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ET-201(A)

B.Tech. Civil (Construction Management) /
B.Tech. Civil (Water Resources Engineering) /
B.Tech. (Aerospace Engineering)

00459 Term-End Examination

June, 2018

ET-201(A) : MECHANICS OF FLUIDS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. Assume any missing data. Use of non-programmable calculator is permitted.*

1. (a) Define the following : 5

   (i) Density

   (ii) Pressure

   (iii) Viscosity

   (iv) Kinematic Viscosity

   (v) Vapour Pressure

   (b) Explain the working of a manometer with suitable diagram. 5

2. Discuss the various conditions of equilibrium for a body submerged/floating in fluid. *10*

3. (a) Define stream function and velocity potential. *4*

   (b) What do you understand by vortex flow ? Differentiate between free vortex and forced vortex. *6*

4. Explain the following : *5×2=10*

   (a) Continuity equation

   (b) Bernoulli's equation

5. Describe the methods for the following :

   (a) Measurement of velocity *5*

   (b) Measurement of discharge *5*

6. Derive the Navier-Stokes equation of motion. Write its applications. *10*

7. (a) Discuss the boundary layer concept with neat stetch. *5*

   (b) Discuss the concept of smooth and rough boundaries. *5*

8. Differentiate between the following : *2×5=10*

(a) Rotational and Irrotational flow

(b) Lift and Drag

9. Write short notes on the following : *2×5=10*

(a) Minor losses in pipe flow

(b) Laminar and Turbulent flow