191ECEM	PLC AND AUTOMATION	L-T-P	C
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Programme: B.E. Electronics and Communication Engineering **Sem** - **Category:** PE

Question Bank

Unit 1

Part A

1. Write the basic principle of Process control.
2. Infer about the Servomechanism.
3. Write the equation for the error signal in Control system evaluation.
4. Interpret the importance of setpoint in steady state regulation.
5. What is maximum overshoot and steady state error.
6. List the types of Digital Control in Automated systems.
7. List the applications of Automated systems.
8. What is the role of Actuator in an automated control.
9. Write role of DAC and ADC in a digital control.
10. What is the limitation of automation systems.

Part B

1. a. Illustrate with an example and explain the Process Control principles (8)
   b. Interpret about the Analog Control in industrial automation.(8)
2. Interpret in a brief about Control system Evaluation in automation. (16)
3. Illustrate the Industrial Automation systems and explain it briefly. (16)
4. Interpret the types of digital control in industrial automation with block diagram.(16)
5. a. Infer about the Servomechanism process. (8)
   b. Write the advantages and limitations of automation.(8)

Unit 2

Part A

1. Infer the need of the transmitter.
2. List the various transmitters used in Process instrumentation.
3. Write the voltage and current Standards used for signal transmission.systems.
4. Write the importance of signal conditioning.
5. Write the role of RTD.
6. Distinguish between RTD and thermocouple.
7. List the blocks used in Smart Transmitter.
8. What is an intelligent transmitter.
9. Write the advantages of Smart transmitter.
10. List the applications of Intelligent Transmitter.

Part B

1. Summarize the signal conditioning methods for RTD, Thermocouple,Thermister. (16)
2. Outline about the Smart and intelligent transmitters. (16)
3. Illustrate the 2 wire and 3 wire transmitter and explain it briefly (16)
4. List the types of Transmitters and interpret in elaborate manner. (16)
5. Summarize the Standardization of signals: Current, Voltage and Pneumatic signal standards. (16)

Unit 3

Part A

1. Illustrate a PID controller utilized in process control .
2. Write the controller equation of a PID controller.
3. What is the importance of cascade control.
4. Infer about PAC and its need.
5. Distinguish between PLC and PAC.
6. Interpret the usage of Solenoid valve.
7. List the applications of Stepper motor.
8. Illustrate a pneumatic Actuator.
9. Summarize the benefits of Hydraulic Servos.
10. List the various Electrical actuators.

Part B

1. Summarize the PID control and cascade control in automation with block diagram. (16)
2. Summarize the various motors utilized in automation system.(16)
3. Interpret about the hydraulic and pneumatic actuator system. (16)
4. Infer about the various solid state switches. (16)
5. Write about VFD and energy conservation schemes through VFD. (16)

Unit 4

Part A

1. Write the functions of Programmable Logic controller..
2. Illustrate a basic PLC structure.
3. List the input and output devices interfaced with PLC.
4. Write the importance of Ladder programming.
5. List the criteria for the selection of PLC.
6. Summarize the advantages of Programmable logic Controller.
7. List the various networks of Programmable Logic Controllers.

8. Write the benefits of Human Machine Interface.
9. Summarize the various parts of IEC 61131.
10. Relate the importance of ERP and MEC in plant maintenance module

Part B

1. Infer the need of the transmitter.
2. List the various transmitters used in Process instrumentation.

Unit 5

Part A

1. Infer the need of the transmitter.
2. List the various transmitters used in Process instrumentation.

Part B

1. Infer the need of the transmitter.
2. List the various transmitters used in Process instrumentation.