09

ACE Engineering College
(with a Difference in Excellence)
An AUTONOMOUS Institution

Question Paper Code: CE305PC

ACE-R20

Semester End Examination

II B. Tech- I Semester- MARCH-2022

FLUID MECHANICS

(Civil Engineering)

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

H. T. No										

*Answer any 5 **Questions out of 8 Questions** from the following*

Q.No	Question	Marks
1. a)	Define capillarity. Give the Expression for Capillarity rise and fall	7
b)	What is simple Manometer . Explain how vacuum pressure can be measured with the help of U-Tube Manometer.	7
2. a)	Define and Distinguish between Uniform and non-uniform flow Laminar and turbulent flow	8
b)	Define Vortex Flow. Explain in detail the two types of vortex flow.	6
3. a)	Write about one , two & three Dimensional flows	6
b)	A 25 cm diameter pipe carries oil of specific gravity 0.9 at a velocity of 3m/s . At another section the diameter is 20 cm .Find the velocity at this section and also mass rate of flow of oil	8
4. a)	State Bernoulli's theorem for steady flow of an incompressible fluid .Derive Bernoulli's Equation from Euler's Equation	14
5. a)	Write in detail the classification of Notches and weirs	6
b)	A right- angled V-notch is used for measuring a discharge of 30 Lit/sec .An error of 1.5 mm was made while measuring the head over the notch .Calculate the Percentage error in the discharge .Take $C_d = 0.62$	8
6. a)	What is meant by Hydraulic gradient line and Total energy line?	6
b)	What do you mean by Equivalent pipe? Give an expression for Equivalent pipe	8
7. a)	Derive an expression for flow through parallel pipes .	8
b)	Find the loss of head when a pipe of diameter 250 mm is suddenly enlarged to a diameter of 400 mm .The rate of flow of water through the pipe is 280 Lit/sec .	6
8. a)	Derive the Expression for Displacement thickness .	10
b)	Write about the laminar Boundary layer and Turbulent Boundary Layer .	4