

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech. (Petroleum Refinery Engineering) (2013 Batch EL-II)
(Sem.-8)**

NATURAL GAS TECHNOLOGY

Subject Code : BTPC-803(A)

M.Code : 74322

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Answer briefly :

- (a) Name the three largest Natural Gas producing Countries.
- (b) What do you understand by Sweet Natural Gas?
- (c) What does cicondentherm signifies?
- (d) What is the primary difference between Dry Gas and Wet Gas?
- (e) State the different methods for inhibition of hydrates.
- (f) In chemical method of inhibition of hydrates, name the primary chemical used for this.
- (g) What is the primary difference between LPG and CNG?
- (h) Which corrosion methods is most abundantly used in the oil & gas industry?
- (i) Name the types of compressors.
- (j) What do you understand by integrated natural gas processing? Briefly explain.

SECTION-B

2. What are the different type natural gas resources? Write briefly.
3. What are the different components for origin of hydrocarbon? Explain with the help of diagram.

4. Write short notes on :
 - (a) Retrograde Condensation
 - (b) Condensate Gas
5. Draw the typical P-T /Phase diagram of crude oil and explain critical point.
6. Write the names of different types of compressors and explain any two of them in detail.

SECTION-C

7. A gas well is producing a natural gas with the following composition

Component	Mole Fraction	Molecular weight
CO ₂	0.04	44.01
C ₁	0.91	16.05
C ₂	0.04	30.07
C ₃	0.02	44.01

Calculate

- a) Apparent Molecular Weight
 - b) Specific Gravity
 - c) Gas Density at 2000 psi and 150°F
8. For the following data given for a horizontal pipeline in Texas, estimate gas flow rate through the pipeline using the Weymouth, Panhandle A, Panhandle B, and Clinedinst equations.

Pipeline ID: 12.09 in

Pipeline length: 100 mi

Temperature: 70 °F

Gas-specific gravity: 0.65

Delivery pressure: 150 psi

Compressor pressure: 500 psi
 9. A gas well is producing at a rate of 10,000 cubic ft /day from a gas reservoir at an average pressure of 2,500 psi and a temperature of 165°F . The specific gravity of the gas is 0.75 and the compressibility factor is 0.97. Calculate the gas flow rate in scf/day.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.