IQRA NATIONAL UNIVERSITY

Department of Electrical Engineering

Industrial Electronics

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ID: 13170

Submitted to: Engr Sana Ullah Sir

Semester: 8th

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=> ID 13170
=> Page No(1)

Question No (1)

① Does the Severity of an electric Shock increase or decrease with each of the following Changes?

Answer :- (a) Increases
(b) Increases
(c) Decreases
(d) Decreases

② State the piece of electrical safety equipment that should be used to perform each of the following task.

Answer :- (a) Safety glasses
(b) Safety gloves, Safety Shoes, Safety hat
(c) Safety gloves, Safety Shoes and hat.

③ In which Industrial revoultion the use of IT and electronic System further automated the production of Industrial Sector.

Answer :- (Third)

④ Industrial Safety is primarily a mangement acitivity which is Connected with reducing Controlling Eliminating hazards from the industries

Answer :- (Reducing)

⑤ The Transducer is defined as the device which convert the one form of energy into another form of energy.

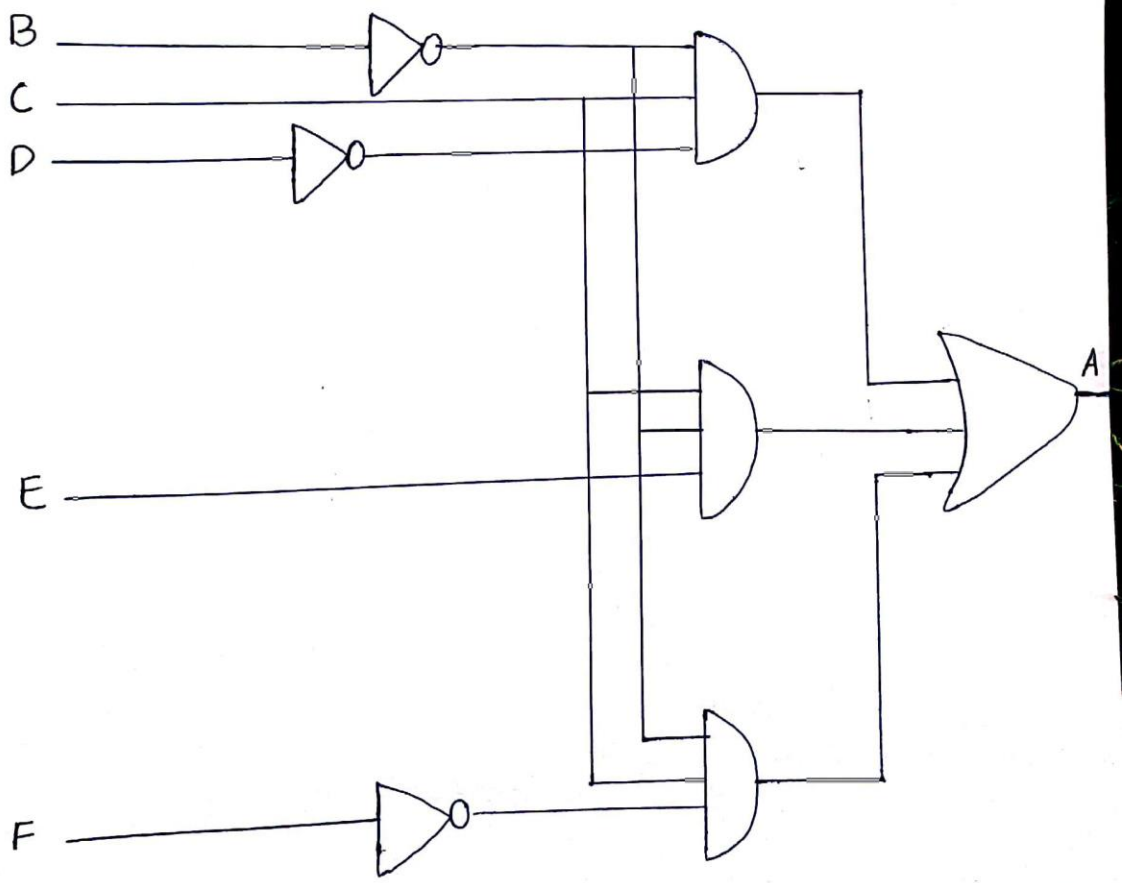
Answer :- (Transducer)

Question NO (2)

