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Total No. of Pages : 03

Total No. of Questions : 09

B.Tech.(Petroleum Refinary Engineering) (2013 Batch)   (Sem.–5)

RESERVOIR ENGINEERING – II

Subject Code : BTPC-505

Paper ID : [72658]

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.** http://www.punjabpapers.com

SECTION-A

1. **Answer briefly :**

   a) What do you understand by overburden pressure?

   b) In solution drive mechanism, what does solution represents?

   c) State the range of oil recovered by water drive mechanism?

   d) Under which stage of recovery (Primary, Secondary & Tertiary), water-flooding comes?

   e) Give any three purpose of Material Balance Equations (MBR)?

   f) What is the main objective of RFT testing?

   g) What is reservoir management? Define.

   h) What do you comprehend by un-steady state flow?

   i) Mark LTR, ETR and MTR on the graph given.
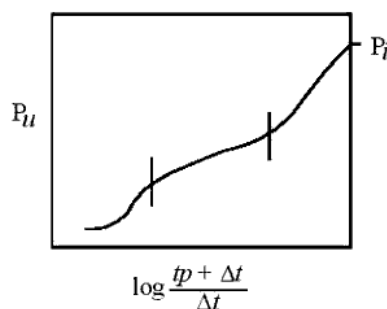
j) Why packers are used in DST tools?

SECTION-B

2. Explain in detail the working of gravity drainage drive mechanism in a reservoir.

3. Write a short note on depletion drive mechanism.

4. If a well is producing at a rate of 250 STB/Day and the permeability of the well formation is 7.65 md. What will be the 'slope' (m) of the drawdown well test data plotted on the semi-log graph? Use, B =1.136, μ = 0.8. cp and h = 70ft.

5. Illustrate the Ramey's type curve step wise use for the analysis of well test with required equations? http://www.punjabpapers.com

6. What is the behaviors of gas encountered while production? Explain in detail.

SECTION-C

7. Derive diffusivity equation for radial flow reservoirs.

8. The pressure buildup data from an oil well with an estimated drainage radius of 2640 ft. Before shut- in, the well had produced at a stabilized rate of 4900 STB/day for 310 hours. Known reservoir data is :

h = 10476 ft, r_w = 0. 354 ft, c_t = 22.6 × 10-6 psi-1

Q_o = 4900 STB/D, h = 482 ft, p_{wf} (_t = 0) = 2761 psig

μ_o = 0. 20 c 3, B_o = 1 55 bbl/STB, ϕ = 0.09

t_p = 310hours, re = 2640ft

Calculate :

   a) The average permeability k;

   b) The skin factor ;

Shut-In Time, Δt, hr

Bottom Hde Pressure, Pws. psi

$p_1 hr = 3266$ PSIG
ESTIMATED
END OF STORAGE

SLOPE= –m
–40 PSIG/CYCLE

$(tp + \Delta t)/\Delta t$
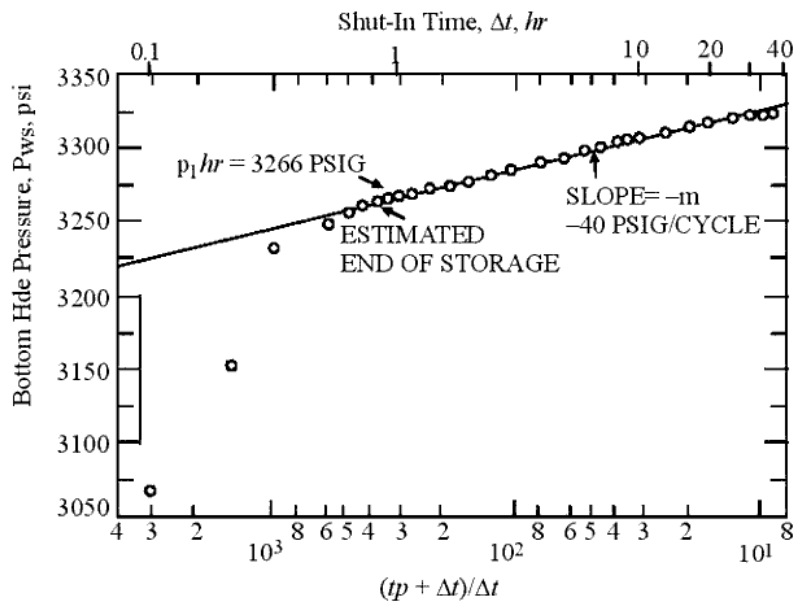
9. Draw the schematic of Drill-stem test pressure graph, explain each stage of the graph in detail.
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