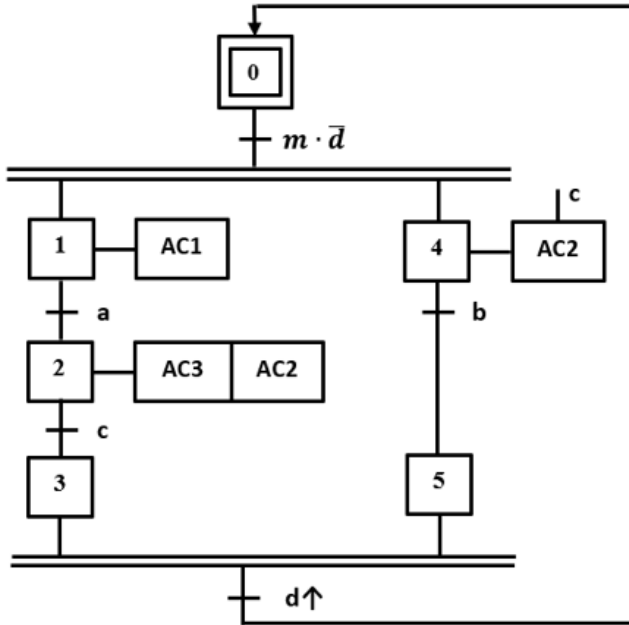




Correction of the Lab Exam

Correction of the exercise 01: (08.0 pts)

Declaration of the variable table



Nom	Type de données	Adresse
m	Bool	%I0.0
a	Bool	%I0.1
b	Bool	%I0.2
c	Bool	%I0.3
d	Bool	%I0.4
ac1	Bool	%Q0.0
ac2	Bool	%Q0.1
ac3	Bool	%Q0.2
X0	Bool	%M0.0
X1	Bool	%M0.1
X2	Bool	%M0.2
X3	Bool	%M0.3
X4	Bool	%M0.4
X5	Bool	%M0.5
frm_d	Bool	%M0.6

Figure 1. The Grafcet diagram

Table 1. Table of standard variables

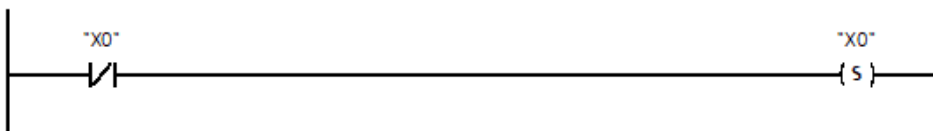
Table of Step Activation and Deactivation Conditions

Step (X_i)	Activation Condition (CA_i)	Deactivation Condition (CD_i)
X_0	$X_3 \cdot X_5 \cdot d \uparrow$	$X_1 \cdot X_4$
X_1	$X_0 \cdot m \cdot \bar{d}$	X_2
X_2	$X_1 \cdot a$	X_3
X_3	$X_2 \cdot c$	X_0
X_4	$X_0 \cdot m \cdot \bar{d}$	X_5
X_5	$X_4 \cdot b$	X_0

Table of Actuator Activation Conditions

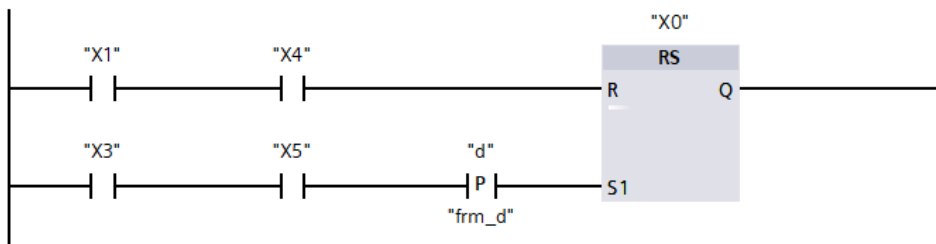
Actuator	Step
AC1	X_1
AC2	$X_2 + X_4 \cdot c$
AC3	X_2

OB100 (Startup Bloc)