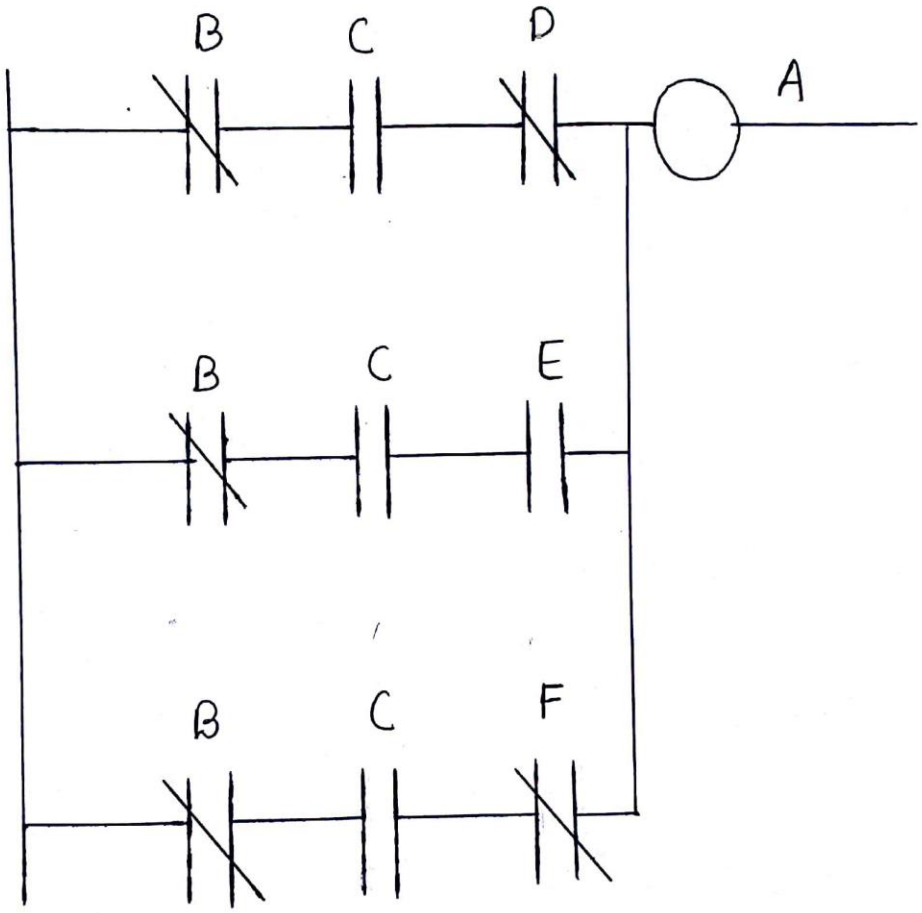
Draw digitial Logic Circut and Ladder diagram that is eqiuvalent to the following Boolean Function that will initate motar M to Start ?

Answer :- $M = B'CD' + B'CE + B'CF'$

=> (Digitial Logic Circut)



