JULY 2021
EBS 115P
GENERAL CHEMISTRY PRACTICAL I
2 HOURS

Candidate's Index Number:
Signature:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

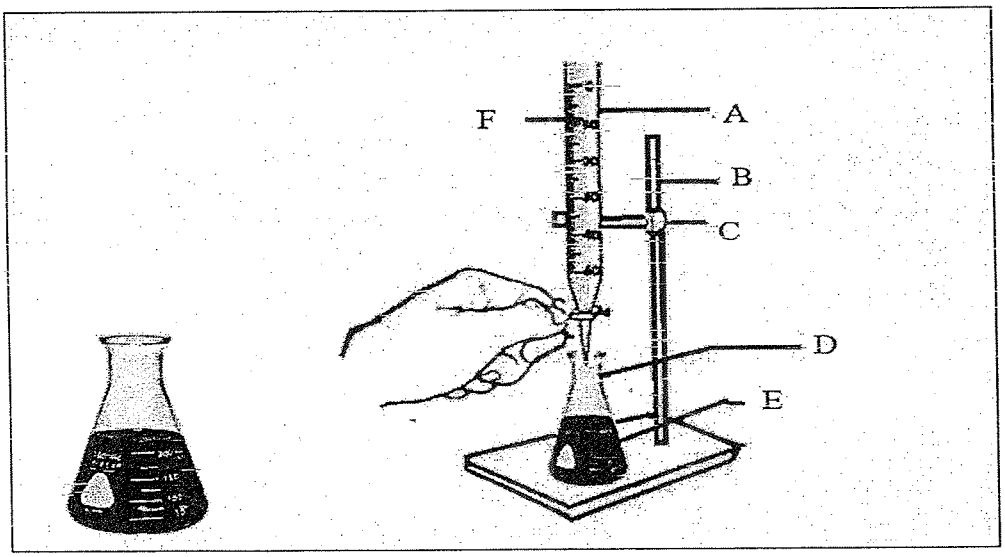
COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, END-OF-SECOND SEMESTER EXAMINATION, JULY 2021

JULY 30, 2021 GENERAL CHEMISTRY PRACTICAL I 9:00 AM – 11:00 AM

Answer ALL the questions in this paper.
(60 MARKS)

1.

a. Below is a setup for titration. Identify the parts labelled A - F. **(6marks)**



b. State **one** use **of each** of the following pieces of apparatus in the laboratory:
   i. Pipette
   ii. Spatula
   iii. Wash bottle
   iv. Conical flask
   v. Teat pipette **(5marks)**

2. List the steps involved in the preparation of indicators from flowers. **(6marks)**

3. Explain the following terms as used in chromatographic technique of separating mixtures:
   a. Mobile phase
   b. Solvent front
   c. Retardation factor. **(6marks)**

4. How will you prepare a 500mL solution of NaOH such that the final molarity of the resulting solution would be 0.25M. [NaOH=40.0] **(8marks)**

5. 25mL of a mixture of Na_2CO_3 and $NaHCO_3$ was pipetted into a conical flask and titrated with 0.1MHCl using phenolphthalein indicator. The volume of acid that reacted to the end point is 8.65mL. A separate 25mL of the mixture was in turn titrated using methyl orange indicator and the end point titre value was found to be 20.60mL.
   a. Write the equations for the reactions which occurred between HCl and:
      i. Na_2CO_3
      ii. $NaHCO_3$

   b. Deduce the volume of acid that reacted with the following from the titres obtained from the titrations.
      i. Na_2CO_3
      ii. $NaHCO_3$

   c. Calculate the concentrations in mol/L and g/L of:
      i. Na_2CO_3
      ii. $NaHCO_3$

   d. Calculate the percentage of Na_2CO_3 and $NaHCO_3$ in the mixture. **(21marks)**

6. Draw and label the setup for separating a mixture of water and vegetable oil. **(8marks)**