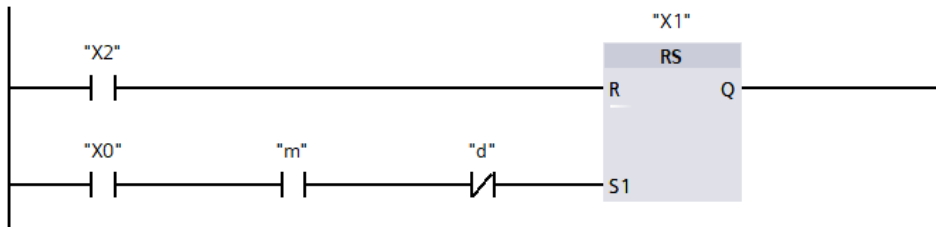


OB1 (Main Bloc) or (Program Cyclic)

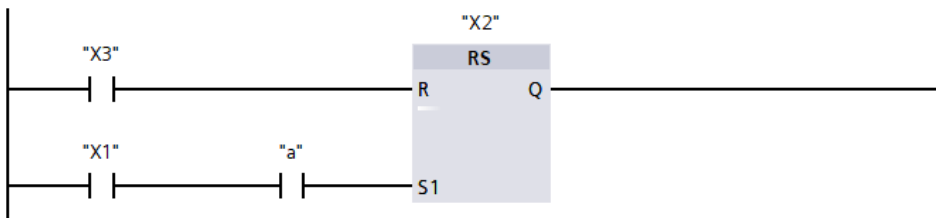
Network 1



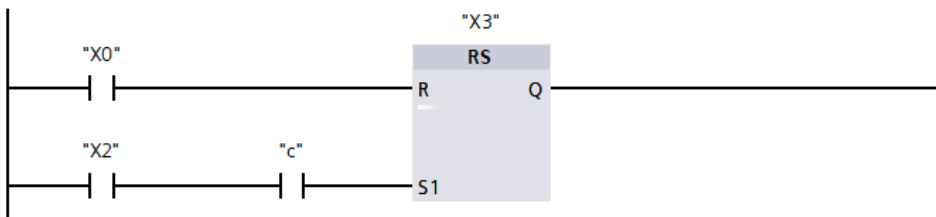
Network 2



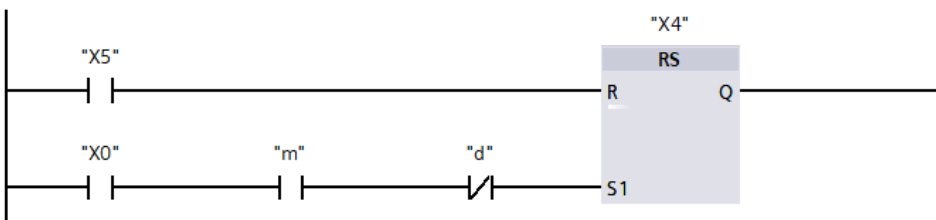
Network 3



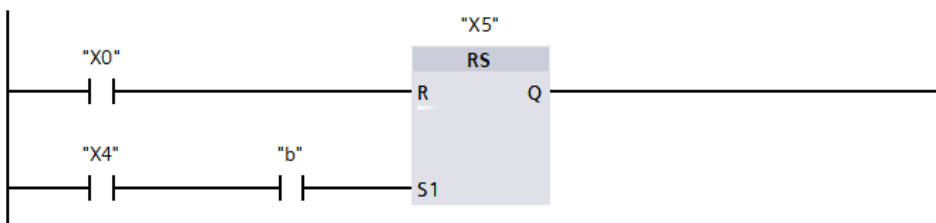
Network 4



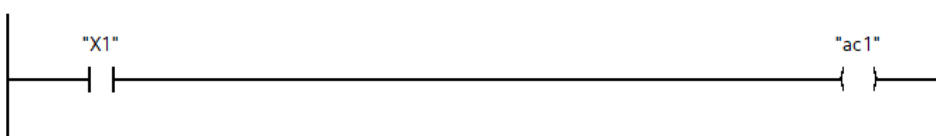
Network 5



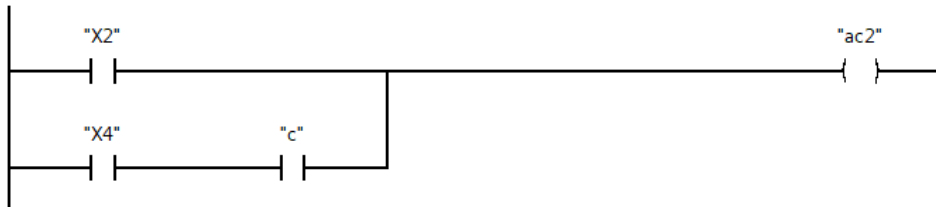
Network 6



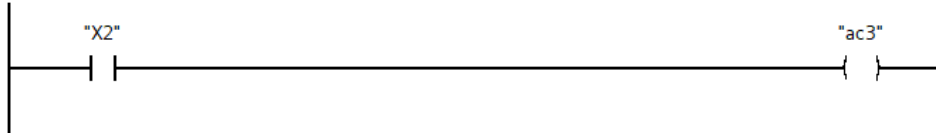
Network 7



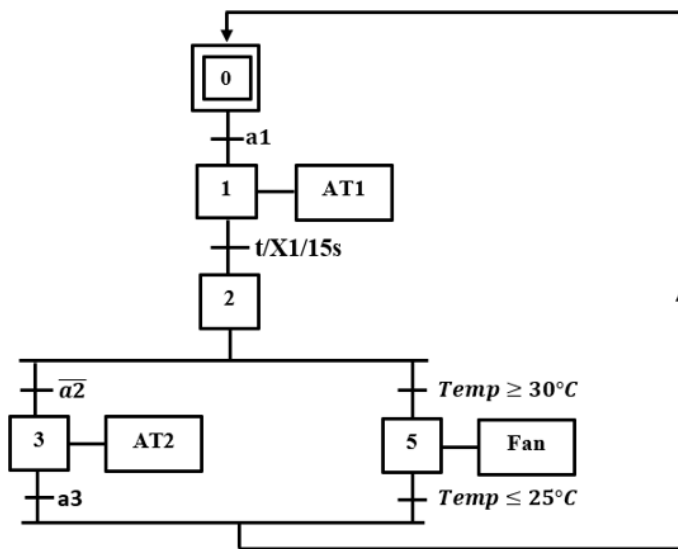
Network 8



Network 9



Correction of the exercise 02: (12.0 pts)



Nom	Type de données	Adresse
A1	Bool	%I0.0
A2	Bool	%I0.1
A3	Bool	%I0.2
AT1	Bool	%Q0.0
AT2	Bool	%Q0.1
