TEVETA

Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY

LEVEL 6 YEAR III EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATIONS

SITTING: NOVEMBER / DECEMBER 2025

SUBJECT: MEDICINAL CHEMISTRY PRACTICAL

TIME: ONE (1) HOUR THIRTY (30) MINUTES TOTAL MARKS: 100

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE

1. Write your Examination Number and National Registration Card (NRC) number on the Marking Guide provided.
2. This paper has TWO (2) tasks. Perform the tasks according to the procedure given.
3. Cellphones and programmable calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

EXTRACTION OF CAFFEINE FROM COFFEE

TASK 1

PROCEDURE

1. Weigh 2.5g of coffee and transfer it in a 100 mL of distilled water in a 250 mL beaker and boil for 15 minutes
2. Carefully allow the solution to cool
3. While the solution is cooling add 2.5 g of sodium carbonate to the extract until dissolved
4. Place the coffee extract in an ice bath to cool further.
5. Add the coffee extract into a 250 mL separatory funnel followed by an addition of 20 mL of chloroform (hazard!)
6. Allow the two layers to separate and drain the bottom layer into a clean beaker,
7. Take the bottom layer (organic layer) extracted back into a 250 mL separatory funnel followed by an addition 20 mL of chloroform
8. Using a 250 mL beaker, heat the mixture in (8) above until all the chloroform is evaporated

TASK 2

1. State the colour of the caffeine extracted
2. Record the mass in grams for the caffeine extracted
3. Calculate the percentage of the caffeine from coffee
4. To what type of natural product does caffeine belong
5. Explain the use of caffeine