MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech I Sem Supplementary Examination, February-2022
Fluid Mechanics
(CIVIL)

Time: 3 Hours.   **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

1	a)	State and prove Pascal's law.	7M	CO1	L5
	b)	The right limb of a simple U tube manometer containing Hg is open to the atmosphere while the left limb is connected to a pipe in which a fluid of specific gravity 0.9 is flowing. The center of pipe is 12cm below the level of Hg in the right limb. Find the pressure of fluid in the pipe if the difference of Hg level in two Limbs is 20cm	7M	CO1	L1
2		Define the following properties of fluid: i). Density, ii) Specific volume, iii) Specific gravity, iv) Kinematic viscosity, v) dynamic viscosity, vi) surface tension, vii) Capillarity.	14M	CO1	L1
3	a)	List out the assumptions made while deriving Euler's equation of motion.	7M	CO2	L4
	b)	i) Define stream function and mention its properties. ii) What is equipotential line?	7M	CO2	L1
4		A 10m long water pipe is laid at a slope of 3 in 4. The diameters of the lower end and upper end are 120mm and 180mm respectively pressure gauges fixed at the lower end and upper end reads 0.2MPa and 0.3MPa respectively. Determine the flow rate of water through the pipe.	14M	CO2	L5
5	a)	What is a weir and what are its types?	7M	CO3	L1
	b)	Explain continuity and Bernoulli's equation.	7M	CO3	L5
6		A 60^0 triangular notch with a coefficient of discharge of 0.59 is placed at the downstream end of a channel carrying $0.02m^3/s$ of water. What will be the height above the base of notch?	14M	CO3	L1
7	a)	Discuss briefly about hydraulic gradient line and total energy line?	7M	CO4	L6
	b)	Determine the head lost due to friction in a pipe of diameter 300 mm and length 50 m through which water is flowing at a velocity of 3 m/s using: (i) Darcy's formula, (ii) Chezy's formula for which C =60.	7M	CO4	L5
8		Explain Boundary layer in separation, Transition and control.	14M	CO5	L2

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