



NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY,
JABI - ABUJA.
FACULTY OF SCIENCES
DEPARTMENT OF PURE AND APPLIED SCIENCE
SECOND SEMESTER EXAMINATION...

COURSE CODE: CHM 415
COURSE TITLE: INDUSTRIAL CHEMICAL TECHNOLOGY II
CREDIT UNIT: 2
TIME: 2 HOURS
INSTRUCTION: Answer question one and any other three questions.

QUESTION ONE

- 1ai. Define auto-thermal reforming 2 mks
- 1aii. State the three processes by which syngas is produced in gas industry. 3 mks
- 1bi What is the term “Partial oxidation” in gas industry? 2 mks
- 1bii Explain “full boiled process” of manufacturing soap 8 mks
- 1c List five steps needed for the manufacture of glass 5 mks
- 1d. Enumerate five important characteristics of any glass 5 mks

QUESTION TWO

- 2a. Explain how oil can be extracted with volatile solvent method and Cold fat extraction method. 8 mks
- 2b. Differentiate between hard and soft soap. 4 mks
- 2c. What causes rancidity in soap making? 3 mks

QUESTION THREE

- 3a. Write short notes on these raw materials used in the manufacture of vanishes
- i. Driers ii. Plasticizers iii. Solvents and thinner 8 mks

3b. Mention three major and minor ingredients respectively for making glass.

7 mks

QUESTION FOUR

4. Explain the followings:

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|------|--------------------------------------|-------|
| i. | The wet process of cement production | 3 mks |
| ii. | The dry process of cement production | 3 mks |
| iii. | Quick setting Portland cement | 3 mks |
| iv. | Super-sulphate cement | 3 mks |
| v. | Sulphate resisting Portland cement | 3 mks |

QUESTION FIVE

5a. At what stage of ceramic manufacture does “Dehydroxylation occur? With the aid of chemical equation explain dehydroxylation.

6 mks

5b. Outline six (6) characteristics of glass.

6 mks

5c. Mention any three common type (group) of biomass you know.

3 mks