Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Petroleum Refinary Engineering) (2013 Batch EL-II) (Sem.–8)

ENHANCED OIL RECOVERY

Subject Code : BTPC-803(B)

Paper ID : [74323]

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) What is residual oil saturation?

b) What are different types of gas injection method?

c) What are the environmental factors related enhanced oil recoveries?

d) What are the different sources of ignition of *In-situ* combustion?

e) Define sweep Efficiency.

f) What is the principle involved in miscible flooding?

g) Define fire flooding and cyclic steam injection.

h) Explain the significance of Wettability alternation in oil recovery process.

i) What are the advantages of Microbial Enhanced Oil Recovery (MEOR)?

j) What are the factor affecting Microscopic displacement efficiency?

SECTION-B

Q2. Explain chemical flooding, with the screening criteria.

Q3. Explain capillary pressure. Calculate the pressure difference, i.e., capillary pressure, and capillary rise in an oil-water system from the following data:- $\theta = 30°$, $\rho_w = 1.0$ gm/cm^3, $\rho_o = 0.75$ gm/cm^3, $r = 10^{-4}$cm, $\sigma_{ow} = 25$ dynes/cm

Q4. Explain the Environmental Impacts of Miscible CO_2 Injection in oil recovery process.

Q5. Explain Thermal recovery method with diagram.

Q6. Describe water flooding. What is the difference between in water flooding and water injection in oil recovery?

SECTION-C

Q7. Describe primary and secondary methods of oil recovery. What are factors to be considered for water flooding?

Q8. Describe the various types of steam flooding and zones formed in reservoir during its flooding with schematic diagram.

Q9. Explain Microbial enhanced oil recovery (MEOR) method of oil recovery, with its screening criteria.