

NOVEMBER 2023  
EBS 401  
INTRODUCTION TO SCIENTIFIC  
INVESTIGATIONS  
1 HOUR 15 MINUTES

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)  
FOURTH YEAR, END-OF-SECOND SEMESTER EXAMINATION, NOVEMBER 2023

6<sup>TH</sup> NOVEMBER 2023      INTRODUCTION TO SCIENTIFIC      9:30 AM – 10:45 AM  
INVESTIGATIONS

SECTION B  
[40 MARKS]

Answer TWO questions in all; Question 1 and any other ONE questions.  
Please, note that if you answer more than two questions, only the first two will be marked.

1.
  - a. What is Scientific investigation? (2 marks)
  - b. Outline the steps of scientific investigation. (6 marks)
  - c. Explain how you would use each step of scientific investigation to find out **The Effect of Activity Method on JHS One (1) Performance on the Topic "Electricity"**. (12 marks)
  
2.
  - a. Explain why a science teacher should be:
    - i. Reflective (4 marks)
    - ii. Critical minded (4 marks)
  
  - b. Briefly explain the following and outline **one** example of each based on any Science topic learnt.
    - i. Dependent variable (4 marks)
    - ii. Independent Variable (4 marks)
    - iii. Null hypothesis (4 marks)

- 3.
- a. Explain the following and state **two** examples of each.
    - i. Basic process skills (4 marks)
    - ii. Integrated process skills (4 marks)
  - b. Clearly distinguish between Scientific Law and Scientific Theory. (4 marks)
  - c. Outline and explain any **four** characteristics of Scientific Model. (8 marks)
- 4.
- a. Explain inquiry-based learning. (4 marks)
  - b. Outline and explain any **five** important aspects of inquiry-based learning pivotal to Science Education. (10 marks)
  - c. List and explain **three** essential characteristics of a unit. (6 marks)