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SARDAR PATEL UNIVERSITY

Vallabh Vidyanagar - 388120

B.Sc. (6TH Sem) Examination - March/April 2018 [CBCS]Wednesday, 28th March, 2018

10:00 AM to 01:00 PM

US06CINV02 (Instrumentation - Vocational)

Control Technique - II

Maximum Marks: 70

Que 1 Each question below gives a multiple choice of answers. Choose the most appropriate one. [10]

- 1 In a _____ Control System, Each Step is Initiated at a Given Time, or After a Given Time Interval.
 - a) Event - Driven Sequential
 - b) Time - Driven Sequential
 - c) Direct Numerical
 - d) Computerized Numerical
- 2 A _____ Control System is a System that Uses Predetermined Instructions (Program) to Control a Sequence of Manufacturing Operations.
 - a) Sequential
 - b) Optimizing
 - c) Ratio
 - d) Numriacal
- 3 _____ Control System is a Special Type of Feedforward Control System Widely Used in the Process Industries.
 - a) Cascade
 - b) Feedback
 - c) Ratio
 - d) Open - Loop
- 4 The _____ Provides the Engineer With a Visual Picture of the Program in the Programmable Logic Controller (PLC).
 - a) Ladder Diagram Symbols
 - b) CRT Programmer
 - c) Hand - Held Programmer
 - d) Real-Time Central Processing Unit
- 5 _____ Performs the Tasks Necessary to Fulfil the PLC Function Such as Scanning, I/O Bus Traffic Control Program Execution, Peripheral and External Device Communications, Etc.
 - a) Central Control Unit (CCU)
 - b) PLC Input Module
 - c) PLC Output Module
 - d) Programmer Unit
- 6 In All Modern PLCs, _____ is Used to Convert I/O Signal Level to one that is Compatible with the Bus Architecture.
 - a) Programmer Unit
 - b) Plug-in-Module
 - c) Ladder Diagram
 - d) PLC Programming
- 7 The _____ Display of Distribute Control System (DCS) Shows the Bar Essentials of a Number of Groups, Each Group in a Separate Rectangle.
 - a) Trend
 - b) Group
 - c) Overview
 - d) Detail
- 8 The _____ Display of DCS is Specific to a Single Loop or Control Function.
 - a) Detail
 - b) Overview
 - c) Graphic
 - d) Trend
- 9 _____ : is the Testing of Each Instrument for Correct Calibration and Operation Prior to its Being Installed in the Field.
 - a) Pre - Installation Testing
 - b) Piping and Cable Testing
 - c) Loop Testing
 - d) Reliability
- 10 _____ of the System is Fraction of the Total Test Interval that it is Performing Within Specification.
 - a) Availability
 - b) Unavailability
 - c) Diversity
 - d) Reliability

- Que 2 Short Questions (Attempt any TEN) [20]**
- 1 Write on *PLC* Installation.
 - 2 What is *PLC* Programmer Unit?
 - 3 What are the Advantages of Using *PLCs*?
 - 4 Explain What Operator's Console is.
 - 5 Explain Briefly Earthing.
 - 6 What Do You Mean By Pneumatic Signals? What is its Importance?
 - 7 Explain What Impulse Line is.
 - 8 What is Computerized Numerical Control (*CNC*) System?
 - 9 Explain Briefly Event - Driven Sequential Control System.
 - 10 Differentiate: Linear and Non-Linear Control System.
 - 11 Enlist Features of *DCS*.
 - 12 What are the Advantages of *DCS*?
- Que 3 [A] Explain Feedforward Control System With Necessary Diagram. [05]**
[B] Give an Account of Cascade Control System. [05]
- OR**
- [C] Write a Note on Feedback Control System With Necessary Diagram. [05]**
[D] Discuss Ratio Control System. [05]
- Que 4 [A] Give an Account of *PLC* Programming. [05]**
[B] Discuss *PLC* Input/Output (*I/O*) System. [05]
- OR**
- [C] Write a Note on *PLC* Communications and Networking. [05]**
[D] Explain How Selection of *PLC* is Carried Out. [05]
- Que 5 [A] Give an Account of *DCS* - Supervisory Computer Tasks. [10]**
- OR**
- [B] Write a Note on *DCS* Integration With *PLCs* and Computers. [10]**
- Que 6 [A] Give an Account of Mounting and Accessibility of the Instruments. [05]**
[B] Write a Note on Total Lifetime Operating Cost of Measurement System. [05]
- OR**
- [C] Give an Account of Testing and Pre-Commissioning of Plant. [05]**
[D] Write on Piping Systems Associated with Instrumentation. [05]