

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2024**

MECHATRONICS

[Maximum Marks:75]

[Time: 3 Hours]

PART - A

I. Answer all the following questions in one word or one sentence. Each question carries 'one' marks.

(9 x 1 = 9 Marks)

Module Outcome Cognitive level

1	List any two applications of Mechatronics in modern industries.	M1.01	R
2	Define measurement system.	M1.02	R
3	Write the name of any one type of liquid-level sensor.	M1.03	R
4	Define pneumatic system.	M2.02	R
5	Write the name of any one type of solid-state switch.	M2.06	R
6	List any one method used for input/output processing in PLC.	M3.02	R
7	Define shift register.	M3.04	R
8	Define robotics.	M4.01	R
9	Define assembly application in robots.	M4.03	R

PART - B

II. Answer *any eight* questions from the following. Each question carries 'Three' marks.

(8 x 3 = 24 Marks)

Module Outcome Cognitive level

1	Explain displacement and proximity sensors.	M1.03	U
2	List any three types of temperature sensors.	M1.03	R
3	List the factors affecting the selection of the sensor.	M1.04	R
4	Explain the function of the directional valve.	M2.02	U
5	Write a short note on diodes.	M2.06	R
6	Write a short note on PLC.	M3.01	R
7	List the data handling operations in a PLC.	M3.05	A

8	Define material transfer in robots.	M4.02	U
9	Give the inspection applications of robots.	M4.03	R
10	Explain the programming methods used in robots	M4.04	A

PART - C

Answer all the questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

Module Outcome Cognitive level

III.	Explain closed loop control system with block diagram. OR	M1.02	U
IV.	Describe any one type of flow sensor with a neat sketch.	M1.03	U
V.	With the help of a diagram specify the working of Spool Valve. OR	M2.02	U
VI.	With an example explain the working of solenoid.	M2.06	U
VII.	Explain the working of single acting cylinder with a neat sketch. OR	M2.04	U
VIII.	Explain the working principle of stepper motors.	M2.07	U
IX.	Draw and explain the block diagram of PLC. OR	M3.01	U
X.	Write short note on Arduino boards.	M3.06	U
XI.	Explain ladder programming with a suitable example. OR	M3.02	A
XII.	Explain the selection of PLC.	M3.05	A
XIII.	Explain about the feedback components in robot. OR	M4.03	U
XIV.	Explain the features of pick and place robot.	M4.05	U
