outputs a range of 10 to 200mV, as a variable varies over its range. Develop a signal conditioning circuit using 3 Op Amp instrumentation amplifier so that it becomes 0 to 5 V. **[8]**

b) Write a short note on SMART transmitter. **[8]**

P.T.O.

Q5) a) Enlist the features of PIC microcontroller.Draw and explain interface of matrix keyboard with PIC 16 F 84. **[10]**

b) State the different types of ADC and state their specifications. **[8]**

OR

Q6) a) Enlist the features of 8051series microcontrollers. Draw and explain interfacing of following devices with 89 C 51 microcontroller.

i) ADC ii) Electromechanical relay **[10]**

b) Enlist different types of DAC and give performance for parameters for selection of DAC. **[8]**

SECTION-II

Q7) a) Write short note on I^2C bus. **[8]**

b) Explain with block diagram computer based data logger. **[8]**

OR

Q8) a) Write short note on foundation field bus. **[8]**

b) Explain HART communication protocol along with its modes of operation. **[8]**

Q9) a) Explain lift system to move the load up and down using pneumatic actuators. **[8]**

b) Explain principle of operation of D.C. motor. State various types of D.C. motor. **[8]**

OR

Q10) a) Explain with neat diagram pressure control valves. **[8]**

b) Explain following types of valves with neat diagram. **[8]**

i) Spool valve ii) Poppet valve

Q11) a) Explain the PLC operating cycle. **[8]**

b) With suitable assumptions draw the block diagram of a bottle filling plant and develope a PLC ladder diagram for the automatic operation of bottle filling plant. **[10]**

OR

Q12) Write short note on: **[18]**

a) Selection of PLC

b) Input and output devices for PLC.

c) Analog input/ output for PLC.

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