Sekolah Pendidikan Profesional dan Pendidikan Berterusan (UTMSPACE)

PROGRAM KEJURUTERAAN ELEKTRIK
PUSAT PENGAJIAN DIPLOMA (PPD), SPACE
UNIVERSITI TEKNOLOGI MALAYSIA
KUALA LUMPUR

MECHATRONICS ENGINEERING LABORATORY

(DDWE 3711)

INDUSTRIAL AUTOMATION

EXPERIMENT 1

FEEDING AND EXTRACTING MODULE

Group members	**1.**
	2.
	3.
	4.
	5.
Lecturer	**:**
Date	**:**

No.	PO	CO	Student Marks	Marks
1	PO2	CO2		30%
2	PO3	CO4		20%
3	PO4	CO2		50%
Total Marks				/100%

OBJECTIVES: i. To understand the components in the system and their characteristics.
ii. To make electrical and pneumatic connections based on sensors diagram, I/O list and pneumatic diagram.
iii. To understand the PLC program and the system workflow
iv. To understand the integration using difference system input and output

PARTS LIST:

PART	QUANTITY
CYLINDER	3
ROTARY	1
VACUUM INJECTOR	1
VACUUM S/W	1
F/R UNIT	1
REED S/W	4
MICRO SENSOR	1
PROXIMITY SENSOR	2
F/B SENSOR	2
VACUUM PAD	1
END VALVE	1
S, VALVE	6

CONTROL PANEL PARTS	QUANTITY
IND LAMP	3
PUSH BUTTON	2
EMG S/W	1
RELAY	2
POWER SUPPLY	1
PLC(FP1 C40)	1

I/O LIST

INPUT LIST:

INPUT NO.	REMARKS	SYMBOL
X0	PUSH BUTTON 2 (START)	
X1	DISTRIBUTOR CY IN	
X2	DISTRIBUTOR CY OUT	
X3	PARTS TRANSFER	
X4	TRANSFER OUT	
X5	PARTS ARRIVED	
X6	PARTS DETECT	
X7	Z CY IN	
XA	ROTARY IN	
XB	ROTARY OUT	
XC	VACUUM S/W	

{PO2, CO2} / 20

OUT PUT LIST:

OUT NO.	REMARKS	SYMBOL
Y0	DISTRIBUTION CY	
Y1	TRANSFER CY	
Y2	ROTARY CY	
Y3	Z CY	
Y4	VACUUM	

{PO2, CO2} / 10

INSTRUCTIONS:

1. Table 1 shows the position of cylinders. You are instructed to connect the pneumatic circuit according to Table 1.

   Example: CYLINDER 1 should be connected to the first 5/2way valve (Y0) and so on.

ACTUATOR	SOLENOID VALVE
Cylinder 1	Solenoid 1 (Y0)
Cylinder 2	
Cylinder 3	
Cylinder 4	
Suction cup / vacuum	

Table 1

2. Push the 'manual override' button on the solenoid valve to test the system. If the right connection has been made, the actuator (cylinder) will move when you press the button.

3. Fill in the symbol as you see on the system into the module's I/O list.

4. Part of the connection from the valves and sensors to the connecting panel have been made. Your job is to understand the drawing (Attachment 1 to 4) and cable up the connecting panel to the PLC panel. **{PO3, CO4}** / 20

