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**3rd Sem / Branch : Civil**
**Sub.: Fluid Mechanics**

Time : 3Hrs. M.M. : 60

## SECTION-A

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

Q.1 An ideal fluid is (CO1)

a) Compressible
b) Incompressible
c) Incompressible and viscous
d) None of the above

Q.2 Newton's law of viscosity states that (CO2)

a) Shear stress is directly proportional to shear strain
b) Shear stress is directly proportional to velocity gradient
c) Shear stress is directly proportional to velocity
d) None of the above

Q.3 The density of water is maximum at (CO1)

a) $O^{o}C$ b) $4^{o}C$
c) 273K d) 300K



Q.4 Absolute pressure is equal to (CO1)

a) Gauge pressure + Vacuum pressure
b) Gauge pressure + Atmospheric pressure
c) Gauge pressure - Atmospheric pressure
d) Atmospheric pressure - Gauge pressure

Q.5 Equation of continuity is (CO2)

a) A/V = constant b) $A^2/V$ = constant
c) A x V = constant d) V/A Constant

Q.6 Venturimeter is used to measure (CO3)

a) Viscosity b) Surface tension
c) Discharge d) Velocity

## SECTION-B

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

Q.7 When the fluid is at rest, shear stress is ____. (CO1)

Q.8 Surface tension is caused due to ____. (Cohesion/ Adhesion) (CO1)

Q.9 The S.I. Unit of discharge is ____. (CO2)

Q.10 In laminar flow through pipes, Reynolds number is less than____. (CO4)

Q.11 Reynolds number is the ratio of inertia force to ____. (CO4)

Q.12 The unit of pressure is $N/m^2$ also called___. (CO2)

## SECTION-C

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

Q.13 What is fluid and write its types. (CO1)

Q.14 Define viscosity and its variation with temperature. (CO1)

Q.15 What is Reynolds number and write its significances. (CO2)

Q.16 Differentiate between notch and weir. (CO3)

Q.17 Define laminar and turbulent flow. (CO6)

Q.18 What is venturimeter and write names of its three major parts. (CO3)

Q.19 What do you understand by most economical channel section? (CO6)

Q.20 Find discharge through a rectangular channel of 6m width and of 3m depth when running full. Take slope as 1 in 2000 and Chezy's constant C =55. (CO2)

Q.21 Define centrifugal pump and write its main components. (CO5)

Q.22 What do you understand by meta centre and buoyancy. (CO1)



## SECTION-D

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

Q.23 Write differences between reciprocating pump and centrifugal pump. (CO5)

Q.24 A rectangular plate of size 3m x 4m is immersed in water in such a way that its 3m side is parallel to the free surface and its upper edge is 1m below the free surface. Find total pressure on the plate and position of centre of pressure. (CO1)

Q.25 A tapering pipe has 200 mm and 100 mm diameter at its ends. If velocity at larger end is 2m/s, find the discharge and velocity at smaller end. (CO4)