P1106

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B.E. (Petroleum Engg.)
c - WELL CONTROL METHODS
(Elective - IV) (2008 Course) (Semester - II)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) Answers to the two sections should be written on separate answer books.

2) Neat diagrams must be drawn wherever necessary.

3) Figures to the right indicate full marks.

4) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

5) Assume suitable data, if necessary.

SECTION - I

Q1) a) Discuss Leak off test in detail. Calculate the following with the data given below. **[12]**

Well depth = MD 15150ft, TVD 13,900ft, casing shoe measured depth = 11,100ft, Casing shoe true vertical depth = 10,100ft, casing shoe leaked with 10 ppg mud at = 1800 psi.

i) Maximum allowable mud weight.

ii) New MAASP with 11 ppg mud.

iii) Casing shoe fracture strength.

b) Discuss pore pressure prediction by D exponent in detail. **[6]**

Q2) a) Calculate mud required to fill the hole per stand when pulled dry and wet

Data given:

Drill pipe capacity = 0.0176 bbls/ft,

Drill pipe displacement = 0.0082 bbls/ft,

Average length of stand = 93 ft. **[6]**

b) Discuss Volumetric method in detail. **[10]**

Q3) a) Discuss BOP accumulator system with suitable sketch.

b) Discuss Kick indications and soft shut in procedure.

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SECTION - II

Q4) a) Discuss drillers method in detail. Discuss advantages and disadvantages of driller's method and wait and weight method. **[10]**

b) Calculate Kill mud weight , ICP, FCP **[6]**

Data:

SIDPP 200 PSI, SICP = 300 Psi, Mud weight used for drilling 10 ppg, well depth 10,000ft.

Q5) Write short notes on: **[18]**

a) Snubbing.

b) Well control in Multilateral wells.

c) Unusual situations in well control.

Q6) a) Draw Subsea BOP stack and discuss pressure test. **[8]**

b) Accumulator bottle capacity = 10 gallons

Number of bottles = 15

Maximum operating pressure = 3000psi

Minimum operating pressure = 1200 psi

Pre charge pressure = 1000 psi

During function the pressure drops from 3000 psi to 1800 psi. How many gallons of fluid did that function use? **[4]**

c) Write note on Underground blow out in brief. **[4]**

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