

Answer all questions:

Question No.1

- I- Explain the basic methods of enhanced oil recovery?
II- Define producing reserves by energy source criteria?
III- What is the reservoir's life cycle?
IV- List the classification of decline curves and what can be characterized? (10marks)

Question No.2

I-A field is expected to produce $(G) = 817$ BSCF, and the cumulative production (G_p) , 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.

II- Define the economic limit, and determine the economic limit for a well using the following :
Net price of STB oil = 20 \$ and estimated direct operating cost at economic limit = 4000\$/month. (10 marks).

Question No.3

- I- List the producing mechanism for primary depletion and water flood?
II- Why conduct a water flood?
III- What are the reasons for the successes of water flooding?
IV- Write the objectives of water flood design? (10marks)

Question No.4

- I- What are the water flood pattern and well spacing ?
II- Write all the equations of estimated of the injection rate of water flood pattern?
III- 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	5842	18610
2	7844	9116	9289	16788



Oil FVF = 1.58 RB/ST, reservoir pressure = 2000 psia, reservoir temperature = 130 °F. $Z = 0.828$, $B_w = 1.00$ RB/STB, & $RS = 897$ SCF/STB. (10marks)

Question No.5

I- What are the tertiary recovery methods?

II- What are the properties of heavy oil?

III- What are the reservoir properties been required for enhanced oil recovery?

IV- What are the laboratory tests which are important for enhanced oil recovery? (20 marks)

Good Luck