ROLL NO:	

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY, BENGALURU

SCHOOL OF ENGINEERING

Weightage: 20% Max Marks: 20 Max Time: 1 hr. Tuesday, 25th September, 2018

TEST – 1

Odd Semester 2018-19 Course: **PET 304 Reservoir Geomechanics** V Sem. Petroleum

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Instruction:

(i) Read the question properly and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and Non-programmable calculators are permitted.

Part A

(2 Q x 3 M = 6 Marks)

1. Describe (a) Faults, and (b) Joints with suitable diagrams.
2. Explain behavior of rocks with increasing stress and strain.

Part B

(2 Q x 4 M = 8 Marks)

3. Discuss use of Geomechanics for increasing reservoir performance.
4. How is the knowledge of Reservoir Geomechanics used for Shale Gas exploitation?

Part C

(1 Q x 6 M = 6 Marks)

5. Demonstrate (a) Elastic, (b) Ductile, and (c) Brittle behavior of rock with suitable example.

ROLL NO:

PRESIDENCY UNIVERSITY, BENGALURU

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TEST 2

Odd Semester: 2018-19 | **Date**: 28 November 2018

Course Code: PET 304 | **Time**: 1 Hour

Course Name: Reservoir Geomechanics (DE) | **Max Marks**: 20

Branch & Sem: PET & V Sem | **Weightage**: 20%

Instructions:

(i) Read the question properly and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and Non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **two** marks. (3x2=6)

1. Write the causes of pore pressure formation.
2. List the indicators of stress orientation in earth's crust.
3. What will happen if the magnitude of least principle stress exceeding pore pressure?

Part B

Answer **all** the Questions. **Each** question carries **three** marks. (2x3=6)

4. Explain the sources responsible for stress in the crust.
5. How to measure (a) Young's Modulus, (b) Poisson's Ratio and (c) Shear Modulus.

Part C

Answer **all** the Questions. **Each** question carries **four** marks. (2x4=8)

6. How to compute minimum horizontal stress (S_{hmin})?
7. Describe relation between 'Relative Stress Magnitudes' and 'Faulting Regimes'.

Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

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END TERM FINAL EXAMINATION

Odd Semester: 2018-19 | **Date**: 29 December 2018

Course Code: PET 304 | **Time**: 2 Hours

Course Name: Reservoir Geomechanics (DE) | **Max Marks**: 40

Programme & Sem: PET & V Sem | **Weightage**: 40%

Instructions:

(i) Question paper consists of 3 parts.

(ii) Read the question properly and answer accordingly.

Part A

Answer **all** the Questions. **Each** question carries **three** marks. (4Qx3M=12)

1. What is 'Wellbore imaging'?
2. How caliper logs are used to determine breakout orientation?
3. Discuss about the sources responsible for stress in the crust.
4. How is 'Earthquake focal mechanism' related to stress field?

Part B

Answer **both** the Questions. **Each** question carries **six** marks. (2Qx6M=12)

5. (a) Why drilling-induced tensile fractures occur in vertical well?
   (b) Explain 'Thermal effects' on different stresses
6. How chemical interactions between drilling mud and clay-rich rocks can affect wellbore failure?

Part C

Answer **both** the Questions. **Each** question carries **eight** marks. (2Qx8M=16)

7. 'When pore pressure is sub-hydrostatic, normal faulting occurs at a value of least principal stress that is lower than would be found at higher pore pressures' – Explain with suitable field example.
8. What is a stable well? How wellbore instability can be prevented during drilling?