



ELIZADE UNIVERSITY, ILARA – MOKIN, ONDO STATE, NIGERIA

DEPARTMENT: PHYSICAL AND CHEMICAL SCIENCES

FIRST SEMESTER EXAMINATIONS: 2018/2019 ACADEMIC SESSION

COURSE CODE: CHM 391 COURSE TITLE: EXPERIMENTAL CHEMISTRY III

HOD's SIGNATURE

DURATION: 3 HOURS

INSTRUCTIONS: ATTEMPT ALL QUESTIONS

1. You are provided with water sample from the stream flowing through Elizade University.

Measure 25cm^3 of the water sample.

Add two drops of phenolphthalein and titrate with 0.01M HCl , Record your titre value at the end point.

Add two drops of methyl to the sample and continue the titration. Record the titre value at the end point.

Repeat all procedures two to three times and answer the following questions:

- a. What is alkalinity?
- b. Write balanced equations for the reactions indicating the end points for phenolphthalein and methyl orange respectively
- c. Determine the total alkalinity of the water sample in mg/L of CaCO_3
- d. What is the alkalinity due to OH^- and HCO_3^- ions only?

(Ca = 40, C=12, O=16)

[30marks]

2. Differentiate between actual yield and theoretical yield in organic synthesis. **[5marks]**

3. Why is it impossible to achieve 100% yield in the synthesis of organic compounds.

[5marks]