

- Q.27 Discuss the various information display using DCS for efficient monitoring of plant parameters.
- Q.28 What are various Wi-Fi enabled devices? How do they work?
- Q.29 Explain the working of mod-bus.
- Q.30 Write short note on wireless thum.
- Q.31 List any four comparison instructions.
- Q.32 Explain SPC, MTU and RLC.
- Q.33 Explain ASI bus.
- Q.34 Select device that can be used with PLC to control the speed of AC motor. Explain how?
- Q.35 Differentiate between DCS and SCADA.

#### **SECTION-D**

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Draw simple block diagram and Architecture of PLC. Explain function and working of at least 5 components.
- Q.37 Develop a ladder program for Ketchup bottling plant system with following conditions:
- i) Red light sensor for presence of bottle ON for 30 sec.
  - ii) Filling green switch light ON for 25 sec, and
  - iii) Yellow light movement switch on for 55 sec.
  - iv) Repeat the sequence until stop push button is pressed.
- Q.38 Discuss the construction, working and application of a contractor.

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**6th Sem / Branch : Mechtronics  
Sub.: Industrial Automation**

Time : 3Hrs.

M.M. : 100

#### **SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Which of the following is not a part of SCADA system?
- a) Database server      b) I/O system
  - c) Sparger controller    d) PLC controller
- Q.2 RTU is a part of \_\_\_\_\_
- a) SCADA                b) DCS
  - c) DDC                    d) PLC
- Q.3 GUI and SCADA is used for \_\_\_\_\_ process of managing supervisory
- a) Low level             b) High level
  - c) Equal                  d) None of the above
- Q.4 Which of the following components of supervisory control and data acquisition system?
- a) Computer
  - b) Network data
  - c) Graphical user interface
  - d) All of the above
- Q.5 Ladder diagram is \_\_\_\_\_
- a) Diagram of PLC      b) Program of PLC
  - c) Diagram of SCADA    d) Diagram of DCS

- Q.6** Which of the following is the function of DCS?  
 a) In any processor functionality fails to work, it does not affect another process  
 b) If any processor functionality fails to work, it does affect another process  
 c) If any processor functionality fails to work, it affects another process based on the environment  
 d) None of the above
- Q.7** In HART protocol, digital data superimposed on analog data. The peak to peak level of superimposed signal is \_\_\_\_\_  
 a) 1 mA                          b) 2 mA  
 c) 0.5 mA                      d) 4 mA
- Q.8** In case of DCS audit trails is possible, it means  
 a) Alarm logging  
 b) Record of what changes are done in system and by whom  
 c) Parameter logging  
 d) Consolidation of alarm
- Q.9** Which of the following is the application area of PLC  
 a) Petrochemical  
 b) Power generation  
 c) Chemical batching  
 d) All of above mentioned
- Q.10** Which of the following allows faster machine checkout?  
 a) Hardware controller  
 b) Machine controller  
 c) Programmable controller  
 d) PCB controller

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**SECTION-B**

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 I/O scan mode in PLCs consist of \_\_\_\_\_.  
 Q.12 In SCADA system how many control systems are there?  
 Q.13 What device sends and receives signal in wireless communication \_\_\_\_\_  
 Q.14 The working of a device without human intervention is known as \_\_\_\_\_  
 Q.15 Most of the wireless systems operate at \_\_\_\_\_ Hz (800/80)  
 Q.16 The Industries used \_\_\_\_\_ before the PLC. Invention.  
 Q.17 A coil in PLC is used for \_\_\_\_\_  
 Q.18 Expand SCADA.  
 Q.19 Rung is a part of this device \_\_\_\_\_  
 Q.20 Draw format of instructions wrt to PLC-Down Counter.

**SECTION-C**

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Explain the sensor bus communication.  
 Q.22 Compare Fixed and Modular PLC.  
 Q.23 Write short note on Ethernet devices.  
 Q.24 List different editors used in SCADA.  
 Q.25 Give addressing format for me I/P and O/P in PLC.  
 Q.26 Write a PLC ladder program for 24 hour time clock switching a relay per hour.

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