

Code No: R32272

R10**Set No. 1****III B.Tech II Semester Supplementary Examinations, April - 2018****PETROLEUM RESERVOIR ENGINEERING**

(Petroleum Engineering)

Time: 3 hours**Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Explain the gas material balance and recovery factor [8M]
b) Explain the hydrocarbon phase behavior and calculate the hydrocarbon volumes [7M]
- 2 Definition of the basic PVT parameters and Alternative manner of expressing Complete PVT analysis. [15M]
- 3 a) What is Darcy's law and the material balance expressed as a linear equation [7M]
b) What is field potential and explain radial steady state flow and well stimulation [8M]
- 4 a) Define radial differential equation and its basic derivation [7M]
b) What is Semi steady state solution and its generalized form of inflow equation [8M]
- 5 a) Explain the constant terminal rate solution in detail [7M]
b) Explain the approximate water influx theory of Fetkovich for finite aquifers predicting the amount of water influx [8M]
- 6 The oil and gas rates, measured at a particular time during the producing life of a reservoir are, x stb oil/day and y scf gas/day. [15M]
1) What is the corresponding underground withdrawal rate in reservoir barrels/day.
2) If the density of the oil at standard conditions is 52.8 lb/cu.ft and the gas gravity is 0.67 (air = 1) calculate the oil pressure gradient in the reservoir at 2400 psia.
- 7 a) Explain the solution technique of the Al Hussainy, Ramey Crawford solution techniques [9M]
b) Explain the concept of Pressure build up analysis in solution gas drive reservoirs [6M]
- 8 a) Explain the unsteady state water influx theory of Hurst and Van Everdingen and give its application [10M]
b) Explain about the water influx theory of Fetkovich [5M]
