

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End-semester Examination, December 2019

Programme Name: M.Tech. PDE **Semester : I**
Course Name : Fundamentals of Refining , Petrochemicals & Polymers. **Time: 03 hrs.**
Course Code : CHLP7006 **Max. Marks: 100**
Nos. of page(s) : Two

Instructions:

Note: Attempt all questions from Part – A four from Part-B and two from part-C with internal choice in each of them. Be brief, precise & focused in your answers.

SECTION A

S. No.	Give short answers for Q1 to Q5	Marks	CO
Q 1	°API Gravity	4	CO2
Q 2	Characterization Factor(Kuop)	4	CO2
Q 3	Bureau Of Mines Correlation Index (BMCI Value)	4	CO2
Q 4	CO boiler & Waste heat boiler	4	CO3
Q5	Gap & Overlap	4	CO3

SECTION B

Q 6	Give an overview of Indian oil & Gas sector including that of exploration, production, Engineering consultancy project implementation, natural Gas distribution and especially Refining and with reference to the capacity buildup, marketing and overall growth, which the industry has seen during the last two decades.	10	CO1
Q 7	What is understood by solvent extraction process and its role in Petroleum Refinery? Give the overview of the process and applications of the solvent extraction process in Indian Refining Industry.	10	CO3
Q 8	Describe two versions of visbreaking process with their operating conditions. How in general visbreaking and delayed coking processes are different from each other?.	10	CO3
Q9	Describe process configuration, system description and process parameters of various version of hydro processing technology used in refinery. OR Describe various technology blocks in conventional lube refinery and the purpose of each one of them to produce quality LOBS. What are the emerging technology options to manufacture good quality LOBS in high yields from paraffinic crude such as Mumbai high?	10	CO3 CO3& CO4

SECTION-C

<p>Q10. Describe the Chemistry and engineering of Polymerization Process, their groups and types. Give in brief the key fundamentals of Thermodynamics and Reaction Mechanism on the basis of which the process works.</p>	20	CO5
<p>Q11. As a technical manager of a newly commissioned Indian Refinery, mention in brief why and what kind of technologies you would foresee and propose for the production of both fuel products and specialty products for Indian market and their trading globally using a heavy crude with ⁰API of 10-26 and SG 0.89- 1. List the key products having more demand and business prospects and give reasons to justify your proposal.</p> <p style="text-align: center;">OR.</p> <p>Waste treatment and management is the highest priority of the Government of India. Integrated valorization and reclamation of land from the waste dump with possible enhanced mining extraction, valuable materials from both landfill legacy waste and fresh daily waste is cause of serious environmental problems, ranging from local pollution concerns (health, soil and water) and land-use restrictions to global impacts. "Waste dump" in Indian Metros is also a cause of serious environmental problems, ranging from local pollution concerns (health, soil and water) and land-use restrictions to greenhouse-gas emissions. Analysis indicates that apart from Soil and stone this scrap consists of Plastics, packing materials, Rubber, paper wood and approx.15% moisture. Give your views and perspective based on your engineering background and the knowledge of the Petrochemical the probable solutions to convert this malaise into prospects. Make a brief proposal to set up a pilot unit for valorization and management of this legacy waste and waste received by the dump site on Day to day basis. Look at the problem especially from the segregation of Plastic waste out of a composite material for the conversion to fuel products.</p>	20	CO4 CO3 &CO5