PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 30 | Max Time: 55Mins | Weightage: 15 % | **Set A**

TEST 3

II Semester 2016-2017 | Course: **PEA 210 Oil and Gas Well Drilling Technology** | 21 April2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

(5Q x 2 M= 10 Marks)

1. Briefly define about the fishing tools used in oil and gas well drilling technology..
2. What are the Drilling fluid related challenges in OGWDT?
3. Define kick and its causes in OGWDT?
4. What is SIDPP and SICP.?. Explain.
5. Complete the formula Δp_c =?

Part B

(2 Q x 5 M= 10 Marks)

1. Draw and explain the following fishing Tools: (a)Over shot (b) Taper tap (c) junk basket (d) Fishing Magnet
2. Explain the Bore hole stability and Lost circulation in detail with a suitable diagram. .

Part C

(1Q x 10 M= 10 Marks)

1. (a)How the Kick influx rate q is calculated for kick?
   (b)Explain the Delta flow system with a neat diagram.
   (c) Explain the Hard shut-in and Soft shut-in procedures with a diagram for kick detection and control.

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Max Marks: 30 | Max Time: 55Mins | Weightage: 15 % | **Set A**

TEST 2

II Semester 2016-2017 | Course: **PEA 210 Oil and Gas Well Drilling Technology** | 24 March 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

Part A

(5Q x 2 M= 10 Marks)

1. Brief the Energy balance and the generalized flow system in a Pipe.
2. Define (a) Tobermorite Gel (b) Types of Cement additives.
3. Determine HHP of a Pump out putting 250 gpm at 2500 psi.
4. Draw the schematic diagram of Advanced Piston Corer and its parts in Coring technology.
5. Brief on Parasitic pressure loss in the HHP(hydraulic horse power) calculations.

Part B

(2 Q x 5 M= 10 Marks)

1. Determine the pressure at the bottom of the drill collars,if: ΔP_b=**1100 psi** q=325 gal/min ρ=11.5 lbm/gal D_2=8500 ft D_1=2000 ft ID_{DC}=1.2 in Δp_b=2000 psi p_1 = 500 psi

2 (a) Write down the API test Procedures for Cement Testing.

(b).Total Pump Pressure=?

Part C

(1Q x 10 M= 10 Marks)

1. (a)Explain the following Rheological models.
   (i) Newtonian (ii) Bingham Plastic (iii) Power – Law (iv) API Power-Law
   (b) Explain the application of Horizontal and Directional drilling in oil and and gas well drilling.

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 30 Max Time: 55Mins Weightage: 15 % **Set A**

TEST 1

II Semester 2016-2017 Course: **PEA 210 Oil and Gas Well Drilling Technology** 25 February 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

(5Q x 2 M= 10 Marks)

1. Define the following: (a) Well planning (b) BOP (c) ECD

2. Explain about the classification of drill Bits as per IADC and it's design criteria.

3. Determine the pore pressure of a normally pressured formation in the West Africa region 7500 depth. (Pore pressure for West Africa region is 0.442 psi/ft).

4. Determine the drilling cost in dollars per foot from the following data's:
   Well depth= 8200 ft(when bit is pulled) :Bit costs= $1200 : Average Rig costs=$ 200/hr
   Rotating time=75 hr : Round trip time=12 hr : Footage per bit= 1,300 ft

5. What are the Rig types employed in oil and gas well drilling technology?

Part B

(2 Q x 5 M= 10 Marks)

1. Draw and explain the operation of Hoisting and Circulation system of Rotary Rig.
2. Explain the different types of casing design systems employed in oil and gas well drilling with a neat diagram.

Part C

(1Q x 10 M= 10 Marks)

1. Draw the Detailed Schematic diagram of Rotary Drilling Rig and explain the Rig parts and its components.