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220735

3rd Sem. / Civil

Subject : Fluid Mechanics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 A Newtonian fluid is (CO1)

a) Non viscous
b) Compressible
c) Obeys Newton's law of viscosity
d) None of the above

Q.2 Stoke is the unit of (CO2)

a) Kinematic viscosity b) Dynamic viscosity
c) Shear stress d) Surface tension

Q.3 The specific weight of water is (CO2)

a) 1000 N/m^3 b) 9810 N/m^3
c) 9.81 N/m^3 d) 1000 Kg/m^3

Q.4 The standard value of atmospheric pressure is(CO3)

a) 760mm of Hg b) 10.34m of water
c) 1.01 bar d) All of the above

Q.5 Piezometer measures

a) Vacuum pressure b) Gauge pressure
c) Absolute pressure d) None of the above

Q.6 Venturimeter may be (CO3)

a) Horizontal b) Vertical
c) Inclined d) All of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 As the temperature of a liquid rises, its viscosity _____ (CO1)

Q.8 The SI unit of viscosity is _____ (CO2)

Q.9 1 Ns/m^2 = _____ poise (CO2)

Q.10 Continuity equation of flow is based on the principle of _____ (CO4)

Q.11 The relationship between C_d, C_v, C_c is _____ (CO3)

Q.12 Water in canals runs under _____ pressure. (Atmospheric/gauge/high) (CO6)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define ideal and real fluids. (CO1)

Q.14 Define adhesion and cohesion. (CO1)

Q.15 Explain the phenomenon of capillarity. (CO1)

Q.16 State the Passcal's law of pressure. (CO4)

Q.17 Define total pressure and centre of pressur. (CO1)

Q.18 Write expression for discharge over a rectangular weir and explain the variables used in it. (CO2)

Q.19 What is hydraulic gradient line? (CO6)

Q.20 Write the conditions for a channel to be most economical in case of rectangular section with a suitable diagram. (CO6)

Q.21 Explain the working of centrifugal pump. (CO5)

Q.22 A rectangular channel water at discharge of 550 L/s when its bed slope is 1 in 2500. Find dimensions of channel if width to depth ratio be 2:1 and Chezy's constant C=60. (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 State Bernoulli's theorem, write the expression and its assumptions. (CO3)

Q.24 A rectangular plate of size 2m X 3m is immersed in liquid of specific gravity 0.8 in such a way that its 2m side is parallel to the free surface and its upper edge is 1.5m below the free surface. Find total pressure on the plate and position of centre of pressure. (CO1)

Q.25 The diameter of a pipe at section A and B are 300mm and 500mm respectively. If velocity of flow at section A is 4m/s, Find discharge through pipe and velocity at section B. (CO4)

(**Note:** Course outcome/CO is for office use only)