



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF PURE & APPLIED SCIENCES
2020_2 EXAMINATION QUESTIONS

COURSE TITLE: Petroleum Chemistry
311

COURSE CODE: CHM

TIME ALLOWED: 2 Hours

CREDIT: 2 Units

INSTRUCTION: Answer Question ONE (1) and any other Three (3) Questions

- Q1. a) Define the term cracking. **(2 marks)**
- b) Explain the following terms:
- i) Visbreaking **(2 marks)**
 - ii) Steam cracking **(2 marks)**
 - iii) Thermal Reforming **(2 marks)**
- c) Name two methods used to liquefy natural gas? **(2 marks)**
- d) Explain the following terms in oil sector:
- i) Upstream oil sector **(3 marks)**
 - ii) Downstream oil sector **(3 marks)**
- e) Where is the location of the proven gas reserve in Nigeria? **(2 marks)**
- f) What are the two constituents of synthetic gas? **(2 marks)**
- g) Define oil reservoir? **(2 marks)**
- h) What is responsible for the deviation of well from true vertical position? **(3 marks)**
- Q2 a) Crude oil cannot be used for the production of chemicals why? **(5 marks)**
- b) What is humin and kerogen? Give two types of kerogen? **(6 marks)**
- c) Briefly distinguish between oil producer and aquifer producer **(4 marks)**

Q3 a) Write short note on the following: Diagenesis, Catagenesis and Metagenesis **(9 marks)**

b) What are the by-products of processing raw natural gas? **(3 marks)**

c) What is the full meaning of CNG, NGL and LPG? **(3 marks)**

Q4 a) Discuss the conventional and unconventional accumulation of gas? **(6 marks)**

b) What are biogases? **(4 marks)**

c) What are the problems of storage and transportation of various gas products? **(5 marks)**

Q5 a) Distinguish between oil field and oil wells **(5 marks)**

b) What is the relevance of casing when drilling an oil well? **(3 marks)**

c) What are the two areas of specialization for reservoirs engineers? **(2 marks)**

d) What does each of symbols (i) to (v) stands for in the expression, $N = \frac{7758 V_b \phi (1-S\omega)}{B_{oi}}$

i) N , ii) V_b , iii) ϕ , iv) $S\omega$, v) B_{oi} **(5 marks)**