Code No: **RT41274**   **R13**   **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February/March - 2018
PETROLEUM RESERVOIR ENGINEERING - II
(Petroleum Engineering)

Time: 3 hours   **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1.	a)	Write the initial and boundary conditions for semi steady state flow conditions	[4]
	b)	What is CRD analysis? Give its applications in well testing	[4]
	c)	Explain about pressure buildup analysis	[4]
	d)	What is an infinite aquifer?	[3]
	e)	What is One dimensional displacement?	[4]
	f)	Write a short note on CBM	[3]

PART–B *(3x16 = 48 Marks)*

2.	a)	Explain about Bron's Pressure build up analysis by defining each expressions	[8]
	b)	Briefly explain about Isochronal test in gas wells with neat sketches.	[8]
3.	a)	Derive the basic differential equation in flow through porous medium	[8]
	b)	Discuss about CRAWFORD SOLUTION TECHNIQUE in detail	[8]

4. a) Estimate the production rate of a gas well when the average reservoir pressure is 2728 psia and the flowing wellbore pressure is maintained at 2660 psia. The following reservoir and fluid properties are known:
k= 5 md, h= 35 ft., rw= 0.5 ft., re= 2640 ft., μ= 0.018 cp, z= 0.87, T= 200°F, s= -0.3 , D = 0.015 (MMSCF/day)$^{-1}$
What is the effect of non-Darcy (turbulent) flow on well performance? [8]

   b) Explain the importance of injection well testing in detail [8]

5. a) Using the Fetkovich method, calculate the water influx as a function of time for the following reservoir–aquifer and boundary pressure data:
Pi = 2760 psi, h = 100 ft, ct = 7×10^{-6} psi−1, μw = 0. 55 cp, k = 200 md, θ = 140° Reservoir area = 40 363 acres, aquifer area = 1 000000 acres.

Time, days	P_r, psi
0	2740
365	2510
1095	2119
1460	1949

[12]

   b) Write a brief note on steam soaking [4]

6.	a)	Derive the fractional flow equation for oil displacement	[8]
	b)	Explain about Displacement in stratified reservoir.	[8]
7.	a)	Derive the material balance equation for conventional gas reservoirs	[8]
	b)	Explain about Tight gas reservoirs in detail	[8]