QP Code: RD21BTECH337 Reg. No | | | | | | | | | | | AY 21

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fifth Semester Regular) Examinations, December – 2023

21BBTOE35001 / 21BCHOE35001 – Process Instrumentation

(Biotechnology, Chemical)

Time: 3 hrs Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Differentiate between "accuracy" and "precision".	CO1	K4
b. Define the two terms repeatability and reproducibility.	CO1	K2
c. How direct method of liquid level measurement is different from Indirect method of liquidlevel measurement?	CO1	K1
d. Lists out the different types of flow measurements.	CO2	K1
e. Distinguish between gauge pressure, absolute pressure and vacuum.	CO1	K4

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Explain about the location correction for hydrostatic level measurement	7	CO1	K2
b. Briefly describe various electrical methods of liquid level measurement.	8	CO1	K2
(OR)			
c. Draw schematic diagram and write basic principle of level measurement using (i) Hydrostatic pressure (ii) Pressure gauge method.	7	CO1	K2
d. Describe with neat sketch a capacitance level indicator and explain its working	8	CO1	K2
3.a. Explain any two type vertex flow meter briefly.	10	CO2	K2
b. Write the working principle of Rotameter with its advantages and disadvantages.	5	CO2	K2
(OR)			
c. Describe with neat sketches, the construction and working principle of the following types of flowmeters: (i) Vortex meter (ii) Positive displacement meter.	10	CO2	K2

d.	Describe in detail about turbine flowmeter with a neat sketch.	5	CO2	K2
4.a.	What is vacuum pressure? Describe the construction, working principle, and range ofMcLeod gauge with a neat sketch	10	CO3	K2
b.	Discuss with neat sketch construction and working of dead-weight piston gauge.	5	CO3	K2
	(OR)			
c.	Explain with a neat sketch, the construction and working of strain-gauge pressuretransducer, with its advantages and disadvantages.	10	CO3	K2
d.	Explain the working of Pirani gauge for measurement of vacuum.	5	CO3	K2
5.a.	Explain expansion thermometers briefly.	7	CO3	K2
b.	What are the general classes of filled thermal system?	8	CO4	K2
	(OR)			
c.	Explain the principle and working of a vapor-pressure thermometer with a neat sketch. What are the sources of static error in this instrument and how they are rectified?	8	CO4	K2
d.	State Laws of Thermocouple with examples.	7	CO4	K2

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