



NATIONAL OPEN UNIVERSITY OF NIGERIA

Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja

Faculty of Science

JULY 2017 EXAMINATION

COURSE CODE: 311

CREDIT UNIT: 2

COURSE TITLE: PETROLEUM CHEMISTRY

TIME: 2 HRS

INSTRUCTION: Answer question 1 and any other 3 questions

1. (a) i. State the uses of each fractions of Natural Gas Liquid? 4mks
ii. Briefly explain the following terms and state their respective significance.
 - I. American Petroleum Institute Gravity 2mks
 - II. Specific Gravity of crude Oil 2mks
 - III. Ash content of crude 2mks
- (b) i. State the parameters for accurately calculating the Stock Tank Original Oil In Place 4mk
ii. Explain the term Formation Volume Factor (FVF) 3mks
- (c) With respect to oil sector in Nigeria;
 - i. Explain in detail the term Downstream 4 ½ mks
 - ii. State the problems associated to Downstream 2mks
 - iii. In what areas is government influencing the Downstream sector 1 ½ mks
2. (a) Explain with appropriate equation how Hydrogen cyanide is produced using the Andrussaw process and Degussa process. 8mks
(b) State Four (4) physical properties of hydrogen cyanide. 4mks
(c) Briefly discuss the term Stratigraphic Traps. 3mks
3. Write short note on the following:

Water injectors	3mks
Appraisal wells	1mk
Acquifer producer	3mks
Exploration well	1mk
Development well	1mk
Gas injectors	2mks
Production well	2mks
Oil producer	1 ½ mks
4. (a) In a tabular form, show the important characteristics of a representative liquefied natural gas mixture. 6mks
(b) What are hydrates in natural gas? 5mks
(c) In what way can moisture be removed in natural gas and why? 4mks

5. (a) Highlight the characteristics that will make a catalyst desirable for fluid catalytic cracking. 5mks
- (b) Explain what is meant by Stranded Gas Reserve? 3mks
- (c) Give economic reasons that could make a gas reserve to be stranded. 4mks
- (d) Using equation only show the oxidation of Paraffin to Fatty acid. 3mks