Name:

**Enrolment No:** 



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

**End Semester Examination, December 2021** 

**Course: Petroleum Refining & Petrochemical Technology** 

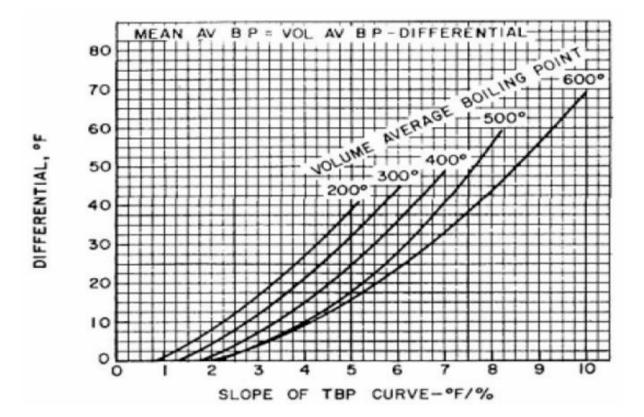
Semester: V Program: B.Tech (CE+RP) Time 03 hrs.

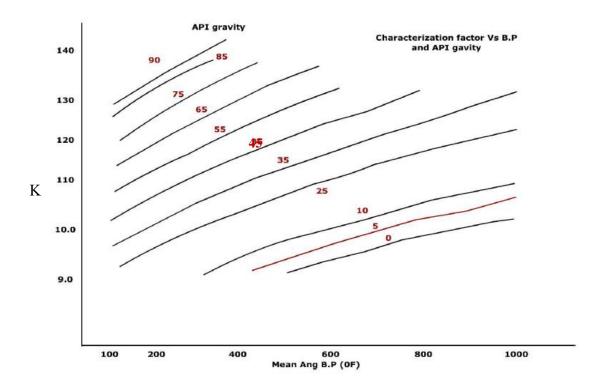
**Course Code: CHGS 3013P** Max. Marks: 100

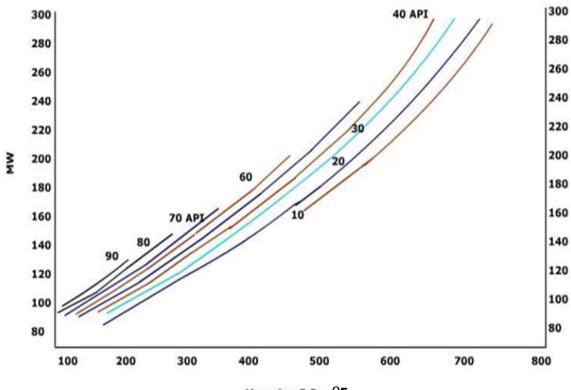
Instructions: In case of data missing make necessary assumptions

Note: The graphical data is provided in Page No. 2 & 3 to solve problem no. 7

S. No.	SECTION A (6X10=60) (Attempt all questions)	Marks	СО
Q 1	Explain the growth of the Indian refining industry and the major problems faced by the Indian refining industry in the global market?	10 M	CO1
Q 2	<ul><li>(a) Define and give the significance of octane number and cetane number</li><li>(b) What is the difference between ASTM and TBP distillation and give their significance?</li></ul>	(5+5) M	CO2
Q 3	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	CO3
Q 4	Explain the process of hydrocracking with a neat schematic diagram? What are the various process variables affecting hydrocracking?	10 M	CO4
Q 5	Explain the catalytic reforming process regarding the following points a) Objective b) Feedstock c) Catalyst used d) Major Reactions e) Process Conditions	10 M	CO4
Q 6	Give the necessity of product blending. Explain in brief about the parameters to be considered in the octane number blending process.	10 M	CO5
	SECTION B (2X20=40M)		
0.7	(Attempt all questions)	T	l
Q7	<ul> <li>Whole crude TBP data (API gravity 25)</li> <li>Vol. % 0 10 30 50 70 90</li> <li>T (°F) 160 220 350 415 460 530</li> <li>(i) Plot the TBP and determine the UOP characterization factor, average boiling point (VABP, MEABP), and weight for the crude oil.</li> <li>(ii) For the TBP range of 20X-5YZ °F, calculate API, M.W, Mid vol.%, Mid boiling point, and Wt based on 500 barrels of whole crude. Where X is the last digit of your roll number and YZ is the last two digits of your SAP ID.</li> </ul>	20 M	CO2
Q 8	With a neat flow diagram, explain the process of Flexi coking. Also, write the merits and demerits of Flexi coking over the other two coking processes.	20 M	CO4







Mean Avg B.P. OF