

أجب عن جميع الأسئلة

Question One: (15 Marks)

Choose the correct answer:

- Open hole completion should be applied only in:*
(a) Consolidated formations (b) Unconsolidated formations (c) Both answers a & b
- The principle purpose of using screen or pre – slotted liner is:*
(a) To prevent sand production (b) To protect the well from collapsing (c) To prevent corrosion
- The main disadvantage of using a casing tubingless flow conduit is:*
(a) Minimizes cost (b) Fast and simple (c) Large flow area
- The main advantage of using tubing flow with annular isolation:*
(a) Not providing circulation (b) Maximum well security and control (c) Both answers a & b
- A well having a total depth of 8,000 ft, pore fluid density at total depth is 8 ppg, surface casing shoe at 3000 ft, pore fluid density at shoe depth is 7.5 ppg, gas gradient is 0.1 psi/ft, and the Leak off test (LOT) is 2500 psi. The appropriate intermediate casing to be installed is:*
(a) 13 3/8” P – 110 85 lb/ft collapse load 4690 psi burst load 8750 psi
(b) 13 3/8” K – 55 109 lb/ft collapse load 2560 psi burst load 3950 psi
(c) 13 3/8” P – 110 98 lb/ft collapse load 7280 psi burst load 9350 psi

Question Two: (15 Marks)

- Explain the concept of perforation? And with drawing show the basic components of a shaped charge.
- Using sketches show the shape of a perforated interval with 4 shots per foot and 0° and 90° phasing.
- Define formation damage and draw the effect of formation damage on well inflow pressure profile?

بأقرب الأسئلة خلف الصفحة



Question Three: (15 Marks)

1. A well with a radius of 0.328 ft is completed in a 33-ft reservoir. Only 8 ft are completed and the midpoint of the perforations is 29 ft above the base of the reservoir. Calculate the skin effect due to partial completion for a vertical well? What would be the skin effect if $\theta = 60^\circ$?

Use the following formulas:

$$h_D = h/r_w \quad \text{elevation ratio} = z_w/h \quad \text{completion ratio} = h_w/h$$

2. A well has a radius of 0.328 ft is perforated with 2 SPF, perforation radius is 0.021 ft, perforation length is 0.667 ft, and $\theta = 90^\circ$. Calculate the perforation skin effect if $k_h/k_v = 10$?

Use the following formulas:

$$s_H = \ln \frac{r_w}{r'_w(\theta)} \quad r'_w(\theta) = \begin{cases} \frac{l_{\text{perf}}}{4} & \text{for } \theta = 0 \\ a_\theta (r_w + l_{\text{perf}}) & \text{for } \theta \neq 0 \end{cases} \quad h_D = \frac{h_{\text{perf}}}{l_{\text{perf}}} \sqrt{\frac{k_H}{k_V}} \quad r_D = \frac{r_{\text{perf}}}{2h_{\text{perf}}} \left(1 + \sqrt{\frac{k_V}{k_H}} \right)$$

$$s_V = 10^a h_D^{b-1} r_D^b \quad b = b_1 r_D + b_2 \quad r_{wD} = \frac{r_w}{l_{\text{perf}} + r_w} \quad s_{wD} = c_1 e^{c_2 r_{wD}}$$

Table 5-3

$$a = a_1 \log r_D + a_2$$

Constants for Perforation Skin Effect Calculation^a

Perforation Phasing	a_0	a_1	a_2	b_1	b_2	c_1	c_2
0° (360°)	0.250	-2.091	0.0453	5.1313	1.8672	1.6E-1	2.675
180°	0.500	-2.025	0.0943	3.0373	1.8115	2.6E-2	4.532
120°	0.648	-2.018	0.0634	1.6136	1.7770	6.6E-3	5.320
90°	0.726	-1.905	0.1038	1.5674	1.6935	1.9E-3	6.155
60°	0.813	-1.898	0.1023	1.3654	1.6490	3.0E-4	7.509
45°	0.860	-1.788	0.2398	1.1915	1.6392	4.6E-5	8.791

Question Four: (15 Marks)

- A. Explain how matrix acidizing helps improving the permeability in damaged zone near the wellbore and therefore improving the productivity of the well? What are the basic acid types used for well acidizing?
- B. Explain how hydraulic fracturing helps improving the productivity of the well? List the steps involved for hydraulic fracturing application?
- C. What is the importance of sand control? What are the main causes for sand production?
- D. List the sand control techniques used for different types of well completion? Give one advantage and one disadvantage for using gravel packing as a sand control method?

انتهت الأسئلة