FAN	Bool	%Q0.2
X0	Bool	%M0.0
X1	Bool	%M0.1
X2	Bool	%M0.2
X3	Bool	%M0.3
X5	Bool	%M0.4
t/X1/15s	Bool	%M0.5
T<25C	Bool	%M0.6
T>30C	Bool	%M0.7
AI_val_lue	Word	%IW64
temperature	Real	%MD66
valeur_normalisee	Real	%MD70
frond_d_TP	Bool	%M74.0

Figure 2. The Grafset diagram

Table 2. Table of standard variables

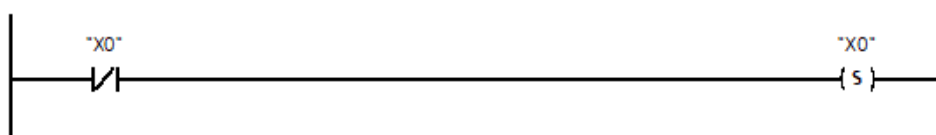
Table of Step Activation and Deactivation Conditions

Step (X_i)	Activation Condition (CA_i)	Deactivation Condition (CD_i)
X_0	$X_3 \cdot a_3 + X_5 \cdot (Temp \leq 25C)$	X_1
X_1	$X_0 \cdot a_1$	X_2
X_2	$X_1 \cdot t/X_1/15s$	$X_3 + X_5$
X_3	$X_2 \cdot \overline{a_2}$	X_0
X_5	$X_2 \cdot (Temp \geq 30C)$	X_0