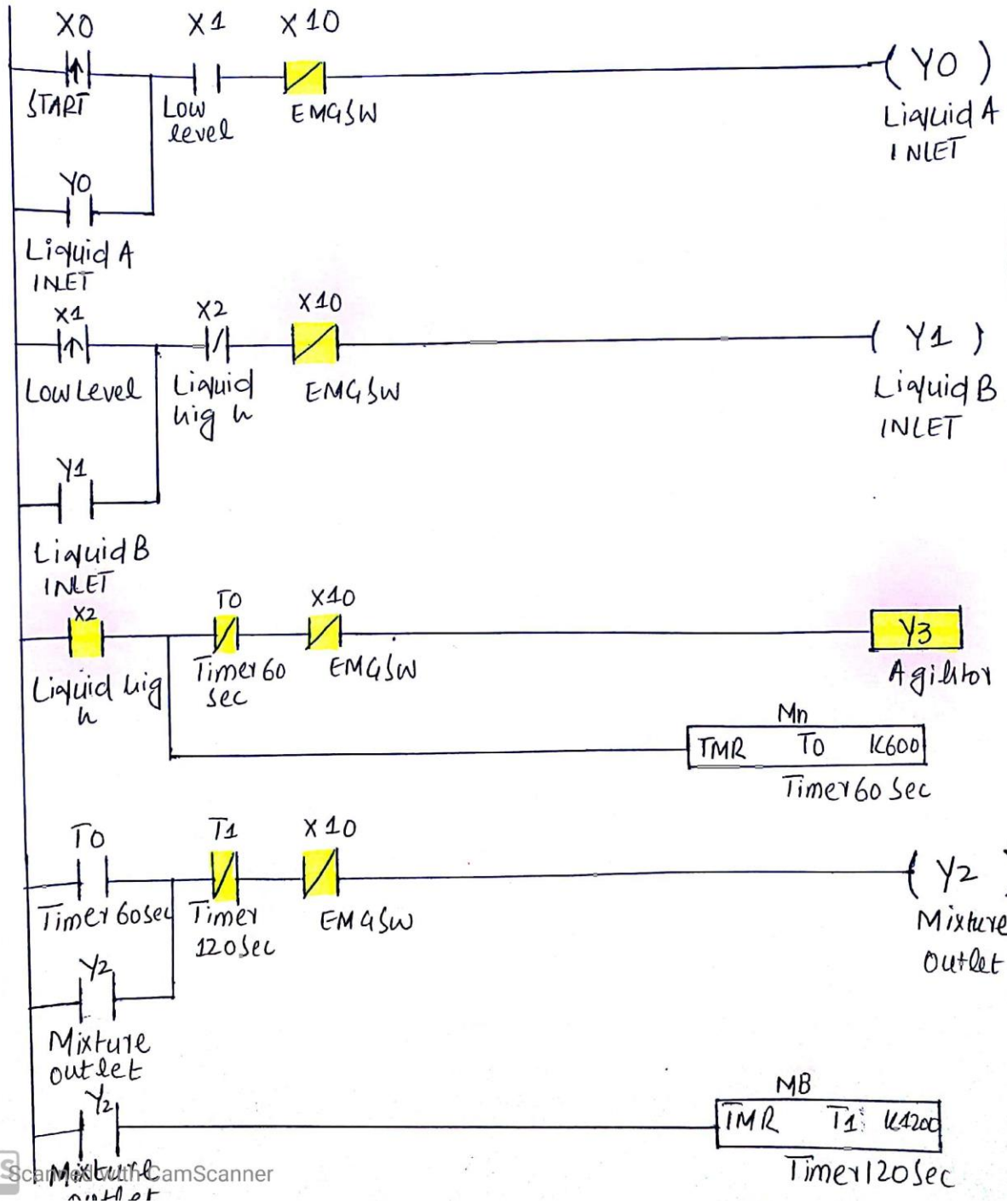
=> Ladder Diagram



Question NO (3)

Describe and draw ladder diagrame for the given process using Container infused .....?

(Answer):-



Number of PLC Inputs Required

=) X1 - is Start Switch

=) X1 - Low level float Sensor. X1 = ON when the liquid level reaches X1.

=) X2 - High level float Sensor. X2 = ON when the liquid level reaches X2.

=) X3 - Stop Switch.

=) X10 - Emergency Stop button. X10 = ON when the button is pressed.

Number of PLC outputs Required

=) Y0 - Liquid A Inlet

=) Y1 - Liquid B Inlet

=) Y2 - Mixture Outlet

=) Y3 - Agitator / Stirrer

Number of PLC Timer Required

=> T0 - 60 Second Timer. 100ms Time Base.

[See K60 preset value for Timer]

=> T1 - 120 Second Timer, 100ms Time Base.

[See K 1200 preset val for Timer]

Ladder Program Description

=> X0 = ON when START is pressed Y0 will be ON and latched, and the valve will be opened for infusing liquid A unitil the level reaches the low level float Sensor.

⇒ X1 = ON When the level reaches the low level float Sensor. Y1 will be ON and latched and the valve will be opened for Infusing liquid B untill the level reaches the high - level float Sensor.

⇒ X2 = ON When the level reaches the high level float Sensor Y3 will be ON and activates the agitator Also timer T0 will Start to Count for 60 Sec After 60 Sec, T0 will be ON and the agitator motor Y3 will Stop working Y2 will be ON, and latched and the mixture will drain out of the Container.

⇒ When Y_2 = ON Timer T_1 will Start to Count For 120 Sec After 120 Sec T_1 will be ON and Y_2 will be OFF The draining Process will be Stopped

⇒ When an error occurs, press EMERGENCY STOP button X10 The NC Contact X10 will be ON to disable all the outputs The System will then Stop running.

