


Name:								
Enrolment No:								
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2024								
Course: Petroleum Refining Technology Program: B.Tech (Chemical Engineering) Course Code: CHCE 3010				Semester: VI Time 03 hrs. Max. Marks: 100				
Instructions: In case of data missing make necessary assumptions Note: The graphical data is provided in Page No. 2 & 3 to solve problem no. 11								
S. No.	SECTION A (5X4=20) (Attempt all questions)						Marks	CO
Q 1	Define and give the significance of Aniline point.						4 M	CO1
Q 2	State how the API scale is useful in evaluating crude oil.						4 M	CO1
Q 3	List various catalysts used in Fluid catalytic cracking process?						4 M	CO3
Q 4	List the various characteristics of sponge coke.						4 M	CO3
Q 5	Explain how refineries are configured? Critique the hydroskimming refinery.						4 M	CO4
SECTION B (4X10=40M) (Attempt all questions)								
Q 6	With a neat sketch explain top reflux and pump around reflux. Write the merits of the pump around reflux over the top reflux.						10 M	CO4
Q 7	Explain the process of hydrotreating with neat schematic diagram? What are the various kind of reactions involved in it?						10 M	CO2
Q 8	Give the necessity of product blending. Explain in brief about the parameters to be considered in the octane number blending process.						10 M	CO4
Q 9	Explain the dewaxing and sweating operations with the help of suitable diagram.						10 M	CO3
SECTION C (2X20=20M) (Attempt all questions)								
Q 10	What are the different types of coking? Discuss Flexi coking process with neat schematic.						20 M	CO2
Q 11	Whole crude TBP data (API gravity 25)						20 M	CO1
	Vol. %	0	10	30	50	70		
	T (°F)	160	220	350	415	460	530	
(i) Plot the TBP and determine the UOP characterization factor, average boiling point (VABP, MEABP), and weight for the crude oil.								
(ii) For the TBP range of 250-500 °F, calculate API, M.W, Mid vol.%, Mid boiling point, and Wt based on 500 barrels of whole crude.								

