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SEAT No._____

[47]

SARDAR PATEL UNIVERSITY

T.Y.B.Sc VIth Semester Examination, (under CBCS)

USO6CINS02(Process Measurement Technique-II)

Wednesday, 28th March - 2018

Time : 10.00 A.M. TO 01.00 P.M. **Marks: 70**

Q.1 **Multiple choice questions.** **[10]**

(1) The industrial organizations, _____ measurement are needed for providing the basis for controlling process and operations.
(a) process (b) flow (c) level (d) temperature

(2) The pitot tube is to determine the volumetric flow _____.
(a) rate (b) volume (c) nozzle (d) velocity

(3) Which flow meter is used for measuring the flow rate in an open channel? (a) orifice (b) weir (c) ultrasonic (d) rota

(4) Hot wire anemometer is a device used to measure _____.
(a) gases (b) gas velocities (c) liquid discharge (d) temperature

(5) The strain gauge load cells convert force into _____outputs which are provided by the strain gauges.
(a) electrical (b) mechanical (c)optical (d) dynamical

(6) The proximity sensor is used in _____ field.
(a) electric (b) magnetic (c) optical (d) thermal

(7) The centrifugal force is proportional to the _____ of the rotation.
(a) Force (b) speed (c) velocity (d) time

(8) The power of a motor is generally specified in _____.
(a) Kilo watt (b) joule (c) kilogram (d) Newton

(9) The revolution timer speed measurement up to_____ rpm.
(a) 200 to 300 (b) 2000-3000 (c) 20-30 (d) 20000-30000

(10) The pick-up utilizes a rotating shaft to intercept a beam of light falling on a photo _____cell.
(a) graphic (b) conductive (c) mechanical (d) optical

Q.2 Short answer type questions (**Attempt any Ten**) **[20]**

(1) Define: Nature of flow.

(2) State the advantages of venturi flow meter.

(3) Draw the figure of pitot tube.

(4) Draw the figure of rectangular and triangular weir.

(5) State the advantages of ultrasonic flow meter.

(6) Draw the typical forms of hot wire.

(7) Define: Torque and Power with units.

(8) State the salient features of Pneumatic load cell.

(9) Define: Mechanical torsion meter. **[PTO]**

(10) Define: Speed.

(11) Define: Slipping clutch tachometer.

(12) Draw the block diagram of capacity pick-up tachometer.

Que.3 **(a)** Discuss the theory of variable head meter and derive the Bernoulli's equations. **[06]**

(b) State the advantages and limitations of Rota meter. **[04]**

OR

Que.3 **(a)** Explain Rotary vane type meter in brief. **[06]**

(b) Give the constructional details of flow nozzle meter. **[04]**

Que.4 **(a)** Discuss and draw a figure of electromagnetic flow meter. **[06]**

(b) Write a short note on constant current type hot wire nanometer. **[04]**

OR

Que.4 **(a)** Discuss the ultrasonic method and derive the frequency difference is directly proportional to velocity. **[06]**

(b) Write a short note on heat transfer flow meter. **[04]**

Que.5 **(a)** Draw and discuss the Pressducer load cell and also give it advantages. **[06]**

(b) Write a short note on proximity torque sensors. **[04]**

OR

Que.5 **(a)** Explain strain gauge load cell in brief. **[06]**

(b) Write a note on scales and balances method. **[04]**

Que.6 **(a)** Discuss the centrifugal force tachometer in detail. **[06]**

(b) Give the classifications of tachometers. **[04]**

OR

Que.6 **(a)** Write a note on tachognerators in detail. **[06]**

(b) Discuss the block diagram of contact less inductive pick-up tachometer. **[04]**

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