



B.TECH DEGREE EXAMINATIONS: DEC 2014

(Regulation 2013)

Third Semester

TEXTILE TECHNOLOGY

U13EIT306: Industrial Instruments and Process Control

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. _____ is an example of variable conversion element.
 - a) Pinion and Gear
 - b) Amplifier
 - c) Analog to digital converter
 - d) Transducer
2. Strain Gauge is a _____ Transducer.
3. _____ is the amount of water vapor in the air.
 - a) Pressure
 - b) Humidity
 - c) Vibration
 - d) Moisture
4. LVDT is used to measure _____.
5. The main drawback of binary weighted resistor type DAC is, _____ are required.
 - a) High Capacitor values
 - b) High Resistor values
 - c) High Inductor values
 - d) Transformer
6. The process of obtaining signals values at discrete interval of time is called_____.
7. The drawback in P-controller is, it develops a _____.
 - a) oscillation
 - b) Settling time
 - c) Steady state error
 - d) Delay time
8. _____ is a group of elements or components combined together to do a particular task.
9. If a solid state device controls current from the load, it is known as _____.
 - a) Sinking device
 - b) Sourcing device
 - c) Input module
 - d) Output Module
10. _____ is a combination of EEPROM and RAM.

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. List the classification of Instruments.
12. Draw the blocks of Generalized measurement system.
13. State Seebeck Effect.
14. How is humidity measured?
15. List the types of recorders.
16. What is Evenness Tester?
17. Define control system. List the types of control system.
18. State servo and regulatory control.
19. Compare PLC and Computer.
20. Mention any four of the input and output devices each used in PLC.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Discuss in detail, the different types of controllers with its advantages and disadvantages.
22. a) With the neat sketch, discuss the working principal of PMMC instrument? Derive the torque Equation. Lists its application, advantages and disadvantages.

(OR)

 - b) (i) Define error. Explain the types of errors and the methods to eliminate it. (10)
 - (ii) Differentiate Accuracy and Precision with example. (4)
23. a) (i) How is displacement measured? Discuss in detail. (10)
(ii) Define strain? Brief on the types of strain Gauges. (4)

(OR)

 - b) Explain in detail, the working principle, construction, types and application of Thermocouple.
24. a) (i) With the neat sketch, explain successive approximation type A/D converter. (7)
(ii) Discuss X-Y recorder with neat sketch. (7)

(OR)

b) Discuss single yarn strength test with neat sketch and give its applications.

25. a) (i) Explain in detail the circuit of a analog input module of a PLC. (7)

(ii) Elaborate on the Programming methods of PLC. (7)

(OR)

b) (i) With the neat sketch, explain the architecture of PLC. (7)

(ii) Explain any one application of PLC and DCS in Textile Machinery (7)
