



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF PURE & APPLIED SCIENCES
2021_2 EXAMINATION 45678

COURSE CODE: CHM 416

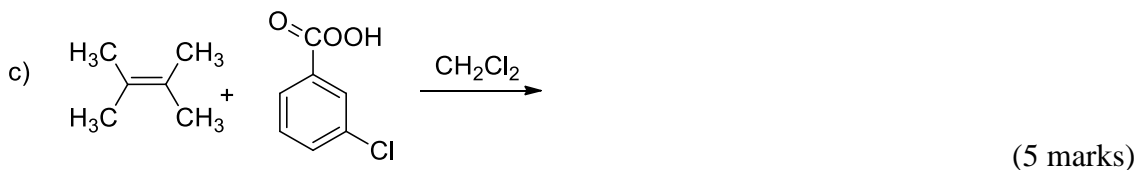
TIME ALLOWED: 2 Hours

COURSE TITLE: ORGANIC SYNTHESIS

CREDIT: 2 Units

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

Q1. Give the product(s) of the following reactions:



d. Write short note on each of the following unique reactions:

i) Oxidation of tertiary alcohol (5 marks)

ii) Perkin Reaction (5 marks)

Q2. Copy and complete the following reactions furnishing the correct products





Q3. a) With the aid of equation, show oxidation of p-xylene to dicarboxylic acid (5 marks)

b) Under what condition can benzene be converted to cyclohexane (5 marks)

c) Distinguish between LiAlH_4 and NaBH_4 based on their functions (5 marks)

Q4a) With equation, show the preparation of ethyne from carbide raw material (5 marks)

b) List five metals commonly used in reduction reaction (5 marks)

c) With brief explanation and chemical equation, describe Glaser coupling (5 marks)

Q5 a) Outline scheme for the preparation of 3-heptyne from ethyne (10 marks)

b) What is the meaning of PCC and its advantage over $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$ (5 marks)