BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - VII ELECTRONIC : : SUMMER - 2022
SUBJECT : PROGRAMMABLE LOGIC CONTROLLERS & APPLICATIONS

Day : Tuesday
Time : 02:30 PM-05:30 PM

Date : 31-05-2022   S-13394-2022   Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Draw diagrams **WHEREVER** necessary.

Q.1   State the advantages and the limitations of automation. List different tools   **(10)**
of automation.

OR

Define the following: **(10)**

a) Controlled variable
b) Setpoint
c) Manipulated variable
d) Load variable

Give example of the above with the help of suitable example.

Q.2   Explain the configuration and calibration of SMART.   **(10)**
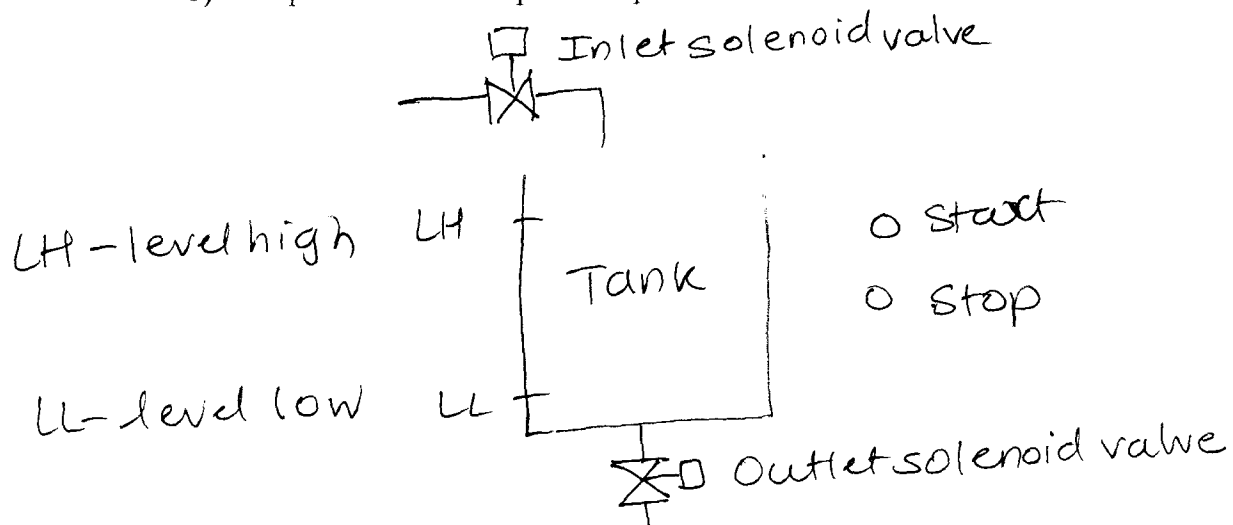
OR

Explain the working principle of 2 wire transmitter. State its advantages.   **(10)**
Explain the concept of field located and control room located devices with
the help of examples.

Q.3   Explain the working of digital output module with the help of a neat   **(10)**
diagram. Give examples of digital outputs and analog outputs.

OR

Develop relay ladder diagram for single tank level system: **(10)**

1) Provide master start/stop.
2) When start push button is activated, open inlet solenoid valve to fill
the tank.
3) When tank is full (level high) close inlet solenoid valve and open outlet
solenoid valve to drain the tank.
4) Keep the outlet solenoid valve open till tank is empty (level low) and
then open inlet valve.
5) Repeat the above steps till stop is activated

Single tank level system

Q.4 State the six PLC programming language. Using structured list programming **(10)** method, write a program for water tank level control with one input valve and one output valve.

OR

What is Human machine interface? What are the different types of HMI. **(10)** Also state the advantages.

Q.5 Explain in detail the following: **(10)**
a) RTU **b)** MTU

OR

What is the difference between PLC and DCS? Explain input and output **(10)** modules of DCS.

Q.6 State the applications of CNC machines in manufacturing. Explain any one **(10)** in detail.

OR

a) State the features of Device bus network. **(05)**

b) What is the difference between Device net and ControlNet. **(05)**

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