

II B.Tech I Semester (R07) Supplementary May 2012 Examinations
FLUID MECHANICS & HYDRAULIC MACHINERY
(Electrical & Electronics Engineering)

Time: 3 hours**Max. Marks: 80**

Answer any FIVE questions
All questions carry equal marks

1. (a) A plate 0.0254 mm distant from a fixed plate, moves at 61 cm/sec and requires a force of 0.2 kg (f)/m² to maintain this speed. Find the dynamic viscosity of the fluid between the plates.
(b) Explain manometers.
2. Explain classification of flows.
3. (a) A venturimeter is to be fitted in a pipe 0.25 m diameter where the pressure head is 7.6 m of flowing liquid and the maximum flow is 8.1 m³ per minute. Find the least diameter of the throat to ensure that the pressure head does not become negative. Take $K = 0.96$.
(b) What is a pitot tube and give explanation.
4. A jet of water 75 mm diameter having a velocity of 20 m/s, strikes normally a flat smooth plate. Find the thrust on the plate if the plate is at rest and if the plate is moving in the same direction as the jet with a velocity of 5 m/s. Also find the work done per second on the plate in each case and the efficiency of the jet when the plate is moving.
5. List out the various elements of hydro electric power station with a neat sketch and explain any two elements in detail.
6. Explain Francis turbine.
7. Explain the performance characteristic curves of a turbine.
8. Explain the working of a centrifugal pump with a neat sketch.