5. Upload PLC program 'module 1' from computer into PLC.

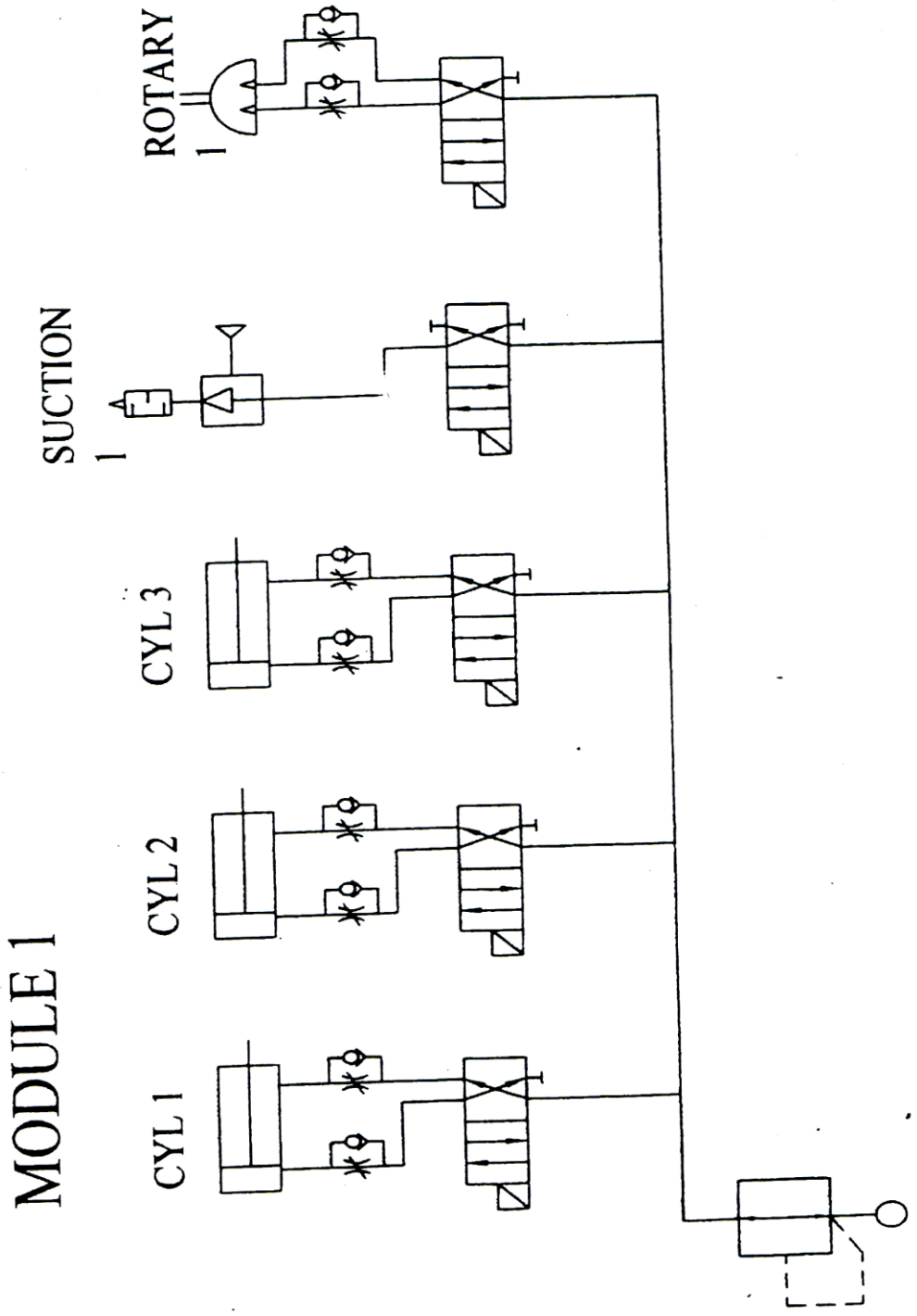
6. Insert all the 'base' work pieces into the feeding shaft. Push PB2 button.

