

SEAT No. _____

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SARDAR PATEL UNIVERSITY

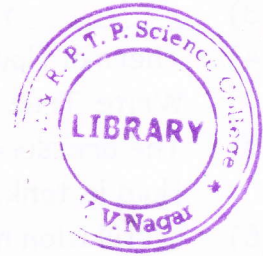
B.Sc. Sixth semester

Instrumentation (Vocational)

US06CINV21

Process Measurement Techniques-2

Thursday, 15/07/2021



Time: - 10:00am To 12:00pm

Marks: - 70

Q.1 Choose the correct answer (Attempt all) (10)

- (1) In which of the following method remote readout is not possible?
(a) Bubbler method. (c) Diaphragm method
(b) Float and tape. (d) All of above.
- (2) What is the value of atmospheric pressure at sea level?
(a) 0.786 Kg/cm² (c) 1.000 Kg/cm²
(b) 1.0332 Kg/cm² (d) 1.2500 Kg/cm²
- (3) How cooling is obtained typically in a laboratory type dew point apparatus?
(a) Water Chillers. (c) Cryogenic cooling.
(b) Air Coolers. (d) Blowing air in coolant.
- (4) Which of following is non-destructive method of moisture measurement?
(a) Thermal Drying. (c) Electrical conductivity.
(b) Distillation. (d) None of above.
- (5) What should be the Reynolds no for Laminar flow of fluids?
(a) 1950 (c) 2450
(b) 2950 (d) 3450
- (6) Which of following governs the flow rate?
(a) Area of tube. (c) Pressure of liquid.
(b) Density of fluid. (d) All of above.
- (7) In which type of level measuring method conducting liquid is required?
(a) Ultrasonic. (c) Resistance type.
(b) Capacitance type. (d) Distillation type.
- (8) To measure humidity Which type of sensor is utilized in Hygrometer?
(a) Membrane type. (c) Resistance type.
(b) Capacitance type. (d) Platinum plate contacts.
- (9) Among the following which is the positive displacement flow meter?
(a) Rota meter. (c) Pitot tubes.
(b) Venturi meter. (d) Titling trap.
- (10) Which of following requires less mounting space?
(a) Flow nozzles. (c) Orifice plates.
(b) Venturi meter. (d) Rota meter.

Q2 Fill in the Blanks. (Attempt all) (08)

- (1) The range of ultra-sonic frequencies is from _____ to _____
- (2) Hygrometer is used to measure _____

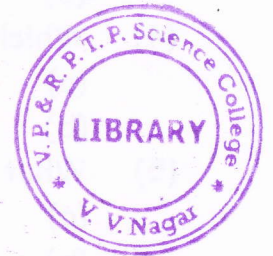
- (3) _____ flow meter has lowest pressure loss.
(4) Thermal flow meter operates on the principal of _____.

Write True or False. (Attempt all)

- (5) The pressure exerted at the bottom of tank depends only on the level of fluid in tank.
(6) Distillation method is nondestructive method of moisture measurement.
(7) Flow rate of fluids only depends on velocity of the fluids.
(8) Titling trap flow meter is continuous flow measurement method.

Q3 Answer the following questions in short (Any Ten) (20)

- (1) List the direct and indirect methods of liquid level measurement.
(2) Explain working principle of the ultrasonic type level gauge.
(3) Calculate the pressure at the bottom of a tank filled with water up to 1.5 meter height.
(4) Define Moisture, Humidity and Dew point.
(5) Explain principle of simple dew point measuring device.
(6) List the limitations of the thermal drying method and explain how they can be overcome.
(7) Explain why Venturi flow meter is better than flow nozzles.
(8) Differentiate Laminar and Turbulent flow of fluid.
(9) List the factor that governs the flow of fluids in closed pipes.
(10) Discuss the principle of hot wire anemometer type flow meter.
(11) Explain how the flow of liquid is measured in open channels.
(12) Differentiate the continuous type and quantity type flow meters.



Q4 Attempt any Four. (32)

- 1 Explain in detail direct methods for measurement of liquid level.
2 Explain How bubbler method can be used to measure liquid level and density of fluids.
3 Draw the schematic diagram of the Industrial dew point apparatus and explain it briefly.
4 With necessary diagram explain working of automatic electronic Psychrometer.
5 Draw the sketch of various types of Orifice plates and discuss in detail.
6 Explain Rota meter in detail. List and explain its merits and demerits.
7 Explain Electro-magnetic flow meter and Allen salt Flow meter with necessary diagrams.
8 Explain Titling trap and Lobbed Impeller method for flow measurement.

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