

SEAT No. _____

[46/A17]

SARDAR PATEL UNIVERSITY

B.Sc. Sixth semester

Instrumentation (Vocational)

US06CINV01

Process Measurement Techniques-2

Monday, 26/03/2018

Time: - 10:00 AM To 1:00 PM

Marks: - 70

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

- (1) In which of the following method remote readout is not possible?

(a) Float and tape.	(c) Float and Shaft.
(b) Sight glass.	(d) All of above.
- (2) Which of the following utilizes U tube manometer for level measurement?

(a) Open vessels.	(c) Pressure vessels.
(b) Interface level.	(d) None of above.
- (3) What is the weight of one cubic meter of mercury?

(a) 100 kg.	(c) 1000 kg.
(b) 13600 kg.	(d) 10 kg.
- (4) What is used to avoid oxidation in the measurement of moisture in oil and fats using oven method?

(a) Water vapors.	(c) Active gas
(b) Air	(d) Inert gas.
- (5) Which of following is non destructive method of moisture measurement?

(a) Thermal Drying.	(c) Electrical conductivity.
(b) Distillation.	(d) All of above.
- (6) Psychro meter is used to measure _____

(a) Relative flow.	(c) Relative pressure.
(b) Relative Humidity.	(d) All of above.
- (7) The flow rate depends on _____

(a) Area of tube.	(c) Pressure of liquid.
(b) Density of liquid.	(d) All of above.
- (8) What should the Reynolds's no for Laminar flow of fluids?

(a) 1950	(c) 2500
(b) 2650	(d) 5000
- (9) In which type of flow meter an eccentric drum is required?

(a) Rotary vane meter.	(c) Lobed impeller meter.
(b) Titling trap meter.	(d) Hot wire meter.
- (10) Among the following which is the positive displacement flow meter?

(a) Rota meter.	(c) Pitot tubes.
(b) Nutating disk meter.	(d) Venturi meter.

Q2 Answer the following questions (Any Ten) (20)

- (1) Define density and list the techniques used to measure density of continuously flowing liquids.
- (2) Explain working principle of the capacitance type level gauge.
- (3) Give the name of quantities which can be estimated by measuring the level of liquid in the tank.
- (4) Give an account on distillation method for moisture measurement.
- (5) List the limitations of the thermal drying method and explain how they can be overcome.
- (6) Define Moisture, Humidity and Dew point.
- (7) Differentiate Laminar and Turbulent flow of fluid.
- (8) What is the need of the converging and diverging cone in venturi flow meter
- (9) List the factor that governs the flow of fluids in closed pipes.
- (10) Explain principle of magnetic flow meter.
- (11) Discuss the principle of hot wire anemometer type flow meter.
- (12) Explain how the flow of liquid is measured in open channels.

Q3 Write a note on Resistance and Capacitance type methods of liquid level measurement. (10)

OR

Q3 Show and discuss at length how liquid level is measured in pressure vessels. (10)

Q4 List various methods for determination of Moisture and explain thermal drying method for moisture measurement. List its merits and demerits. (10)

OR

Q4 With necessary diagram explain working of automatic electronic Psychrometer. (10)

Q5 Draw the sketch of various types of Orifice and discuss Orifice meter in detail. Mention its advantages and disadvantages. (10)

OR

Q5 Explain the Rota meter in detail. Also derive its equation for flow rate. (10)

Q6 Explain Ultrasonic type Flow meter with necessary diagrams. (10)

OR

Q6 Explain Lobed-Impeller and Reciprocating piston type Flow meter with necessary diagrams. (10)

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