

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE – APRIL - 2024  
PROCESS VARIABLES MEASUREMENT**

[Maximum Marks : 75]

[Time : 3 hours]

**PART–A**

**I.** Answer **all** the following questions in one word or sentence. Each question carries 1 mark.

**(9x1=9 marks)**

		Module Outcome	Cognitive level
1	Name any two pressure sensing elements.	M1.01	R
2	Write the value of <b>760 Torr</b> in <b>Pascal</b> .	M1.01	U
3	Define <b>Reynold’s number</b> .	M2.01	R
4	Write the simplified form of <i>Continuity equation</i> for an incompressible fluid flowing through a pipe.	M2.01	U
5	Pressure at top of a closed container type level measuring system is due to (a) Atmospheric Pressure (b) Vapor pressure (c) Vacuum pressure (d) Liquid pressure	M3.01	U
6	Convert a temperature measurement of <b>27°C</b> into <b>Kelvin</b> .	M4.01	A
7	State Peltier effect.	M4.02	U
8	What is the <b>Celsius scale</b> of Temperature?	M4.01	U
9	The primary conversion takes place in float type level indicator is (a) Level to Voltage (b) Voltage to level (c) Level to displacement (d) Level to force	M3.01	U

**PART B**

**II.** Answer **any Eight** questions from the following. Each question carries 3 marks.

**(8x3=24 marks)**

		Module Outcome	Cognitive level
1	List different methods of pressure measurement.	M1.02	U
2	Draw the schematic diagram of a Piezo electric pressure sensor.	M1.04	U
3	Write the working principle of electromagnetic flowmeter.	M2.02	U
4	What is calibration? List any two methods to calibrate a flow meter.	M2.03	A
5	Sketch a neat diagram of an Orifice flowmeter and label it.	M2.02	A
6	Describe sight glass type level indicator with a neat diagram.	M3.01	U
7	Draw and label the diagram of a radiation level indicator.	M3.02	U
8	List any three widely used metals for constructing Resistance Temperature Detector (RTD).	M4.02	U
9	Illustrate the construction of thermocouple.	M4.03	U
10	Differentiate NTC and PTC thermistors.	M4.02	A

## PART C

Answer **all** questions from the following. Each question carries 7 marks.

**(6x7=42marks)**

		Module Outcome	Cognitive level
III	Explain the construction and working of well type manometers. <b>OR</b>	M1.01	U
IV	Describe the Working of Mc-Leod gauge with a neat diagram.	M1.05	U
V	Explain the terms (a) Gauge pressure (b) Absolute pressure (c) Vacuum pressure <b>OR</b>	M1.01	U
VI	Explain I/P converter using flapper nozzle system.	M1.06	A
VII	Explain the working of Rotameter flowmeter with a neat diagram. <b>OR</b>	M2.02	U
VIII	Explain the construction and working of Venturi Flowmeter using a diagram.	M2.02	U
IX	Illustrate the operation of Float type level indicator with neat figure. <b>OR</b>	M3.01	U
X	Explain capacitive level indicator with suitable diagram.	M3.01	U
XI	Convert the following temperature to given scale (a) 55°C to Kelvin (b) 212°F to Celsius (c) 85°C to Fahrenheit (d) 378 K to Fahrenheit <b>OR</b>	M4.01	A
XII	Explain the operation of Mercury in Steel Thermometer.	M4.02	U
XIII	Explain different types of industrial thermocouples. <b>OR</b>	M4.03	U
XIV	Illustrate the working of radiation pyrometers with a neat sketch.	M4.02	U

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