



NATIONAL OPEN UNIVERSITY OF NIGERIA
91 Cadastral zone, Nnamdi Azikiwe Expressway, Jabi, Abuja
FACULTY OF EDUCATION
2024 1 EXAMINATION

COURSE CODE: SED 834

COURSE TITLE: SCIENCE, TECHNOLOGY AND SOCIETY (STS)

CREDIT UNIT: 3

TIME ALLOWED: 3HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER 3

Question 1:

- a. Discuss the effects of irrigation scheme on the people living around such area
- b. List and explain three areas where scientists, technologists and the people in the community around you have misused science and technology knowledge.

25 marks

Question 2:

There has been a great hope on biomedical technology to bring solution to the menace of HIV infection; (a) what is HIV? (b) discuss the (i) transmission of HIV, (ii) process of infection (iii) prevention and treatment. (iv) Identify available drugs for treatment.

15 marks

Question 3:

- a. Explain the two established the National Guidelines and Standards for Pollution Control with particular reference to the manufacturing industries.
- b. Enumerate four ecological impact of oil spills in Nigeria.
- c. Highlight the four National Guidelines and Standards for Waste Management in the Oil Sector in Nigeria

15 marks

Question 4

- a. i. Define Is Desertification?

(4b) What is the product of the reaction of hexan-1-ol with metallic copper at 300 °C? (3 marks)

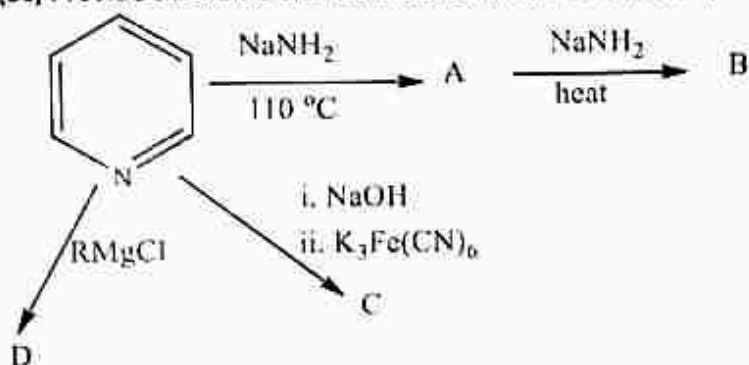
(4c) Demonstrate how aldehyde or ketone can be transformed to α -hydroxycarboxylic acid using KCN, dilute H_2SO_4 , and conc. HCl. (7^{1/2} marks)

QUESTION FIVE

(5a) What is a heterocyclic compound? List five examples of heterocyclic compounds. (4 marks)

(5b) The Reimer-Tiemann reaction of pyrrole produces an important synthetic intermediate. Provide the name and structure of the compound. (3 marks)

(5c) Provide the name and chemical structures of the compounds labelled A-D.



(8 marks)

QUESTION SIX

(6a) Draw the structures of butan-1,4-dioic acid, pentan-1,5-dioic acid, and 3-methylhexan-1,6-dioic acid. (3 marks)

(6b) Using chemical structures, describe any five reactions of dicarboxylic acid. (5 marks)

(6c) Demonstrate how you can synthesize 2-ethyl-3-oxobutanoic acid from acetoacetic ester. (7 marks)

(7 marks)