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3rd Sem / Civil, Brick Tech., Const. Mgmt. Highway Engg.
Sub.: Fluid Mechanics

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 The fluid which has no viscosity no surface tension and no Compressibility is called (CO1)
a) Ideal Fluid b) Real Fluid
c) Newtonian Fluid d) Non Newtonian fluid

Q.2 Surface tension of liquid_____. (CO2)
a) Increases with temperature
b) Decreases with temperature
c) Increases with area
d) Decreases with area

Q.3 The point of Application of the total pressure on the surface is (CO3)
a) Centroid of the surface
b) Centre of pressure
c) Intensity of Pressure
d) None of these

Q.4 Pizometer is used to measure. (CO2)
a) Guage Pr. b) Vaccum Pr.
c) Absolute Pr. d) None of these

Q.5 Bernoulli's equation is applicable to (CO5)
a) Steady flow b) Unsteady flow
c) Both (a) & (b) d) None of these

Q.6 The co-efficient of discharge of a mouthpiece (CO6)
a) Equal to that of an orifice
b) Twice that of an orifice.

c) Less than that of an orifice.
d) More than that of an orifice

Q.7 Notch is a device used for measuring (CO6)
a) Rate of flow through pipes
b) Rate of flow through a small channel
c) Velocity of flow through a pipeline
d) Velocity of flow through a small channel

Q.8 In a turbulent flow, Reynold's number is (CO7)
a) Less than 4000
b) More than 4000
c) Between 2000 & 4000
d) None of these

Q.9 The H.G.L. Of a uniform open channel. (CO8)
a) Slopers downward towards the direction of flow
b) Concides with the water surface
c) Both (a) and (b)
d) None of these

Q.10 Specific speed is (CO9)
a) The actual speed of the pump
b) The speed of the model of the pump
c) The speed of a geometrically similar pump which will discharge $1m^3/s$ liquid under a head of 1m.
d) None of these

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Fluid offer _____ resistance to the change of their _____. (CO2)

Q.12 The intensity of pressure of a liquid per unit area is called_____. (CO3)

Q.13 Absolute Pressure = Atmospheric Pressure Plus _____. (CO3)

Q.14 Laminar flow is also called _____ flow. (CO5)
Q.15 The S.I. Units of discharge are _____. (CO5)
Q.16 A trapezoidal notch is combination of _____ notch and V-notch. (CO6)
Q.17 Reynolds number is the ratio of inertia force to _____. (CO7)
Q.18 IN an open channel, water flows under _____. (CO8)
Q.19 Priming is done in _____ pumps. (CO9)
Q.20 Hydraulic press work on _____. (CO5)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Define viscosity and write the newton's law of viscosity. (CO2)
Q.22 What is pascal law? Explain its utilities. (CO3)
Q.23 Find the depth of alcohol of specific gravity 0.791 which produces an intensity of pressure equal to 3.10 KN/m^3. Also find the pressure head in terms of water and mercury. (CO3)
Q.24 Explain uniform and non-uniform flow. (CO5)
Q.25 Write short note on inverted u-Tube manometer. (CO4)
Q.26 A differential manometer connected at two points A and B in a pipe containing an oil of specific gravity 0.8 shows a difference in mercury level as 15mm. Determine the difference in Pressure at the two points in terms of head of water. (CO4)
Q.27 What is the functions of Venturimeter? Explain its principal of working. (CO6)
Q.28 What do you understand by the equation of continuity of flow? Discuss its utility in Hydraulics?

Q.29 Differentiate between orifice and mouthpiece with relevant example's. (CO6)
Q.30 Define : (CO7)
a) Co-efficient of contraction
b) Co-efficient of discharge
c) Co-efficient of velocity
Q.31 Sketch and describe Pilot tube and explain how it is used to measure the fluid flow. (CO6)
Q.32 Fine the head lost due to frictions in a pipe of diameter 300mm and length 5000mm through which water is flowing at a velocity of 3m/s using Darcy formula assuming f=0.00256 and chezy formula for which C=60. (CO7)
Q.33 Explain a laminar and turbulent flow through reynold's experiments. (CO7)
Q.34 Explain the significance of channels of the most economical section. (CO8)
Q.35 What is priming of a centrifugal pump. (CO9)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 What is reciprocating pump? Write down in detail about the main parts and working of single acting reciprocating pump along with neat sketch. (CO9)
Q.37 An earth channel with base 4.5m wide and side slope 3 vertical to 1 horizontal carries water with depth of 1.5m. The bed slope is 1m 625. Calculated the discharge with the help of Manning's formula. Kutter's n = 0.03 for earth channels. (CO8)
Q.38 What are the minor losses of head in Pipes? Give formula's for each for calculating the loss. (CO7)