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RM-7761

B. E. IV (Sem. VIII) (Electrical) Examination

May / June – 2010

Industrial Instrumentation (Elective - I)

Time : **3** Hours] [Total Marks : **100**

Instruction :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem. 8) (Electrical)**

Name of the Subject :

☛ **Industrial Instrumentation (Elective - 1)**

☛ Subject Code No. : **7 7 6 1** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Attempt **all** the questions.
(3) Figures to the **right** indicate marks.
(4) Assume suitable data if **necessary**.

SECTION - I

Q.1(a) Answer the following questions 5

1 State the Principle of Pressure Measuring Device.

2 What is final Control Operation?

3 List the type of Control Valves.

4 Which Materials are Used for thermocouple?

5 For which range of temperature, Copper Constant Thermocouple is Used?

(b) Nuclear Radiation Beta Gauge for Thickness Measurement. 8

(C) Draw the Block Diagram of Electronic Weighing Device. 2

Q.2(a) Write a short note on : pressductor 8

(b) Discuss: Ultrasonic Flow Meter. 8

OR

Q.2(a) Classify Electrical Actuator and Explain How Solenoid works as an Actuator. 8

(b) Explain Pulsed Thermocouple Technique. 8

Q.3 Discus "any two" 14

1 Pneumatic Actuator.

2 Torque Measurement.

3 Explain: Final Control Operation With Block Diagram.

4 Classify Hot Wire Anemometer and Explain any one

SECTION - II

Q.4(a) Answer the following questions 10

1 What is plant automation

2 Give the disadvantages of relay logic control.

3 Give the function of "programme scanner" in PLC

4 Define PLC.

5 What is the function of timer. List the types.

(b) Explain the working of on delay timer wit example. 10

Q.5(a) Discuss input module of PLC 7

(b) There are three machines each with its own start/stop buttons. Any two may run at one time. Also any one may run by itself, Draw plc ladder diagram. 7

Or

Q.5(a) Discuss :advantages of plc over relay logic. 7

(b) There are two motors M1 & M2. Motor M2 has a lubrication pump to protect its bearing Motor M1 should start immediately as the start switch is pressed. After 10 sec motor M2 along with lubrication pump should start when stop switch pressed motorM1 &M2 should stop immediately& lubrication pump remains 'on' for a time of 15 sec to coast down. Prepare a ladder diagram. 7

Q.6 Write short notes on 'any two' 16

1 Direct digital control

2 How plc executes a ladder programme.

3 Database organization of DCS

4 PLC architecture