

Name:  
Enrolment No:



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination Dec 2021

Programme Name: B. Tech APE (Gas)  
Course Name : Natural Gas Processing  
Course Code : CHGS 3022

Semester: V  
Duration: 3 Hrs.  
Max. Marks: 100

Instructions: All questions are compulsory.

### SECTION-A (5x4=20)

S. No.		Marks	CO
1	What are advantages of selexol process?	4	CO3
2	Draw block diagram of value chain of petrochemical products.	4	CO5
3	What are operating problems in glycol dehydration plants?	4	CO2
4	List by products from natural gas processing plant.	4	CO1
5	Suggest guidelines for selection of NGL recovery methods.	4	CO4

### SECTION -B (10x4=40)

6	Draw natural gas processing schematic diagram	10	CO1
7	Describe membrane separation process for NGL recovery	10	CO4
8	Explain Tri reforming process with block diagram.	10	CO5
9	Describe self refrigeration method with flow diagram	10	CO4

### SECTION-C (20x2=40)

10	What is chemical absorption? List chemical absorption methods used for sweetening of natural gas. Explain any one process in detail.	20	CO3
11	0.3x10 <sup>6</sup> std m <sup>3</sup> (10 MMscf/d) of a 0.6 relative density natural gas is to be dehydrated. The wet gas enters saturated at 6.9 MPa (1000 psia) and 38°C (100°F). The vendor proposes a unit composed of 2-76 cm (30 in.) O.D. towers containing silica gel beds 4.57 m (15ft) in length. After allowing for shell and internal insulation thickness, the bed diameter is 64.8cm (25.5 in.). Does this meet company criteria including a gas superficial velocity not exceeding 9.15 m/min (30 ft/min) ? The water content of inlet gas is 1000 kg 10 <sup>6</sup> std m <sup>3</sup> (61 lb/MMscf). Z = 0.88 and bulk density of gel is 721 kg/m <sup>3</sup>	20	CO2

