جامعة مصراته
كلية الهندسة
ربيع 2016/2015
القسم : هندسة النفط
الأمتحان النهائى لمقرر طرق الأسترداد الأضافى / هـ ن 529
الزمن : 3 ساعات
أستاذ المقرر : عبدالباسط على أبورويص
أسم الطالب : .....
رقم الطالب : .....

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Answer all questions:-

Question No.1 (10 marks).

I. Show the target and path of EOR?
II. Why the recovery factor is different for different oil reservoirs?
III. What are the basic methods of enhanced oil recovery?
IV. What are the reasons keep the water flood is a widely used for enhance oil recover?
V. Define producing reserves by energy source criteria?

Question No.2

(10 marks).

What are the types of decline curve analysis, how can be characterized, also list the assumptions for analysis?

II- A field is expected to produce (G) = 817 BSCF, and the cumulative production (Gp), had been 659 BSCF. The initial rate is estimated to be 80 MMSCFD and the economic rate = 20 MMSCFD. Determine the life of the field and calculate the annual production

Question No.3

(10 marks).

I- Why the water flooding called secondary recovery method?
II- Why the secondary recovery methods are not enough to recover hydrocarbon remaining in the reservoir?

III- List the benefits of application water injection for pressure maintenance?

IV-When should be start of E.O.R projects?
V- Explain the of a reservoir's life cycle?

Question No.4

(10 marks)

I. How can be monitoring performance of the water injection?
II. Why the secondary recovery methods are needed?
III. Describe the types of water flood / injection to improve oil recovery?
IV. What are the types of patterns / models for water floods?
V. Write all the steps of water flood design?

Question No.5

(10marks)

I- Explain the overview of the flood processes?

II- Define the Voidage replacement ratio, and what are the steps to estimate the daily injection rate, estimate the daily injection rate for pressure maintenance Estimate the average daily injection rate of (2) injection wells as following data:-

Sector NO.	Oil (STBOPD)	GAS ,MMSCFD	Water ,STBOPD	Inj. Water, BBLs/D
1	9540	10972	5824	18610
2	7844	9116	9289	16788

Oil FVF = 1.58 RB/ST, reservoir pressure = 2000 psia, reservoir temperature = 130 ^{o}F.Z = 0.828,B_w= 1.00 RB/STB, & RS = 897 SCF/STB.

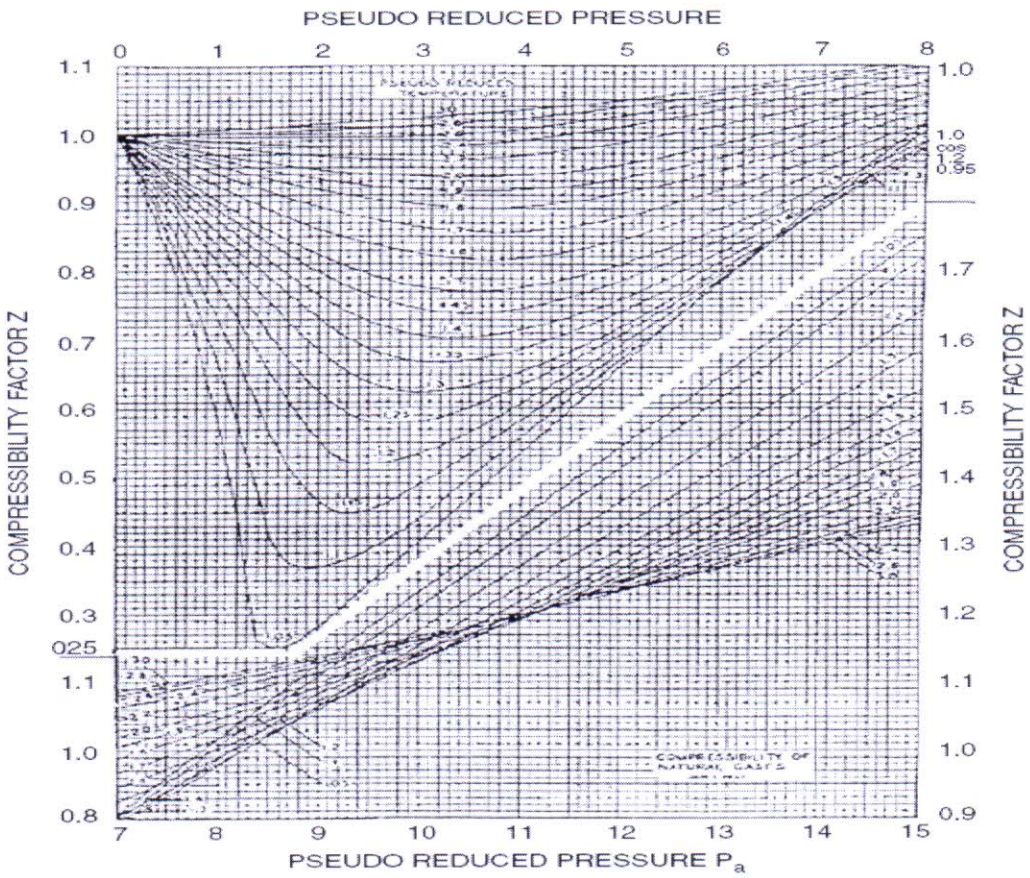

Figure 1-2. Compressibility of natural gases as a function of reduced pressure and temperature (Standing and Katz, 1942).