Table of Actuator Activation Conditions

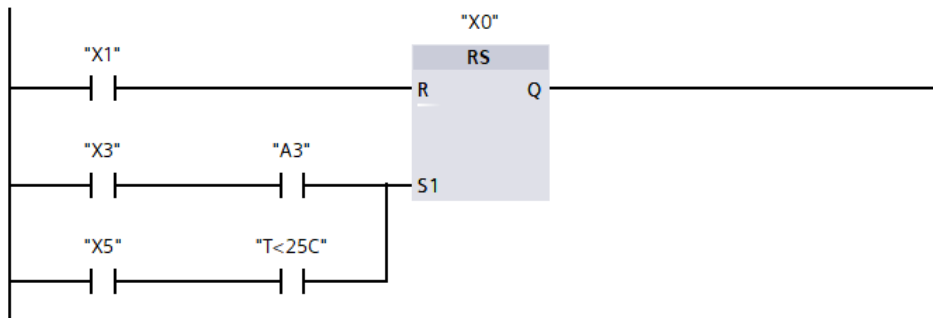
Actuator	Step
AT1	X_1
AT2	X_3
Fan	X_5

OB100 (Startup Bloc)

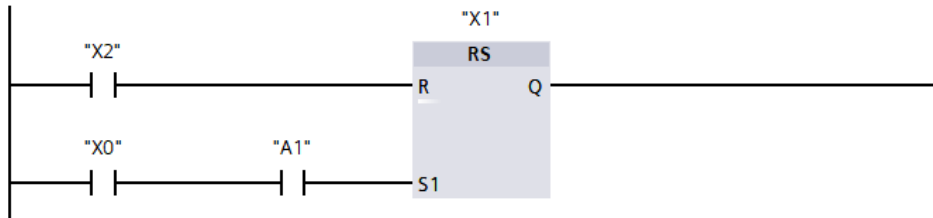


OB1 (Main Bloc) or (Program Cyclic)

