ROLL NO.	

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 80 | Max Time: 120 Mins | Weightage: 40 %

ENDTERM FINAL EXAMINATION

I Semester AY 2017-18 | Course: **PET 304 GEOPHYSICS AND GEOMECHANICS** | 22 DECEM 2017

Instructions:

i. Write legibly

ii. Scientific and non programmable calculators are permitted

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Part A

[6 Q x 5 M= 30 Marks]

1. How does geomechanics add value in petroleum industry?

2. Why is the knowledge of geomechanics important for exploitation of shale gas, tight gas and tight oil?

3. List the geomechanical data and their sources require to build a geomechanical model.

4. Explain the reasons behind borehole failure to constrain the stress state.

5. Why understanding of stress is important for geomechanical model? List sources of stress in the crust.

6. Define vertical stress. How vertical stress can be calculated in the field?

Part B

[2 Q x 15 M = 30 Marks]

7. How can geomechanical model be applied during different stages like exploration, exploitation, drilling and completion in a hydrocarbon reservoir?

8. Define pore pressure and mention the causes of pore pressure. What do you mean by ‘overpressure’ and ‘underpressure’? Discuss why pore pressure estimation is important.

Part C

[2 Q x 10 M = 20 Marks]

9. Describe how the least principal stress (S_{hmin}) can be estimated from XLOT.

10. Explain how Anderson’s classification of relative stress magnitudes can be used to define different stress regime.

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Max Marks: 40 | Max Time: 60 Mins | Weightage: 20 %

TEST 2

I Semester AY 2017-2018 Course: **PET 304 Geophysics & Geomechanics** 28 OCT 2017

Instructions:

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

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Part A

(3 Q x 4 M = 12 Marks)

1. List the components used for Geomechanical Model.

2. Name the physical factors control type of deformation of rock at depth.

3. Mention the precautions to be taken during SP surveys.

Part B

(3 Q x 6 M = 18 Marks)

4. Explain resistivities of rocks and minerals with neat diagram.

5. What do you mean by (a) Elastic, (b) Ductile, and (c) Brittle behavior of rocks?

6. Explain behavior of rocks with increasing stress and strain.

Part C

(1 Q x 10 M = 10 Marks)

7. Briefly discuss why the role of geomechanics in petroleum industry.