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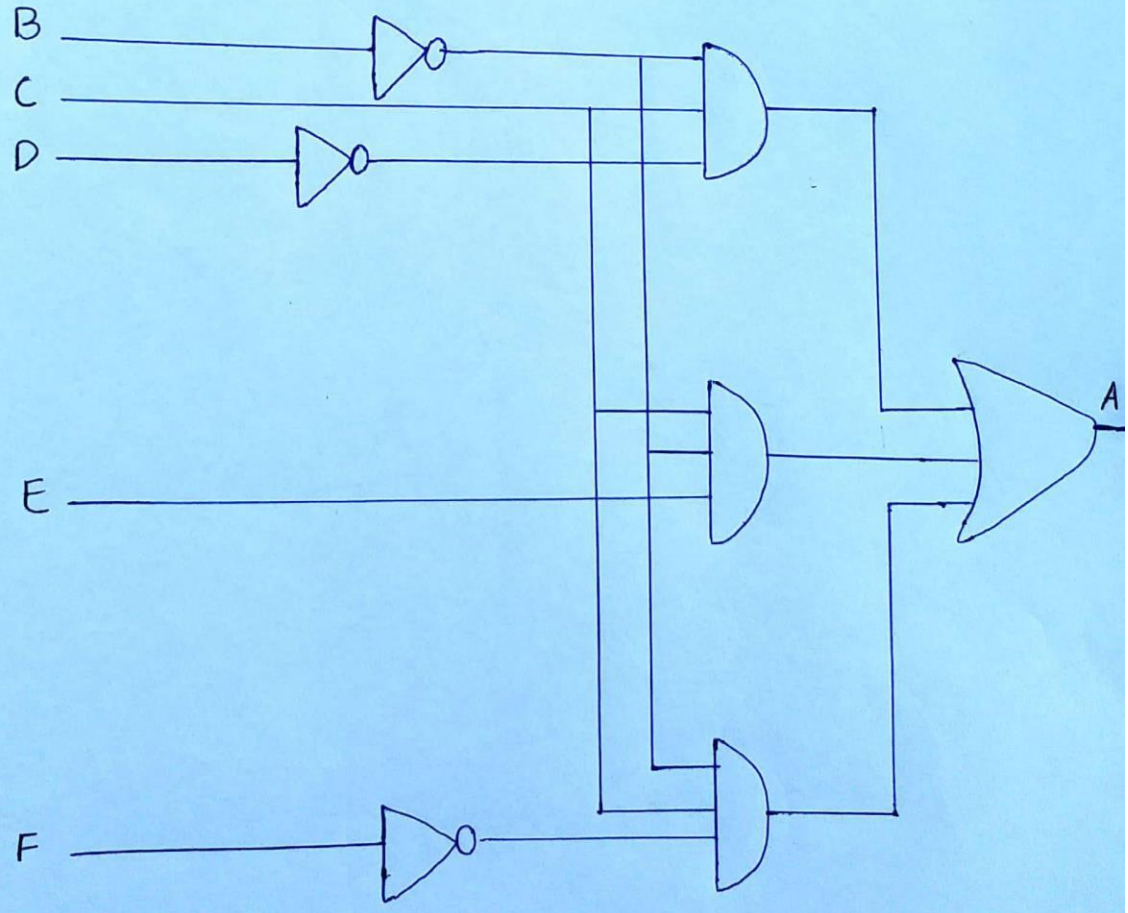

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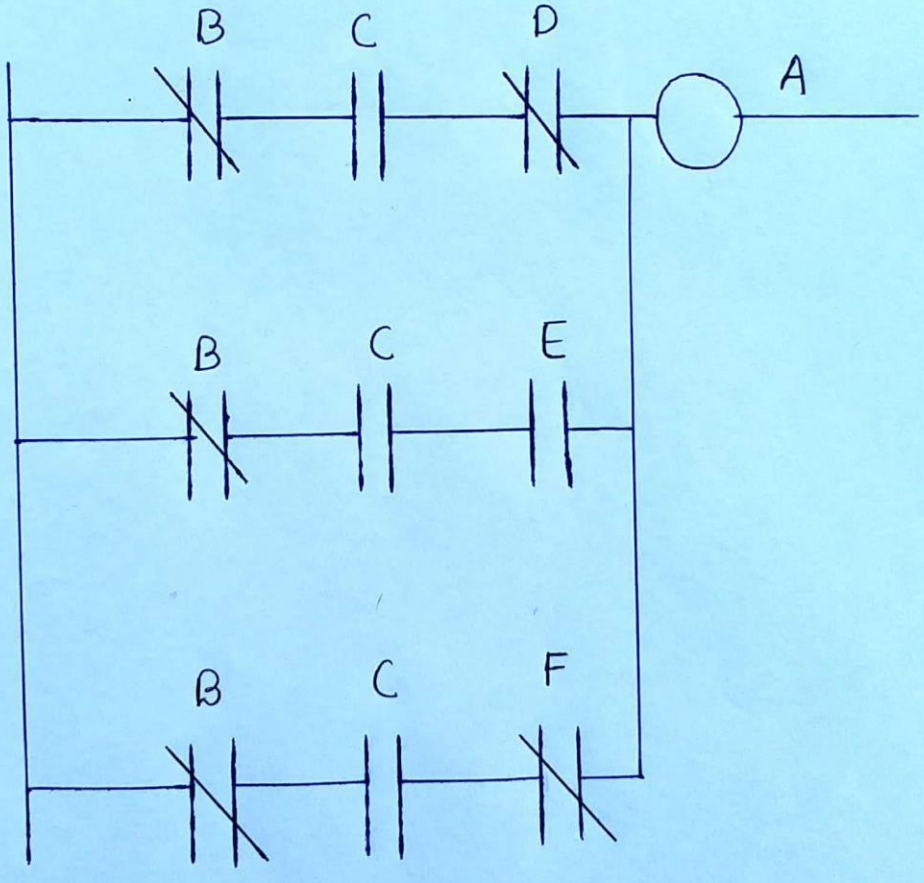

