HW3

Problem 1.

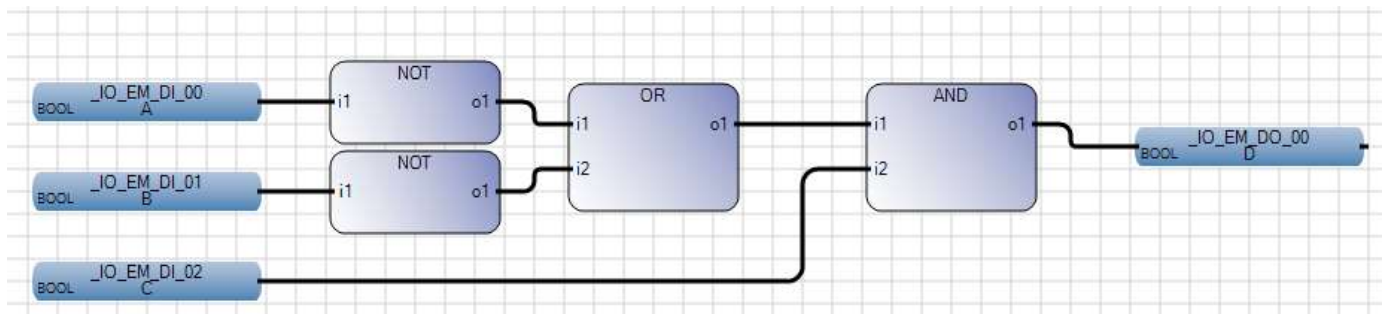| A	B	C	$\bar{A}$	$\bar{A}+\bar{B}$	Y
0	0	0	1	1	0
0	0	1	1	1	1
0	1	0	1	1	0
0	1	1	1	1	1
1	0	0	0	1	0
1	1	0	0	0	0
1	1	1	0	0	0

Problem 2.

A.

B.

```
1  _IO_EM_DO_00 := (NOT(_IO_EM_DI_00) OR NOT(_IO_EM_DI_01)) AND _IO_EM_DI_02;
```

C.

D.

Problem 3.

What system parameters did the Industrial IOT System monitor and why?

The Industrial IoT system monitors several system parameters related to internal and external data flow. Internal Data Flow Settings - Robot joint parameters; An Embedded Device for External Data Flow – x, y, z accelerations. The Industrial IoT system proposed in the article monitors various parameters that affect the industrial robot's behavior, such as the oscillation of the robot. The system aims to collect and analyze data to adjust the robot's behavior and increase its efficiency and the quality of the work performed. The system also monitors the external environment of the workplace and analyzes long-term data to detect patterns, deviations, and anomalies that could indicate an impending failure. By preventing failures, the system would reduce the need for maintenance and eliminate negative situations associated with the degradation of the robot.

What is Thingworx and how is it used in this application?

Thingworx is a platform for developing and deploying IoT (Internet of Things) applications. It provides tools for connecting devices, collecting and analyzing data, and creating user interfaces for interacting with the data. In the application described in the article, Thingworx is used as the cloud platform for storing and analyzing the data collected by the embedded system attached to the robot's arm. The collected data is sent to Thingworx through a communication channel, and then analyzed to identify patterns and anomalies. Based on the analysis, instructions can be sent back to the robot's control unit to adjust its behavior. Thingworx provides the necessary infrastructure for storing, processing, and visualizing the data, as well as the tools for creating rules and workflows that can automate the process of analyzing and responding to the data.