

Question Bank

Unit Test 2

Program : Mechanical Engineering

Course – FMM

Semester: ME4I

Course Code- FMM (22445)

UNIT 4-IMPACT OF JET

QUESTIONS FOR 2 MARKS

1. Define Impact of Jet. (CO4)
2. Write the equation for impact of jet on fixed vertical flat plate with meaning in it. (CO4)

QUESTIONS FOR 4 MARKS

1. A jet of water 50mm diameter is discharging under a constant head of 70 m. find the force exerted by the jet on fixed flat plate.($C_v=0.98$) .(CO4)
2. A jet of water 60mm diameter is moving with 26m/sec discharging water. Find the force exerted by the jet on flat plate if it moves with 10m/sec. ($C_v=0.98$). .(CO4)
3. A jet of water 50mm diameter is moving with 15m/sec discharging water. Find the force exerted by the jet on flat plate if it moves with 6 m/sec. Also find Work done and Efficiency.($C_v=0.98$). .(CO4)
4. Draw inlet and outlet triangles with special reference to turbines and pumps.(CO4)

UNIT 5-HYDRAULIC TURBINE

QUESTIONS FOR 2 MARKS

1. Classify the turbine according to inlet energy and head. . (CO5)
2. State the function of nozzle in pelton wheel turbine. . (CO5)
3. Explain the function of breaking jet in Pelton wheel turbine. . (CO5)
4. State any two function of draft tube . (CO5)

5. Define cavitation in turbine. .(CO5)

QUESTIONS FOR 4 MARKS

1. Differentiate between Francis and Kaplan turbine. (CO5)
2. Draw and explain hydroelectric power plant. . (CO5)
3. Draw and explain Francis turbine. . (CO5)
4. Draw inlet and outlet velocity triangle for bucket in Pelton wheel with meaning of each term. . (CO5)
5. A Pelton wheel develops 200kw under a head of 100 meter and with an overall efficiency of 85%. Find diameter of nozzle if $CV=0.98$ of nozzle. . (CO5)
6. A Francis turbine produces 3160 kW under a head of 144 m at a overall efficiency of 86%. it rotates at 1000 rpm. Taking speed ratio as 0.9 and flow ratio as 0.3, find the guide blade angle at inlet, diameter of runner and width of runner at inlet. Assume radial discharge and hydraulic efficiency as 90% . .(CO5)

UNIT 6-CENTRIFUGAL PUMP AND RECIPROCATING PUMP

QUESTIONS FOR 2 MARKS

1. Define Slip and Negative slip. .(CO6)
2. Define NPSH. .(CO6)
3. Define priming. State its methods.(CO6)
4. State function of air vessel in reciprocating pump. .(CO6)
5. What is multistaging of centrifugal pump? .(CO6)
6. Draw neat sketch of vortex casing. .(CO6)

QUESTIONS FOR 4 MARKS

1. Explain construction and working of Centrifugal pump. (CO6)
2. Explain construction and working of single acting reciprocating pump.(CO6)
3. Explain pump in parallel and pump in series. .(CO6)
4. Differentiate between centrifugal pump and reciprocating pump. (CO6)
5. State various type of casing in centrifugal pump. Explain any one. (CO6)
6. A centrifugal pump delivers 30 liters of water per second to a height of 18 meters through a pipe 90 m long and 100 mm diameter. If the overall efficiency of the pump is 75%, find the power required to drive the pump. Take $f=0.012$. (CO6)