7. Run the program by using 'force' function from the computer

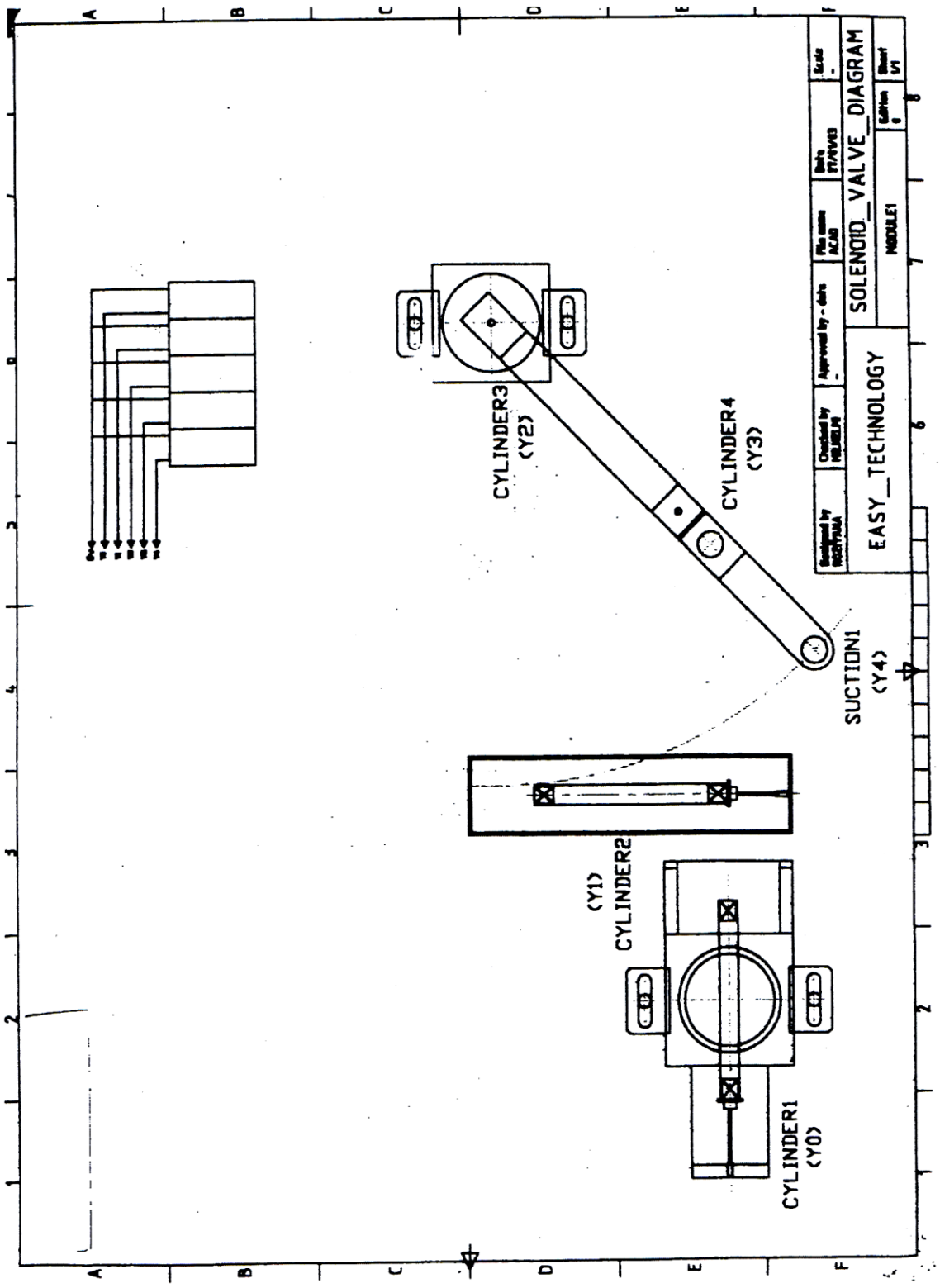
8. Explain about the process in module 1. **{PO4, CO2}** / 20

