

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Programme Name: M. Tech (CEPD)

Semester : II

Course Name : Multiphase Flow

Time : 03 hrs

Course Code : CHPD7026P

Max. Marks : 100

Nos. of page(s) : 1

Instructions: *The question paper consists of two sections. Answer all questions.*

Note: *Assume suitable data wherever necessary*

Section – A (Answer all questions)

S. No.		Marks	CO
1.	Determine the rise velocity of air bubbles of equivalent radii 0.6 cm in water. If $\sigma = 70$ dynes/cm, $\rho_f = 1$ g/cm ³ , $\mu_f = 0.01$ poise, and $g = 981$ cm/sec ² .	10	CO3
2.	Explain different flow patterns of solid-liquid, and gas-solid multiphase flow through horizontal and vertical pipes.	10	CO1
3.	Describe the phase coupling in multiphase flow.	10	CO1
4.	Examine slug flow model in multiphase/multicomponent flow	10	CO3
5.	Criticize two phase heat transfer	10	CO5
6.	Analyze volume of fluid model	10	CO4

Section – B (Answer all questions and question 7 has internal choice)

7.	Analyze Eulerian – Eulerian model and Eulerian – Lagrangian model for multiphase flow. OR Analyze the algebraic slip model for multiphase flow.	20	CO4
8.	Summarize homogeneous flow model and derive an expression for pressure gradient in two-phase flow by homogeneous flow model.	20	CO2