



PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 30

Max Time: 55 Mins

Weightage: 15 %

Set A

TEST 3

II Semester 2016-2017

Course: PE A 208 Applied Geology 2

20 April 2017

Instructions:

- i. Write legibly
-

Part A

(5Q x 2M = 10 Marks)

1. Define a trap.
2. What are the necessary requirements for a petroleum reservoir to exist?
3. What are the theories involved in origins of oil and gas?
4. Classify stratigraphic traps.
5. Define a combination trap.

Part B

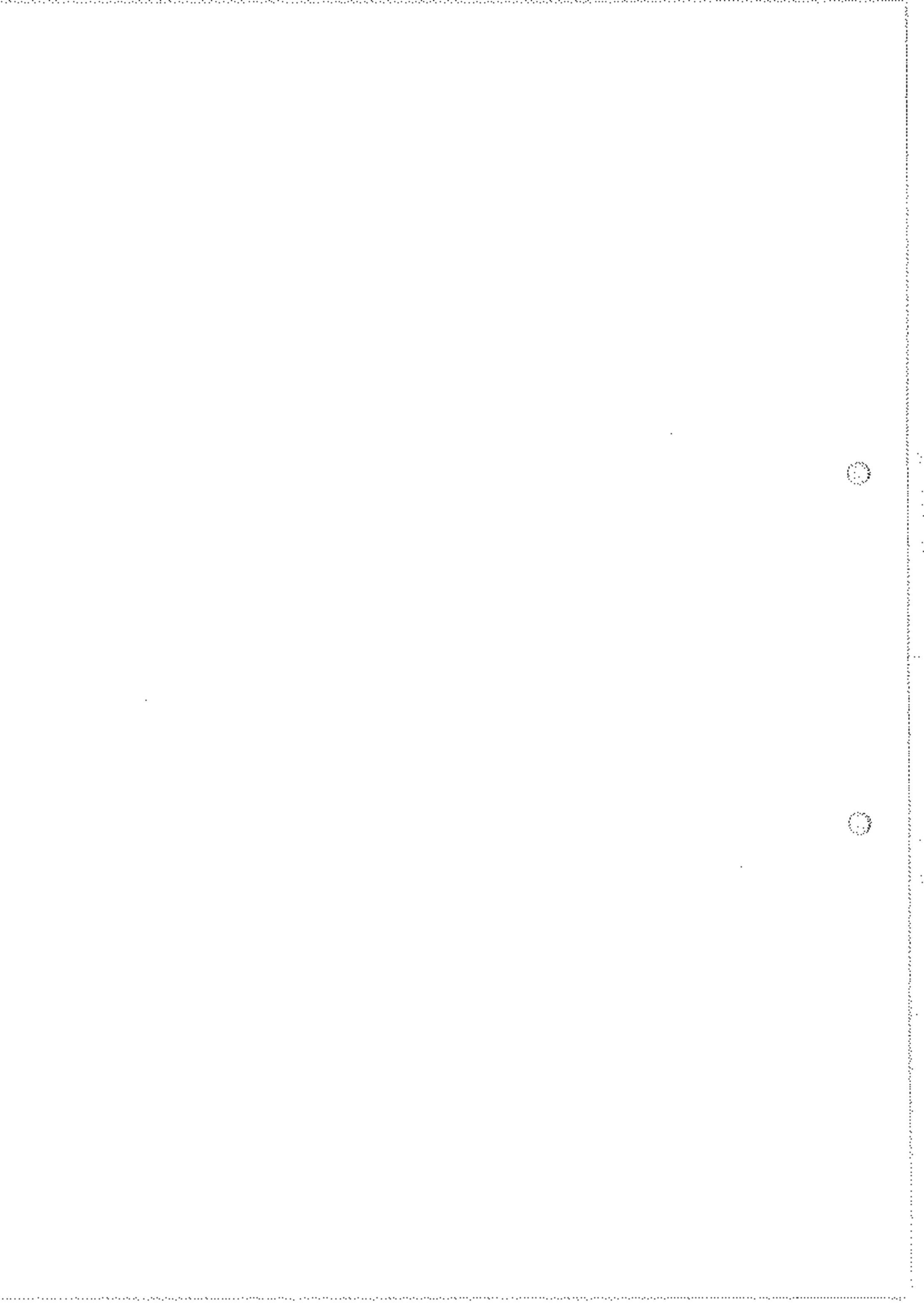
(2Q x 5M = 10 Marks)

6. What are the factors required for hydrocarbons to be formed in a fold trap?
7. Describe organic theory for formation of oil and gas.

Part C

(1Q x 10M = 10 Marks)

8. What are the classification of traps?





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Set A

TEST 2

II Semester 2016-2017

Course: PE A 208 Applied Geology 2

23 March 2017

Part A

(4Q x 3M = 12 Marks)

1. What are absolute pressure, vacuum pressure and gauge pressure?
2. Write any three physical properties of water.
3. Classify the chemical composition of oil field waters.
4. What types hydrocarbons are found in crude oil?

Part B

(2Q x 5M = 10 Marks)

5. What are the effects of heat in the earth's crust?
6. Briefly describe the sources of data on reservoir fluids.

Part C

(1Q x 8M = 8 Marks)

7. The block DA-NN-223/7 is an onshore block located in south-western part of the Permian Basin, USA. The block was awarded to the consortium of Conoco Phillips and Stat Oil with Conoco Phillips as Operator. The JV has made two discoveries in the block in two early Cretaceous sandstone sequences, the Delaware Formation sandstones and the deeper Midland Formation sandstones. The Midland basin was filled with sediments somewhere over 270 million years ago. The first discovery well - B1/E was drilled based on 3D seismic data in year 2003. Well-A encountered both the Delaware Formation and the Midland Formation sandstone reservoir units at depths shallower than 2500 ft. It was observed that the system has a cap rock formed with evaporites including salts and gypsum.

Both these Cretaceous sandstone packages are very low permeability. Permian aged sandstone rocks with shallow and deep marine sedimentation acted as a source rock. Petrography of core material coupled with routine core analysis demonstrates that a combination of mechanical compaction and clay authigenesis have dramatically reduced porosities and permeability. However, the quality of discovered oil is excellent, being light 43° API crude with excellent mobility. The Delaware Formation sands were deposited as turbidites in marine embayment and are separated by a low impedance shale unit overlying the very thick Midland Formation sandstones which are interpreted from the limited core data available as fluvial deposits and are comparatively tighter than the shallower Delaware Formation sandstones. The oil is highly volatile and very light with GOR 4200 scf/bbl.

Deduce the paragraph for information regarding the petroleum system.



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Set B

TEST 1

II Semester 2016-2017

Course: PE A 208 Applied Geology 2

23 February 2017

Instructions:

- i. Write legibly

Part A

(4Q x 3M = 12 Marks)

1. Define
 - a. Pool
 - b. Field
 - c. Province
2. Define Porosity and Permeability.
3. Illustrate a reservoir rock.
4. Define source rock.

Part B

(2Q x 4M = 08 Marks)

5. Define and explain the following terms
 - a. Eon
 - b. Era
 - c. Period
 - d. Epoch
 - e. Age
6. Illustrate the terms: Absolute Permeability, Effective Permeability and Relative Permeability.

Part C

(1Q x 10M = 10 Marks)

7. Explain the types of kerogen.