INTERNATIONAL UNIVERSITY OF SARAJEVO

HOMEWORK HW5

EE436 – Programmable Logic Controllers

Date: 09/04/2019, **Due date: 15/04/2019**

1. What types of instructions are not normally included inside the jumped section of a program? Why?

2. Answer the questions, in sequence, for figure bellow. Assume all switches **are *turned off after each operation***.
    a. Switches S2, S12, and S5 are turned on in order. Will output PL5 be energized? Why?
    b. All switches except S7 are turned off. Will RTO start timing? Why?
    c. Switches S3 and S8 are turned on in order. Will pilot light PL2 come on? Why?
    d. When will timer TON function?
    e. Assume all switches are turned on. In what order will the rungs be scanned?
    f. Assume all switches are turned off. In what order will the rungs be scanned?

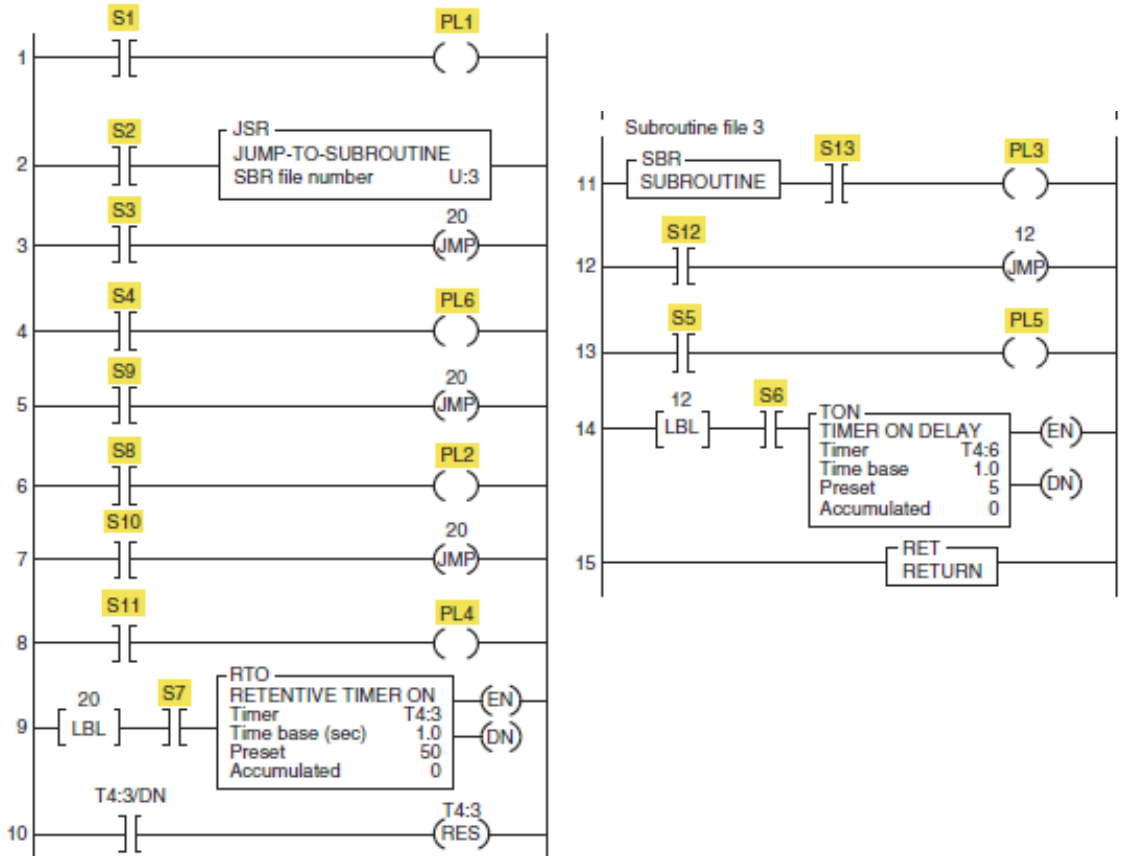

Figure 1: Ladder Logic program for question 2

3. With reference to the instruction of Figure 2, what will be the value of each of the bits in word B3:3 when the rung goes true?

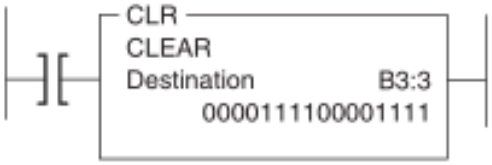

Figure 2: Instruction for question 3

4. Study the data transfer program of figure 3 and answer the following questions:
    a. When S1 is open, what decimal number will be stored in integer word address N7:13 of the MOV instruction?
    b. When S1 is on, what decimal number will be stored in integer word address N7:112 of the MOV instruction?
    c. When S1 is on, what decimal number will appear in the LED display?
    d. What is required for the decimal number 216 to appear in the LED display?

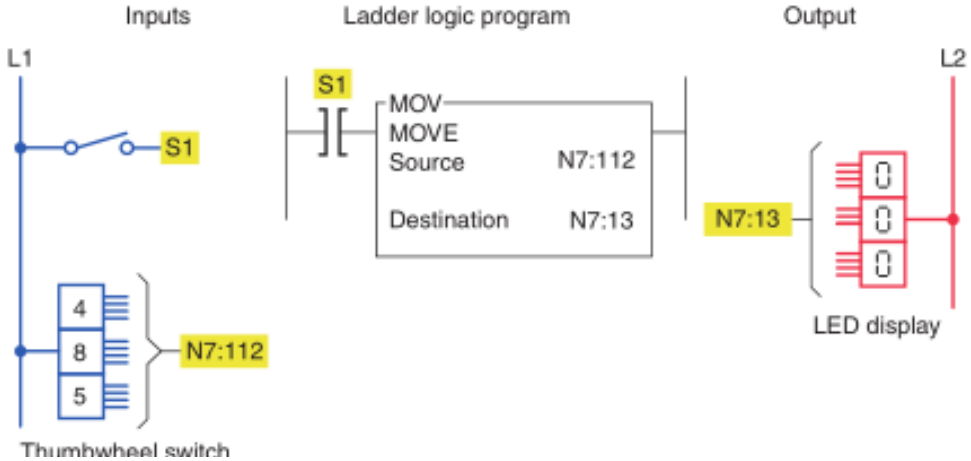

Figure 3: Program for question 4