Name: **Enrolment No:**	

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

Course: Petroleum Refining & Petrochemical Technology **Semester: VI**
Program: B.Tech (CE+RP) **Time : 03 hrs.**
Course Code: CHEG 341 **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Give any two important aspects of current and future energy scenario of India.	**4**	**CO1**
Q2	A crude oil has specific gravity of 0.85 at 60°F and average molal boiling point of 900°R. Calculate the characterization factor (K) and based on which predict the type of crude oil.	**4**	**CO2**
Q3	A reference fuel containing 55% cetane and the rest of heptamethylnonane has the same ignition delay as that of diesel under testing. Calculate the cetane number of diesel.	**4**	**CO3**
Q4	What is the need for desulphurization of natural gas before its steam reforming?	**4**	**CO4**
Q5	What is bio-refinery and name any two important feedstock to bio-refinery.	**4**	**CO5**
	SECTION B **(4Qx10M= 40 Marks)**		
Q6	Explain the simulated distillation analysis (SIMDIS) with the help of schematic diagram and how is it translated into TBP results.	**10**	**CO2**
Q7	With the help of diagram, explain the semi regenerative fixed bed catalytic reforming along with the reactions involved. (Or) Explain the alkylation process in petroleum refinery with the help of diagram and what is its importance?	**10**	**CO3**
Q8	Describe the hot and cold section of steam cracking of NGL to olefins.	**10**	**CO4**
Q9	Explain the various methods of production of bio-oil and its upgradation.	**10**	**CO5**
	SECTION-C **(2Qx20M=40 Marks)**		
Q10	Draw the flow diagram and describe the various steps involved in the steam reforming of natural gas to syngas.	**20**	**CO4**

Q11	(a) Explain the gasification of biomass and different types of gasifiers.	**14**	**CO5**
	(b) What are the additives and their functions blended with motor gasoline?	**6**	**CO3**
	(Or)		
	(a) Explain the various steps involved in the manufacture of 2G ethanol.	**14**	**CO5**
	(b) Draw the integrated refinery-petrochemical complex.	**6**	**CO3**