

Department of MECHANICAL ENGINEERING

Vision: "To incorporate technical & professional skills in Mechanical Engineers to fulfill industrial & social needs".

Mission:

- To educate, guide, and mentor the students for academic excellence.
- To develop technical skills and discipline among the students as per the requirement of the industry.
- To impart ethics & social values by arranging social activities.

Subject Name: Fluid Mechanics & Machinery Date :- 13/02/2023

Dute : 15/02/2

Assignment No :- 1

Course Outcome: CO224.1

Topic Name :- Properties of Fluid and Fluid Pressure

- 1. Define: Fluid statics, Fluid Kinematics, Fluid dynamics, density, Weight density,
- 2. Define Specific Gravity of fluid and write its standard value for water.
- 3. Differentiate between dynamic viscosity and kinematic viscosity. State their units
- 4. Explain kinematic viscosity. Write relation between them
- 5. Explain the phenomenon of capillarity.
- 6. Explain the concept of vapour pressure.
- 7. Explain the phenomenon of capillarity rise with reference to surface tension.
- 8. Specific gravity of an oil 0.8 find its weight density.
- 9. Define absolute pressure, guage pressure, vacuum pressure and atmospheric pressure.
- 10. Draw a sketch of Bourdon guage and explain how it works.

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Subject Name: Fluid Mechanics & Machinery	Date :- 13/02/2023
Assignment No :- 2	Course Outcome: CO224.2
Topic Name :- Fluid Flow	

- 1. State various types of fluid flows.
- 2. Compare laminar flow and turbulent flow.
- 3. Sate the continuity equation.
- 4. State the Bernoulli's theorem.
- 5. Explain construction and working of "Orificemeter" with neat sketch.
- 6. Explain working principle of pilot tube.
- 7. A conical pipe having end diameter 100mm and 150mm is used to supply oil. Find discharge through pipe. The velocity of oil flowing pipe at smaller diameter side is 5 m/s. also find velocity at larger end side.
- 8. An oil of specific gravity 0.8 is flowing through venturimete having inlet dia 20 cm and throat dia 10cm. the oil- mercury differential manometer shows a reading of 20 cm. calculate discharge of oil through the horizontal venturimeter $c_d = 0.98$
- 9. A 60mm diameter orfice is discharging water under a head of 9 m. calculate the actual discharge through the orifice in lps and actual velocity of jet in m/s at venacontracta, if $c_d = 0.625$ and $c_v = 0.9$.

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Subject Name: Fluid Mechanics & Machinery	Date :- 13/02/2023
Assignment No :- 3	Course Outcome: CO224.3
Topic Name :- Flow Through Pipes	

- 1. State the laws of fluid friction for laminar flow.
- 2. Explain laws of fluid friction.
- 3. State various types of fluid flow.
- 4. State the equations of losses due to sudden expansion and sudden contraction of pipes.
- 5. State Darcy's equation for friction losses.
- 6. Write the Chezy's equation. State the meaning of each term.
- A pipe is used for renergy transmission. Length and diameter of pipe are 80m and 50cm respectively. Flow rate is 105 lit/s. calculate the friction loss. Neglect minor loss. Take f =0.03
- 8. Calculate the velocity at the end of the pipes of diameter 150mm and 220 mm connected in series having discharge of 60/pm.
- 9. Find the max power that can be transmitted by a power station through a hydraulic pipe of 3km long and 200mm dia. The pressure of water at the power station is 1500 kpa. Take f = 0.01

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Subject Name: Fluid Mechanics & Machinery

Date :- 13/02/2023

Assignment No :- 4

Course Outcome: CO224.4

Topic Name :- Impact of Jets

- 1. What is meant by impact of Jet.
- 2. Find the force of impact of jet when it strikes on a flat plate at right angle when the plate is fixed.
- **3.** Write the formula for force exerted by a jet on the curved plate, when jet strikes the plate at the centre .
- 4. A horizontal jet of water is delivered under an effective head of 25m. calculate the dia of jet if the force exerted by the jet on a vertical fixed plate is 2.22 KN. Take coefficient of velocity as 0.99.
- 5. A force of 1.8 KN exerted by a jet of water of diameter 80mm on stationary flat plate. Find the velocity of jet.
- 6. A jet of water 50mm in diameter strikes on a fixed plate normally with a velocity of 25m/s. find the force exerted on flat plate
- 7. A jet of water 95mm diameter is moving with a velocity of 25m/s, strikes a stationary plate.
 Find the normal force on plate when i) plate is normal to jet ii) the angle between jet and plate is 30⁰.
- 8. Derive the equations of force exerted by jet on inclined moving plate in direction of jet.

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Subject Name: Fluid Mechanics & MachineryDate :- 13/02/2023Assignment No :- 5Course Outcome: CO224.5

Topic Name :- Hydraulics Turbines

- 1. Classify the hydraulic turbine with examples.
- 2. State the principle of reaction turbine.
- 3. Draw a layout of hydro- electric power plant and write function of its major components.
- 4. Explain with neat sketch working of Pelton wheel.
- 5. Draw the inlet and outlet velocity triangle for the buckets in pelton wheel with the meaning of the terms.
- 6. Explain with neat sketch Governing of a Pelton Wheel.
- 7. Explain with neat sketch construction and working of francis turbine.
- 8. What is difference between impulse turbine and reaction turbine.
- 9. Give selection criteria of a turbine at a particular location/place.

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Subject Name: Fluid Mechanics & MachineryDate :- 13/02/2023Assignment No :- 6Course Outcome: CO224.6

Topic Name :- Centrifugal and Reciprocating pumps

- 1. Write applications of Centrifugal pump.
- 2. Explain with neat sketch the construction, principle and working of centrifugal pump.
- 3. Define : suction head, delivery head, static head, manometric head .
- 4. A centrifugal pump delivers water at a rate of 0.03 m^3 /sec to a height of 18 m through a pipe of 100mm dia and 90 m long. If the overall efficiency of the pump is 75% find the power required to drive the pump. (take f = 0.012)
- 5. What is the difference between single stage pump and multistage pump?
- 6. Explain multistage pump with impeller in parallel.
- 7. Draw and explain the main characteristics curves of centrifugal pump in discharge Vs overall efficiency.

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Subject Name: Contracts And Accounts(22601)

Date :- 13/02/2023

Assignment No :- 7

Course Outcome: CO601.6

Topic Name :- Specifications

- 1. Define Cost, Price and value.
- 2. Define value and state its type and explain any one.
- 3. Define depreciation list different method of calculating depreciation .
- 4. Explain: i) scrap value ii) salvage value.
- 5. State any four factors affecting a value.
- 6. Difference between book value and market value.
- 7. Explain: i) Sinking fund method ii) Constant percentage method.
- 8. A building is constructed at a cost of RS 1000000/- on a plot of 100m2. fix monthly rent of this property from following data: i) Rate of land = 100/m2 ii) Return expected on land & building= 6% iii) Life of building = 60 years iv) Scrap value = 10% of construction cost v) other outgoings = 20% of gross rent.

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