

Sem IV / Transducer-II /

INST / 15-12-14



QP Code :12555

(3 Hours

[Total Marks : 80

- N.B. :** (1) Question No. 1 is **compulsory**.
(2) Attempt any **three** questions out of remaining **five** questions.
(3) Assume suitable data if needed.

1. Attempt the following :- 20
 - (a) What is 'Vena contracta' ? State and explain types of fluid flow.
 - (b) What is 'ORP' ? Why it is required to measure ?
 - (c) What is vacuum ? Why it is called negative pressure ? List the different vacuum measurement techniques.
 - (d) State and explain the principle of piezoelectric transducer for pressure measurement.
2. (a) Derive expression for gauge factor. What are bounded and unbounded strain gauge. 10
(b) Explain temperature compensation scheme for strain gauge and state applications of strain gauge. 10
3. (a) State and derive Bernoulli's equation. 10
(b) Draw and explain PH set up along with different PH-electrodes. 10
4. (a) Classify flow measurement techniques. Compare orifice meter with venturimeter. 10
(b) Suggest different instruments for vacuum measurements. Explain in details any one of them. 10
5. (a) What is manometer ? List the types of manometer. Derive its equation, showing that sensitivity of manometer increases by using inclined tube manometer. 10
(b) Draw and explain working principle for 'Tortion bar'. 10
6. Write a short note on :- 20
 - (a) Pirani gauge
 - (b) Conductivity measurement
 - (c) Humidity measurement.

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