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SARDAR PATEL UNIVERSITY

Vallabh Vidyanagar - 388120

B. Sc. - 6th Semester (Instrumentation-vocational)**US06CINV02** (Control technique-II)

Day and Date: Wednesday, 27/03/2019

Time: 10:00 am to 01:00 pm

Maximum Marks: 70

Que 1 Objective Type Questions.**[10]**

- 1 ____: brain of control system.
 - a) Controller
 - b) Sensor
 - c) Amplifier
 - d) Final control element
- 2 ____: desired value of controlled variable to be maintained all time.
 - a) Set point
 - b) Manipulated variable
 - c) Disturbance
 - d) Final control element
- 3 ____: used to take action for implementing the decision taken by the controller.
 - a) Final control element
 - b) Controlled variable
 - c) Disturbance
 - d) Set point
- 4 Programmable logic controller (PLC) consist of ____.
 - a) Input module
 - b) Output module
 - c) Programming device
 - d) All of these
- 5 The heart of PLC is ____.
 - a) Memory
 - b) Input module
 - c) Programming device
 - d) Central processing unit
- 6 A PLC is usually programmed via an external unit, called ____.
 - a) Input module
 - b) CPU
 - c) Memory
 - d) Programming unit
- 7 DCS stands for ____.
 - a) Distributed control system
 - b) Distributed counter system
 - c) Digital carrier system
 - d) Direct control system
- 8 MMI stands for ____.
 - a) Man-machine interface
 - b) Machine-machine interface
 - c) Man-man interface
 - d) Man-mechanical interface
- 9 The availability of the instrument system depends on ____.
 - a) Total up-time
 - b) Test interval
 - c) Both a) and b)
 - d) None of these
- 10 Mean time between failures (MTBF) of the instrument system depends on ____.
 - a) Total up-time
 - b) Number of failures
 - c) Both a) and b)
 - d) None of these

Que 2 Short Questions (Attempt Any Ten)

[20]

- 1 Explain sensors and transmitters.
- 2 Write on transfer function of control system.
- 3 State advantages and disadvantages of feedback control system.
- 4 What are the advantages of using PLCs?
- 5 Explain briefly PLC installation.
- 6 Write on hand-held programmers and CRT programmers.
- 7 What are features of DCS?
- 8 State advantages of DCS.
- 9 Write on DCS integration with computers.
- 10 Define total up-time and total down-time.
- 11 What is mean failure rate and redundancy?
- 12 Write on diversity and maintenance briefly.

Que 3 [A] Write a note on feedforward control system.

[05]

[B] Explain cascade control system.

[05]

OR

[C] Give an account of ratio control system.

[05]

[D] Write a note on sequential control system.

[05]

Que 4 [A] Write on PLC communications and networking.

[05]

[B] Discuss PLC programming.

[05]

OR

[C] Write detailed note on PLC architecture.

[10]

Que 5 [A] Write on video display and keyboard as applicable to DCS.

[05]

[B] Explain international field-bus standards and data highway designs.

[05]

OR

[C] Discuss group displays and overview displays.

[05]

[D] Write on network access protocol.

[05]

Que 6 [A] Give an account of testing and pre-commissioning of instruments.

[10]

OR

[B] Discuss cabling in detail.

[10]