


Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, April/May 2018

Course: Natural Gas Processing, Modeling and Simulation (PTEG432) Semester: VIII

Program: APE (Gas)
Time: 03 hrs.

Max. Marks: 100

SECTION A (20)

Q1	Write short notes on	20	CO
i)	Physical & Mathematical Modeling	5	CO5
ii)	Types of desiccant used for adsorption	5	CO1
iii)	Storage in depleted oil reservoirs	5	CO4
iv	Operating Problems in glycol dehydration process	5	CO1

SECTION B (40 Marks)

2	Describe general dehydration process with neat flow diagram	10	CO1
3	What are different types of modeling Express mathematical modeling of multistage gas absorption unit.	05 15	CO5
4	An aquifer storage having following data $P_0 = 900$ psia, $h = 100$ ft, $r_b = 2000$ ft, $k = 500$ md, $c = 6 \times 10^{-6}$ psi ⁻¹ , $\phi = 0.16$, $\mu = 1$ cp, $e_w = 60000$ cu ft pore volume /day. Calculate the reservoir pressure at 30, 60, 120, 180 and 300 days after initiation of a gas injection. Assume the aquifer to be infinite an extent and it's performance can be approximated by the radial model.	10	CO4

SECTION-C (Answer any two 40 Marks)

6	Discuss equipment design in Glycol Dehydration unit i) Absorber ii) The Reboiler iii) The still column iv) Filters v) Pumps vi) Inlet separators	20	CO2
7	Derive equation for line pack The average flow conditions through a 12-inch pipeline 60 miles long 40 MMSCFD. The	20	CO4

	gas is delivered at a pressure at pressure 60psia. Minimum flow is 15 MMSCFD. The specific gravity of gas is 0.65 and flow temperature is 60° F. The base conditions 14.7 psia & 60° F. What is storage capacity of pipeline		
8	i) Describe iron oxide sponge process with neat flow diagram	10	CO3
	ii) Describe with flow diagram of split amine Process, what is significance of this process	10	CO3