

ID 11473
Zia Us Rehman.

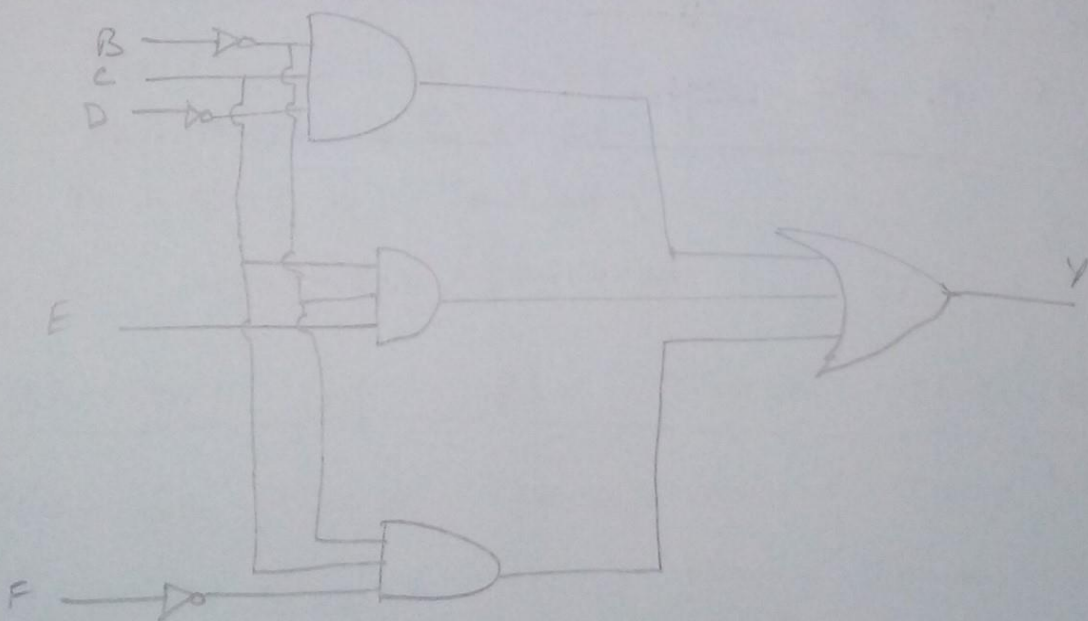
Subject
Industrial electronics

- Q1
- 1) This is inconclusive the reason is decreases
 - 2) opening a manually operated high-voltage disconnect switch.
 - 3) Fourth.
 - 4) Reducing.
 - 5) Transducers.

Q2 "Draw digital logic circuit and ladder diagram that is equivalent to the following Boolean function that will initiate a motor 'M' to start.

$$M = \bar{B}C\bar{D} + \bar{B}CE + \bar{B}C\bar{F}$$

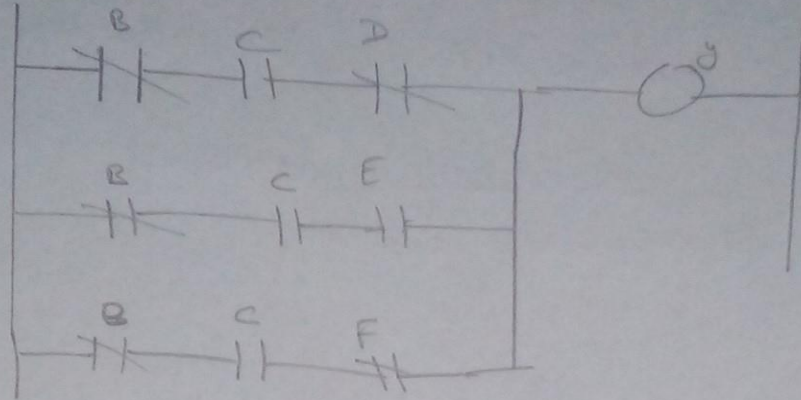
$$M = B'cD' + B'CE + B'CF'$$

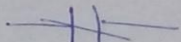


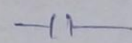
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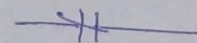
(2)

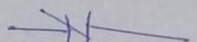
Q2

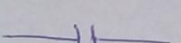


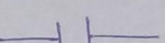
=> B is off 

=> C is on 

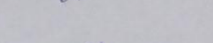
=> D is off 

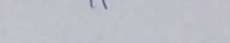
=> B is off 

=> C is ON 

=> E is ON 

=> B is off 

=> C is ON 

=> F is off 

" _____ "

Q.3 Describe and draw Ladder diagram (3)

Ans: -----

PLC Ladder Practice Problem:

Automatically infusing the container with liquids A and B in order with START is processed when it reaches the set level, mix the two liquids evenly then open the valve to let out the mixture.

Number of PLC Inputs Required:

- X1 - Start switch.
- X1 - Low level float sensor $X1 = ON$.
- X2 - High level float sensor $X2 = ON$.
- X3 - Stop switch.
- X10 - Emergency stop button $X10 = ON$.

