

R15

B.Tech II Year II Semester Examinations, March - 2022
MECHANICS OF FLUIDS AND HYDRAULIC MACHINES

Time: 3 Hours**Max. Marks: 75**

Answer any five questions
All questions carry equal marks

— — —

1. What is single column manometers? How are they used for the measurement of pressure?
[15]
2. Describe briefly with neat sketches the various methods used for measuring pressure exerts by fluids.
[15]
3. Define the following terms with examples.
a) Rotational b) Irrotational flow
c) One dimensional flow d) Three dimensional flows [15]
4. Describe the use and limitations of the flow net. Under what condition can one draw flow net?
[15]
5. Explain the different methods to prevent the separation of boundary layer. [15]
6. A horizontal pipe of diameter 400 mm is suddenly contracted to a diameter 200 mm. The pressure intensities in the large and smaller pipe is given as 14.715 N/cm^2 and 12.753 N/cm^2 respectively. If $C_c = 0.62$, find the loss of head due to contraction. Also determine rate of flow of water. [15]
- 7.a) Describe briefly the Governing of the turbine.
b) A Pelton wheel has a mean bucket speed of 35 m/s with a jet of water flowing at a rate $1 \text{ m}^3/\text{s}$ under a head of 270 m. the bucket deflect the jet through an angle 170° . Calculate the power delivered to the runner and hydraulic efficiency of the turbine. Assume coefficient of velocity as 0.98. [8+7]
8. Explain the following terms as they are applied in centrifugal pump:
a) Static head b) Static suction head
c) Static discharge head d) Total static head [15]

---00000---