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3rd Sem / Civil

Subject:- Fluid Mechanics

Time : 3Hrs. M.M. : 60

SECTION-A

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

Q.1 Specific gravity of water is (CO1)

a) 0.5 b) 1.5

c) 2.0 d) 1

Q.2 A differential manometer is used to measure the difference in pressure at (CO1)

a) One point b) Two points

c) Three points d) Four points

Q.3 The force of buoyancy is (CO2)

a) Vertical force b) Horizontal force

c) Tangential force d) Gravitational force

Q.4 Unit of discharge (θ) for liquid is (CO3)

a) m/s b) m^2/s

c) m^3/s d) none

Q.5 Dimensional formula of velocity is (CO4)

a) LT^1 b) LT^2

c) L^2T d) LT

Q.6 Flow through open channel take place due to (CO5)

a) Pressure difference b) Slope of bed

c) Velocity of flow d) Discharge

SECTION-B

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

Q.7 Relation between dynamic and kinematic viscosity is _____ (CO1)

Q.8 The stability of a floating body is determined from the position of _____ (CO2)

Q.9 Bernoulli's equation is applicable to _____ (CO3)

Q.10 In a laminar flow Reynold's number is _____ (CO4)

Q.11 Viscous force (F_v) = _____ × _____ (CO4)

Q.12 Foot valve is used in case of _____ (CO5)

SECTION-C

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

Q.13 Differentiate between Newtonian and Non Newtonian fluid. (any four) (CO1)

Q.14 What is Pascal's law? What are its applications? (CO1)

Q.15 Explain the stability of floating body. (CO2)

Q.16 Define the following terms: (CO2)

a) Pressure b) Center of pressure

c) intensity of pressure d) Total pressure

Q.17 The quantity of water following through a pipe line of diameter 100mm is found to be 0.2 m^3/s. Find the discharge in liter/second and average velocity of flow. (CO3)

Q.18 Write the comparison between notch and weir. (any four). (CO3)

Q.19 Write short note on types of minor energy (head) losses in pipes. (CO4)

Q.20 Determine the dimensions of the quantities given below: (CO4)

a) Angular velocity b) Force

c) Discharge d) Dynamic viscosity

Q.21 A rectangular channel 5m wide having a bed slope of 1 in 5000. If the depth of water is 2m, determine the mean velocity of flow and the discharge. Take Chezy's constant C=60. (CO5)

Q.22 Differentiate between centrifugal pump and reciprocating pump. (any four) (CO5)

SECTION-D

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

Q.23 Explain simple manometers and their types with neat sketch. (CO1)

Q.24 The diameter of a pipe at the sections 1-1 and 2-2 are 400mm and 200mm respectively. If the velocity of water flowing through the pipe at section 1-1 is 5m. Find discharge through the pipe and velocity of water at section 2-2. (CO3)

Q.25 Find the conditions for most economical rectangular channel section and trapezoidal channel section. (CO5)

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