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Sem-IV / Transducers-II / INST/CBGS/T-II/IV
06.06.16

Q.P. Code : 551502

(03 Hours) **(80 Marks)**

N.B: 1. Question No. 1 is compulsory.
2. Attempt **any Three** from remaining questions.
3. Assume suitable data wherever necessary.
4. Figure to right indicates full marks.

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1. Answer the following-
   a) Explain capillary tube viscometer. 05
   b) What is vena contracta? State and explain types of fluid flow. 05
   c) State and explain the principle of piezoelectric transducer for pressure measurement. 05
   d) Explain solid flow meter. 05

2. a) Draw and explain pressure measurement using Bourdon tube and LVDT. 10
   b) State and derive Bernoulli's equation. 10

3. a) Explain the temperature compensation scheme for strain gauge and state applications of strain gauge. 10
   b) An orifice meter with orifice diameter 15 cm is inserted in a pipe of 30 cm diameter. The pressure difference measured by a mercury oil differential manometer on the two sides of manometer gives the reading of 50 cm of mercury. Find the rate of flow of oil of specific gravity 0.9 when the coefficient of discharge of meter is 0.64. 10

4. a) Draw and explain PH set up along with different PH electrodes. 10
   b) Explain the calibration procedure of pressure gauges using dead weight tester. 10

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5. a) Draw neat sketch of pirani gauge and explain the same with applications. 10
   b) What is dynamometer? Explain in details working of absorption type dynamometer. 10

6. Write short note on- 20
   a) Equation for gauge factor in strain gauge.
   b) Any one method for torque measurement.
   c) Characteristics of head type flow meters.
   d) Force balance type pressure measurement.

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