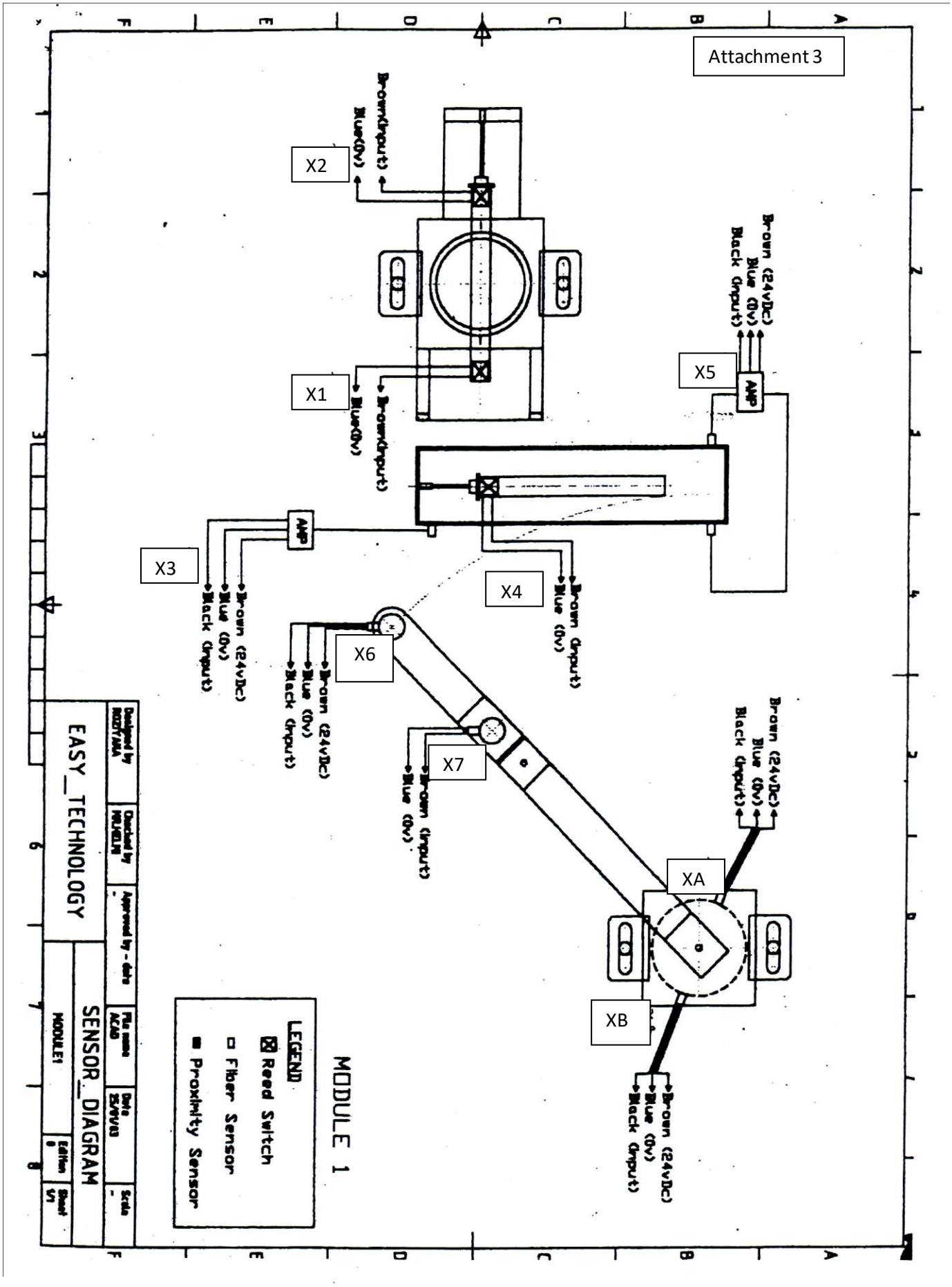
9. Write down the BND and BLD of the PLC program. **{PO4, CO2}** / 30

Attachment 1



Attachment 2




Attachment 3
X1
X2
X3
X4
X5
X6
X7
XA
XB
Brown (24vDc)
Blue (0v)
Black (Input)
Brown(Input)
Blue(0v)
AMP
EASY_TECHNOLOGY
SENSOR_DIAGRAM
MODULE1
MODULE 1
LEGEND
Reed Switch
Fiber Sensor
Proximity Sensor