Number of PLC output required:

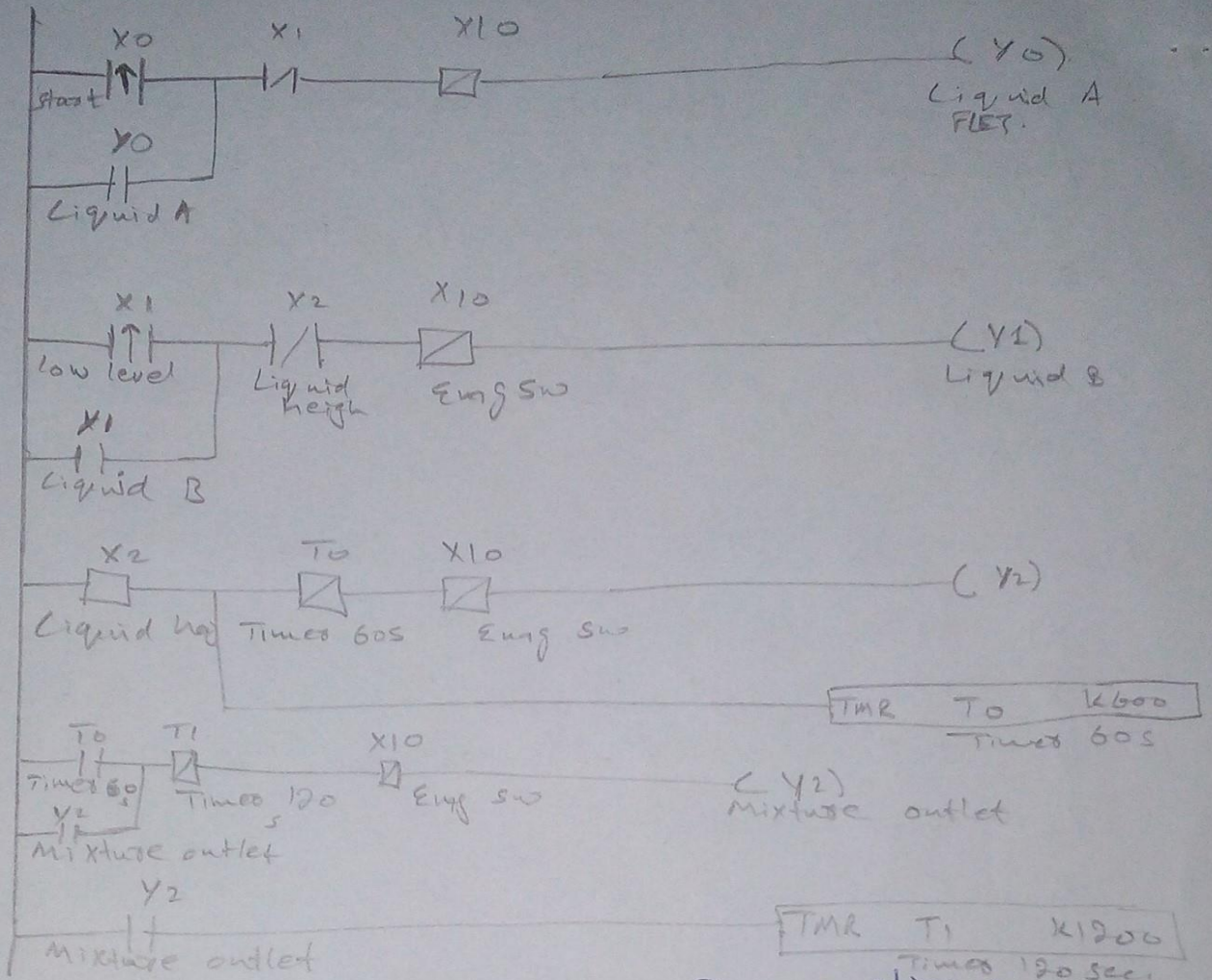
- Y0 - Liquid A inlet.
- Y1 - Liquid B inlet.
- Y2 - Mixture outlet.
- Y3 - Agitator/stirrer.

Number of PLC Timers required:

- T0 - 60 Second Timer, 100ms Time Base.
- T1 - 120 Second Timer 100ms Time Base.

PLC Ladder Programming:

(4)



PLC Ladder Program Description:

$X0 = ON$ when START is pressed. $Y0$ will be ON and latched and the valve will be open for infusing liquid A until the level reaches the low level float sensor.

$X1 = ON$ when the level reaches the low-level float sensor $Y1$ will be ON and ~~activate~~ latched.

$X2 = ON$ when the level reaches the high-level float sensor. $Y3$ will be ON and activates the agitator.

when $Y2 = ON$, timer $T1$ will start to count for 120s. $T1$ will be ON and $Y2$ will be off.