MUSRATA UNIVERSITY
PETROLEUM ENGINEERING DEPARTMENT
WELL COMPLETION

Final Exam
Academic Year: 2013/14
Time 3 hrs

ANSWER ONLY THREE QUESTIONS

QUESTION ONE **(20 MARKS)**

1- What are the Completion Fluid requirements To avoid damaging the formation?
2- Temperature is one of the factors govern the reaction rate of an acid, talk about this factor in brief?
3- What are the corrosion Inhibitors and their main functions while Acidizing?

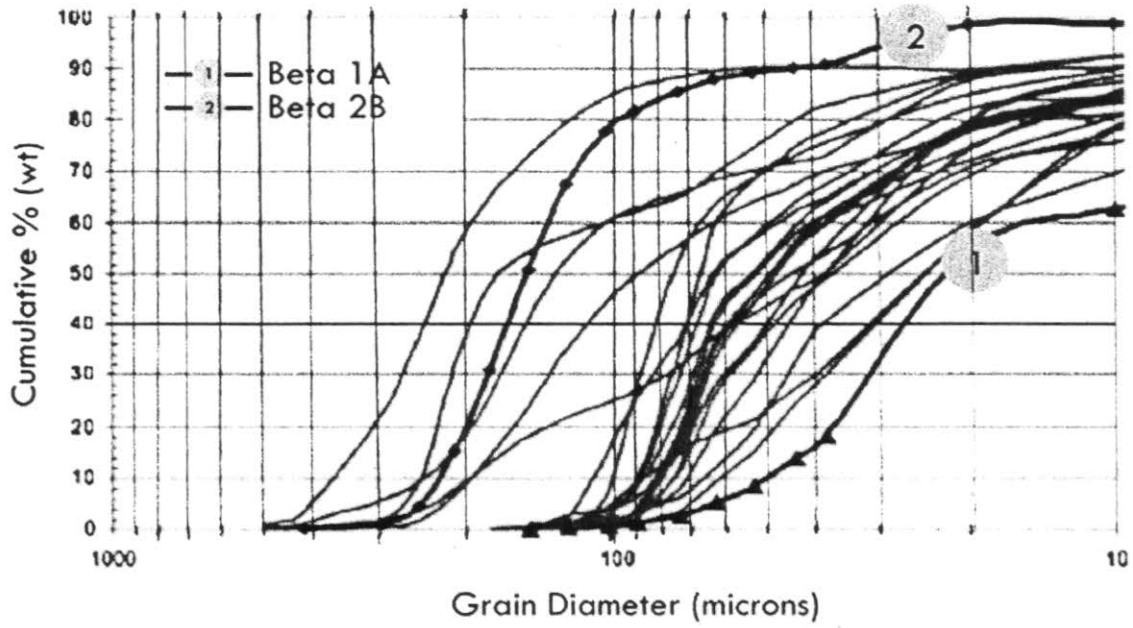
QUESTION TWO **(20 MARKS)**

1- What are the main advantages and Disadvantages: of gravel packing?
2- What are the four main factors (know as geometric factors) in order to achieve optimum perforation of a particular reservoir?
3- Describe Underbalanced perforation operations and what is the advantage of this process?

QUESTION THREE **(20 MARKS)**

1- what are the problems that might occur along the wellbore and production tubing, through the wellhead and surface lines because of Sand production?
2- Using Saucier formula to select the gravel sized and the recommended gauge screen for Sand 2 shown in the following Figure?

Particle Size Distribution of Formation Sand



Gravel Size	Size Range	80% of the smaller grain diameter	Recommended Screen Gauge
(US Mesh)	(inches)	(inches)	
6/10	0.1320-0.0787	0.06296	60
8/12	0.0937-0.0661	0.05288	50
10/20	0.0787-0.0331	0.02648	20
12/20	0.0661-0.0331	0.02648	20
16/30	0.0469-0.0232	0.01856	18
20/40	0.0331-0.0165	0.01230	12
40/60	0.0165-0.0098	0.00784	6
50/70	0.0117-0.0083	0.00664	6

QUESTION FOUR **(20 MARKS)**

1- 95/8" casing is set at 13 800 ft in a 121/4" diameter hole drilled to a depth of 13 810 ft. 133/8" diameter casing is set at 6 200 ft.
Assume gauge hole and add 20% excess in open hole.
Allow Top of Cement(TOC) to be 3 000 ft above 95/8" shoe
The casing is to be cemented with Class G cement with the following
Shoe track = 60 '
Rat hole = 10 '
additives:

0.2% D13R (retarder) and 1% D65 (friction reducer) of neat cement
Slurry weight = 15.9 ppg (118 lb/ft3)
Slurry yield = 1.14 ft3/sack
Mix water = 4.96 gal/sack

Determine the following

1. Volume of cement required and number of sacks
3. Mix water requirements
4.the quantity of the additives required

2- What are the Key Design Parameters during completion fluid design ?

THE END

ABUBAKER TLAIBA