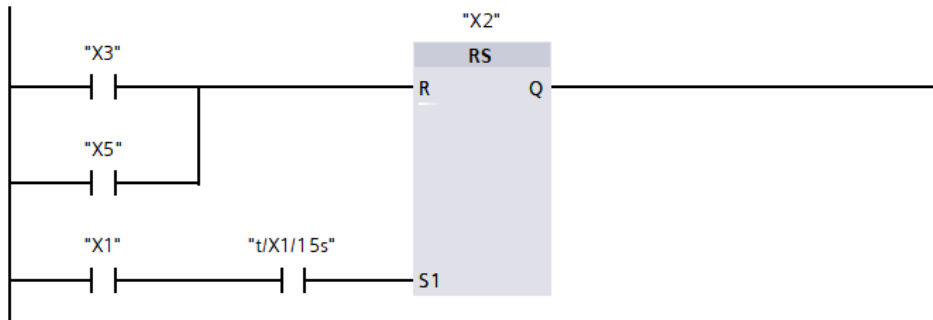
Network 1



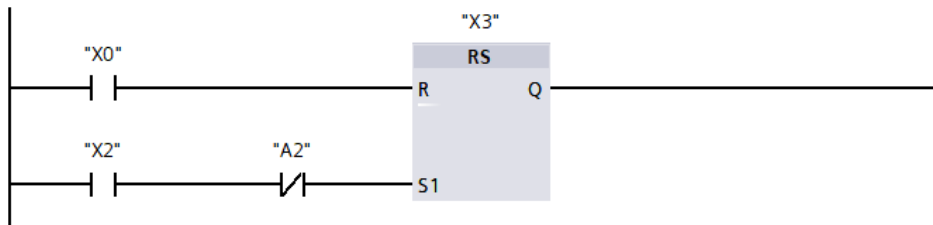
Network 2



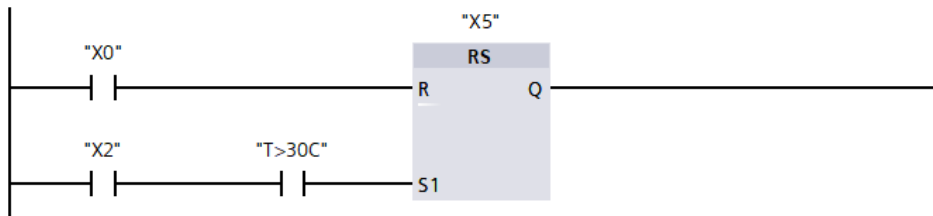
Network 3



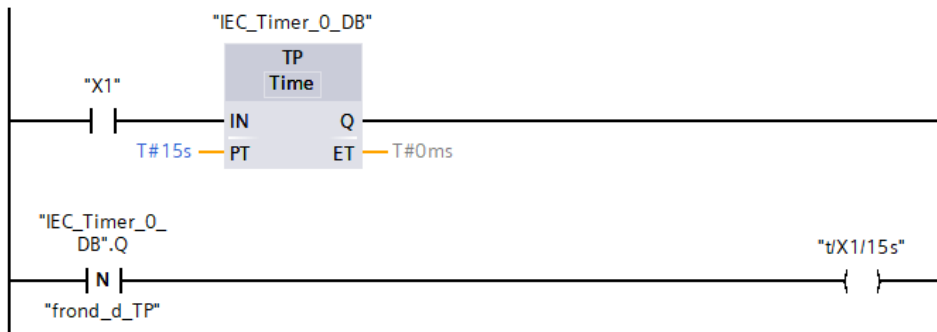
Network 4



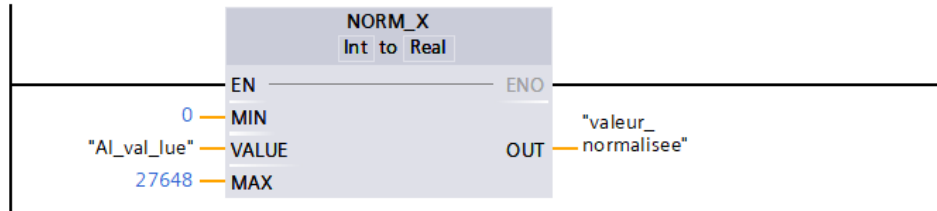
Network 5



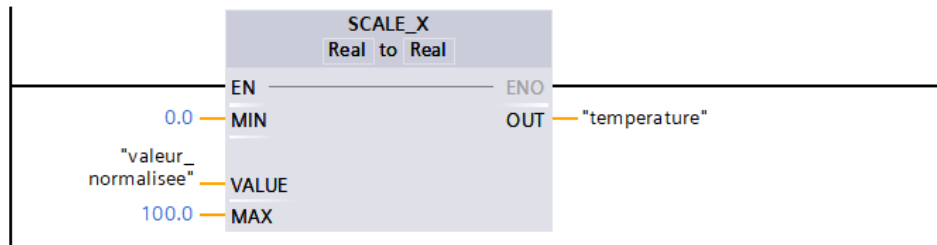
Network 6



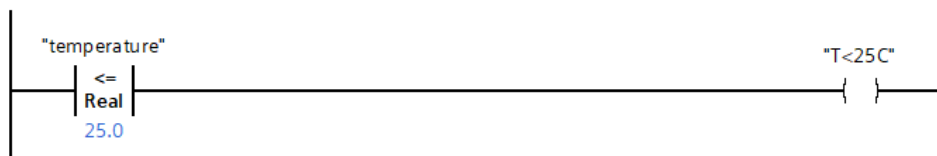
Network 7



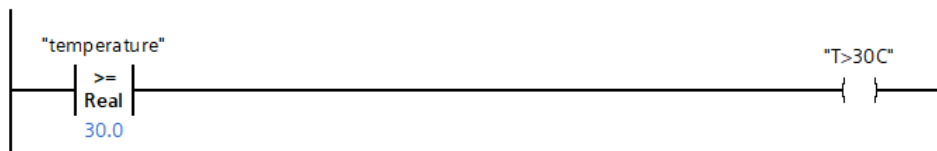
Network 8



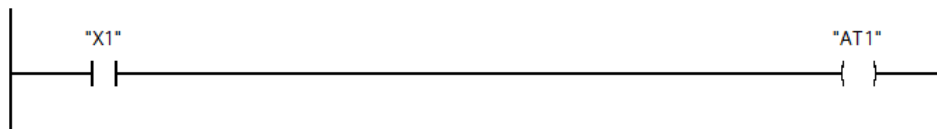
Network 9



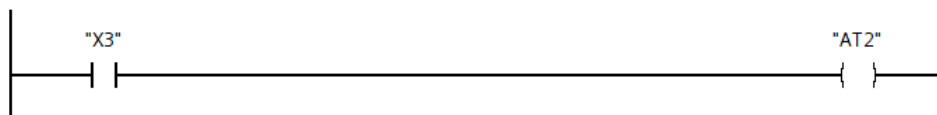
Network 10



Network 11



Network 12



Network 13

