



REGISTRATION NUMBER

--	--	--	--	--	--	--	--	--	--

SRINIX COLLEGE OF ENGINEERING

1ST INTERNAL EXAMINATION-2018-19

Subject- **FMHM**

Semester-**3RD**

Branch-**CIVIL**

Full Marks-**50**

Time-**2.00Hrs**

ANSWER ALL QUESTIONS (PART-A)

[2×5=10]

1. Pascal-second is the unit of _____
 - a) Pressure
 - b) Kinematic viscosity
 - c) Dynamic viscosity
 - d) Surface tension

2. According to Archimedes's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is _____ the weight of fluid displaced by the body
 - a) equal to
 - b) less than
 - c) more than
 - d) unpredictable

3. Stress may be defined as,
 - a) The load per unit area
 - b) The internal resistance offered by the material per unit area
 - c) The internal force acting on the material per unit area
 - d) The internal resisting force per unit area

4. Bulk modulus is the ratio of _____

5. According to equation of continuity,
 - a) $w_1 a_1 = w_2 a_2$
 - b) $w_1 v_1 = w_2 v_2$
 - c) $a_1 v_1 = a_2 v_2$
 - d) $a_1 / v_1 = a_2 / v_2$

6. Which of the following quantities has the dimensions $[M^0 L^0 T^0]$
 - a) Density
 - b) Stress
 - c) Strain
 - d) Strain Rate

7. Newton's law of viscosity relates
 - a) Intensity of pressure and rate of angular deformation

- b) Shear stress and rate of angular deformation
 - c) Shear stress, viscosity and temperature
 - d) Viscosity and rate of angular deformation
8. An ideal fluid is
- a) One which obeys Newton's law of viscosity
 - b) Frictionless and incompressible
 - c) Very viscous
 - d) Frictionless and compressible

ANSWER ALL QUESTIONS (PART-B)

[2X10=20]

1. Write Newton's law of viscosity?
2. What do you mean by Bulk modulus of Fluid?
3. Explain different types of fluid?
4. What is the difference between dynamic and kinematic viscosity?
5. What is the condition of irrotationality?
6. Define buoyant force?
7. What is metacenter and Meta centric height?
8. Explain stability condition of floating body?
9. What is center of buoyancy?
10. Define stream and potential function?

ANSWER ANY TWO QUESTIONS (PART-C)

[10X2=20]

1. A triangular gate which has a base of 1.5 m and an altitude of 2 m lies in a vertical plane. The vertex of the gate is 1m below the surface of a tank which contains oil of specific gravity .8 .Find the force exerted by the oil on the gate and position of centre of pressure?
2. A plate of .0254mm distant from a fixed plate, moves at 61cm/sec and requires a force of 2kg (f)/m² to maintain this speed. Determine the dynamic viscosity of the fluid between the plates.
3. A stream function in a two dimensional flow is $\psi = 2xy$.Show that the flow is irrotational and determine the corresponding velocity potential function ϕ ?