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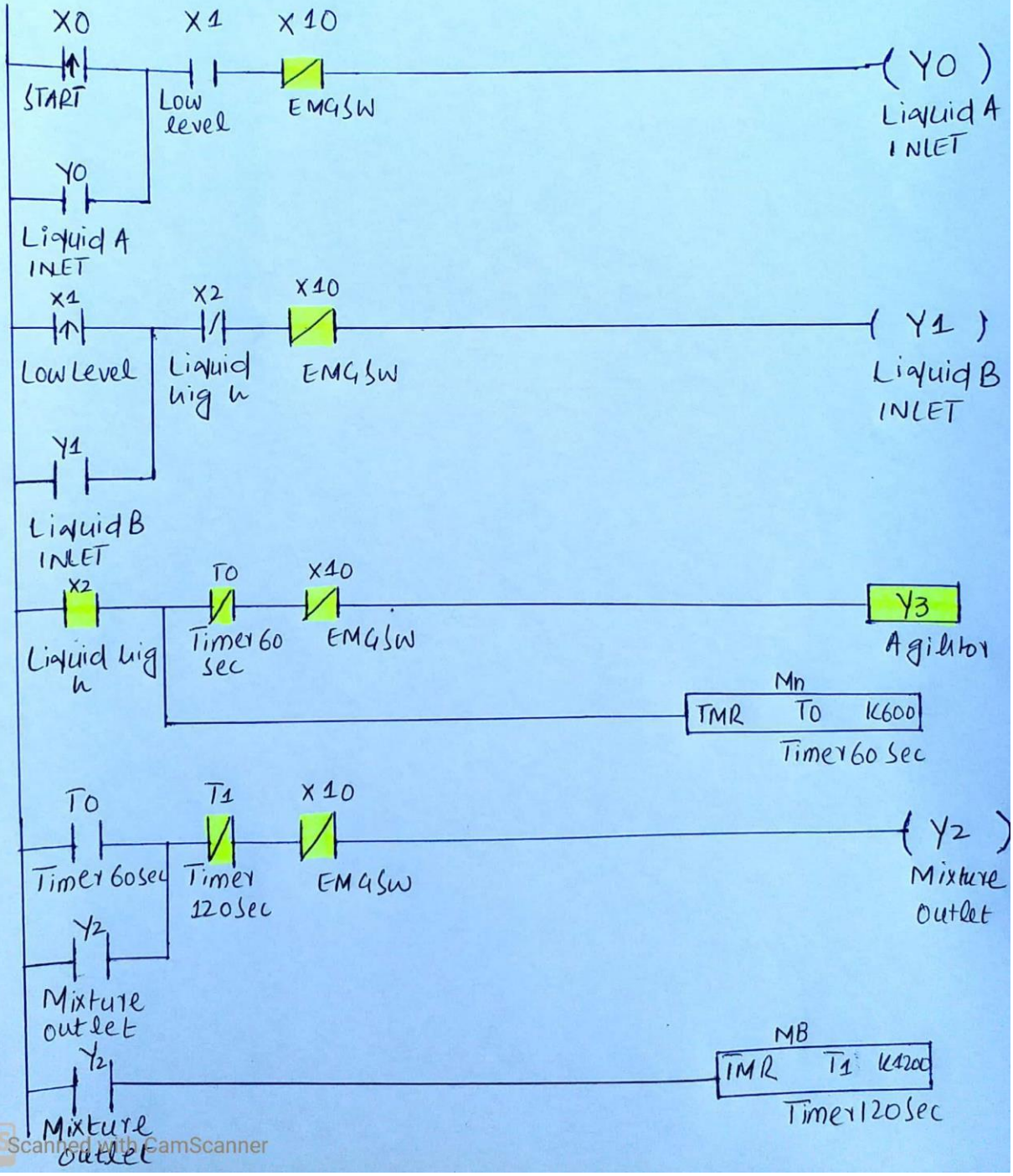

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Thank You Sir