Reg. No: ☐☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations Feb-2021
FLUID MECHANICS
(Civil Engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Define surface tension, capilarity and viscosity.	6M
	b	Derive expression for surface tension on liquid droplet and soap bubble.	6M

OR

2	a	Explain with neat sketch working of Bourdons Pressure gauge.	8M
	b	State Pascal's law. What is the function of Piezometer?	4M

UNIT-II

3	a	The velocity potential function is given by $\emptyset = 5(x^2 - y^2)$. Calculate the velocity components at the point (4, 5).	6M
	b	State Bernoulli's theorem for steady flow of an incompressible fluid and its assumptions.	6M

OR

4	a	Define laminar, turbulent flows, uniform and non uniform flow.	7M
	b	Distinguish between rotational and irrotational flow.	5M

UNIT-III

5	a	Derive the expression for head loss in pipes due to friction by Darcy - Weisbach equation.	6M
	b	Derive the expression for flow through parallel pipes.	6M

OR

6	a	Find the head lost due to friction in a pipe of diameter 300 mm and the length 50 m, through which water is flowing at velocity of 3 m/s using i) Darcy formula ii) Chezy's formula for which C=60 and kinematic viscosity 0.01 stokes.	8M
	b	Derive the expression for flow through pipes in series.	4M

UNIT-IV

7	a	What is a notch and a weir? Classify the weirs.	6M
	b	What is a Mouth Piece? What are the advantages are providing the Mouth Piece?	6M

OR

8	a	What are the losses pipes explain?	6M
	b	Find the discharge over a triangular notch of angle 60 when the head over the V-Notch is 0.3M assume C_d is 0.6.	6M

UNIT-V

9	a	Explain the Reynolds's experiment with neat sketch.	8M
	b	Explain boundary layer thickness, displacement thickness.	4M

OR

10	a	Define Reynolds's number and derive the expression for Reynolds's number.	8M
	b	Explain momentum thickness and energy thickness.	4M

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