



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY,**  
**JABI - ABUJA.**  
**FACULTY OF SCIENCES**  
**DEPARTMENT OF CHEMISTRY**  
**2024\_2 EXAMINATION**

**COURSE CODE: CHM 311**

**COURSE TITLE: PETROLEUM CHEMISTRY**

**COURSE UNIT: 2**

**TIME: 2 HRS**

**INSTRUCTION; Answer Question One (1) and any other two questions**

**Exam Questions**

- |   |                |
|---|----------------|
| <b>Question 1</b>   | (30 marks)     |
| 1. a. List and explain five uses of natural gas   | 11 marks       |
| b. Explain the following;   |                |
| i. Autochthonous organic material   | 2 marks        |
| ii. Allochthonous organic material  | 2 marks        |
| iii. What are the prerequisites for the existence of petroleum?   | 3 marks        |
| iv. How does the energy situation in the water body and the supply of mineral sedimentary particles affect sedimentation? | 3 marks        |
| c. Define the following   |                |
| i. Oil field  | 3 marks        |
| ii. Oil well  | 3 marks        |
| iii. What is Reservoir Engineering?   | 3 marks        |
| <br><b>Question 2</b>   | <br>(20 marks) |
| a. i. State the most important stage of well's life?  | 2 marks        |
| a. ii. What are the working tools of Reservoir Engineers  | 2 marks?       |
| a. iii. Explain what is meant by sour petroleum   | 2 marks        |
| a. iv. What meant by production tree?   | 2 marks        |
| a. v. After coming out of the production tree, where is the gas directed to?  | 2 marks        |
| b. i. Mention and explain the two specialized areas of reservoir engineering  | 4 marks        |
| b. ii. State the origin of Sulphur in crude oil?  | 3 marks        |
| b. iii. How is Sulphur usually removed from crude oil?  | 3 marks        |
| <br><b>Question 3</b>   | <br>20 marks   |
| a. Explain the Term Biogenic Methane  | 6 marks        |

- b. i. Explain the meaning of Geopressurised Zones 4 marks
- b. ii. Explain the purpose of Absorption and Stripping in Crude Oil refining? 6 marks
- c. Mention and explain the three fractions that are obtainable from the natural gas liquids. 4 marks

**Question 4**

20 marks

- a. Discuss the three risks associated with investment in Nigeria's oil Industry. 7 marks
- b. Discuss on
  - i. Production of Carbon Disulphide 2 marks
  - ii. Uses of Carbon Disulphide 2 marks
- c. Briefly write on the following
  - i. Production of Urea 3 marks
  - ii. Uses of Urea 2 marks
- d. What are the main purposes of the following?
  - i. Solvent Extraction 2 marks
  - ii. Adsorption 2 marks

**Question 5**

20 marks

Explain the following terms:

- a. Oil Window 5 marks
- b. Source rock 5 marks
- c. Paleozoic era 5 marks
- d. Precambrian era 5 marks