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FOURTH SEMESTER

B. Tech. [ENVIRONMENT]

MID SEMESTER EXAMINATION (MARCH 2019)

EN-208: FLUID MECHNICS AND HYDRAULIC MACHINES

TIME: 1 Hour 30 minutes

MAX. MARKS: 20

NOTE: Answer ALL Questions.
Assume suitable missing data, if any

1(a)	Define the viscosity and explain the Newton's law of viscosity.	2
(b)	Differentiate between the Eulerian and Lagrangian methods of representing fluid flow.	2
(c)	State and derive the Bernoullis Equation.	2
2	Water flows in circular pipe at one section the diameter is 0.3 m, and the static pressure is 260 KPa gauge, the velocity is 3 m/s and the elevation is 10 m above the ground level. The elevation at a section drawdown is 5 m, and the pipe diameter is 0.15 m. Find out the gauge pressure at the drawdown section.	4
3	Determine the total pressure on a circular plate of diameter 1.5 m which is placed vertically in water in such a way that the center of the plate is 3 m below the free surface. Find the position of center of pressure also.	4
4	Derive an expression for the velocity distribution for laminar flow through a circular pipe. Also sketch the distribution of velocity and shear stress across of the pipe.	2
5	Define the velocity potential function and stream function and derive the Laplace equation.	2
6	Explain the various types of fluids with neat diagrams.	2