

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering Semester –III Examination Dec. 2011

Subject code: 330501

Date: 21/12/2011

Subject Name: Fluid Flow Operation

Time: 10.30 am – 01.00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered Authentic.

- Q:1 (a) Define: (i) Fluid (ii) Vena Contracta (iii) Steady state flow
(iv) Kinematic viscosity (v) Compressible fluid
(vi) Gauge pressure (vii) Ideal fluid 07
(b) Classify fluids with examples. 07
- Q:2 (a) Classify different methods of flow measurement and measuring devices. 07
(b) Explain Reynold's experiment with neat figure. 07
OR
(b) Explain Newtonian and Non-newtonian fluid with their behaviour. 07
- Q:3 (a) Differentiate Pipes and Tubes. 07
(b) Explain Pneumatic conveying and its industrial application. 07
OR
- Q:3 (a) Explain characteristic curves of centrifugal pump with neat sketch. 07
(b) An open reservoir contains a liquid having a density of 1.25 gm/cm^3 .
At a certain point the gauge pressure is 32.424 kN/m^2 . What height above
The given point is the liquid level ? 07
- Q:4 (a) What is friction factor chart ? Describe its uses in fluid flow. 07
(b) Explain Gate valve with neat figure. 07
OR
- Q:4 (a) Define: Fluidization, Porosity of static bed, Bed pressure drop 07
(b) A liquid of density 1.5 gm/cm^3 is flowing from point A to point B which is
5m above point A. The frictional losses in a pipe line of internal diameter 4cm
is 0.1 kgf m/kg for a volumetric flowrate of $500 \text{ cm}^3/\text{sec}$. If point A and B are
at the atmospheric pressure and velocity at point A is zero. Calculate the pump
Work done. 07
- Q:5 (a) Derive an equation of orifice meter. 07
(b) Discuss Venturimeter with neat figure. 07
OR
- Q:5 (a) Derive an equation of Bernoulli with assumptions. 07
(b) Distinguish between Centrifugal pump and Reciprocating pump. 07
