

CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR
(Deemed to be University)
KOKRAJHAR :: BTR :: ASSAM :: 783370

END – SEMESTER EXAMINATION
UG

Session: July-December, 2024

Semester: 3rd

Time: 3Hrs. Full Marks: 100

Course Code: UCE302

Course Title: Fluid Mechanics

ANSWER ALL QUESTIONS

1. Write in details of the following: 5*4 = 20
 - i. Metacenter
 - ii. Vortex motion
 - iii. Surface tension
 - iv. Velocity potential
2. A reservoir of glycerin has a mass of 1200 kg and volume of 0.952 m³. Find the glycerin's weight, mass density, specific weight and specific gravity. 20
3. What is fluid? Write in details with example about classification of fluid. 20
4. A circular plate 3 m diameter is immersed in water in such a way that its greatest and least depth below the free surface are 4 m and 1.5 m respectively. If the given circular plate there is having a concentric circular hole of diameter 1.5 m. Then calculate total pressure and position of centre of pressure on one face of the plate. 20
5. What will be the 'x' component of velocity at a point for 2D incompressible fluid motion where 'y' component of velocity as $v = 6xy - x^2 + y^2$. 10
6. A horizontal venturimeter with inlet diameter 20 cm and throat diameter 10 cm is used to measure the flow of oil specific gravity 0.8. The discharge of oil through venturimeter is 60 lit/sec. Find the reading of the oil-mercury differential manometer. Take coefficient of discharge is 0.98. 10
