

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination Dec 2020

Programme Name: B. Tech APE (Gas)

Semester: V

Course Name : Natural Gas Processing

Course Code : CHGS 3022

Max. Marks: 100

Nos. of page(s) :2

Instructions:

SECTION A (5x6=30)

S. No.	Short Notes	Marks	CO
1	What are selection parameters for sweetening process?	5	CO3
2	Why natural gas is an important feedstock?	5	CO5
3	List different methods of NGL recovery	5	CO4
4	What are materials used for adsorption dehydration?	5	CO2
5	Suggest guidelines for selection of NGL recovery methods	5	CO4
6	What is difference in physical and chemical absorption? List chemical and physical absorption methods used in sweetening processes?	5	CO3

SECTION B (10x5=50)

7	Draw natural gas processing schematic	10	CO1
8	What are typical impurities in natural gas? Why it is important to remove these impurities?	10	CO1
9	Explain methane steam reforming process	10	CO5
10	Describe operating problems in sweetening process	10	CO3
11	Describe NGL fractionation method with flow diagram	10	CO4

SECTION-C (20x1=20)

12 Calculate the circulation rate 98.0% of lean TEG to dry 10^6 std m^3 / day of gas at 7.0 MPa and $40^\circ C$ in six tray absorber (1.5 Theoretical tray) to achieve an exit gas at $90 \text{ kg}/10^6 \text{ std } m^3 / \text{day}$. Inlet water content is $1100 \text{ kg}/10^6 \text{ std } m^3 / \text{day}$ (Given $V=1739 \text{ Kmol/hr.}$, $B= 1.33 * 10^{-6}$, Density of glycol= $1.12 \text{ kg}/m^3$).

Or

Explain glycol dehydration equipment design in detail.

20

CO2

