

NOVEMBER 2023
EBS 401
INTRODUCTION TO SCIENTIFIC
INVESTIGATIONS
1 HOUR 45 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

6TH NOVEMBER 2023 INTRODUCTION TO SCIENTIFIC 9:00 AM – 9:30 AM
INVESTIGATIONS

This paper consists of two sections, A and B. Answer ALL the questions in Section A and TWO questions from Section B. Section A will be collected after the first 30 minutes.

SECTION A
[20 MARKS]

Answer ALL the questions in this Section.

Items 1 to 20 are stems followed by four options lettered A to D. Read each item carefully and circle the letter of the correct or best option.

1. Which **one** of the following is classified as pure science?
 - A. Chemistry
 - B. Forestry
 - C. Geology
 - D. Pharmacy
2. The process whereby a scientist looks for evidence and argument that supports another person's ideas is referred to as
 - A. critical mindedness.
 - B. honesty.
 - C. open mindedness.
 - D. thoroughness.
3. Willingness to collect and use data in one's investigation and also have respect for data collected by others is known as
 - A. honesty.
 - B. perseverance.
 - C. respect for evidence.
 - D. thoroughness.

4. A belief that all things including authoritarian statements and self-evidence truths, are open to questions is referred to as
 - A. consideration of premise.
 - B. longing to know and understand.
 - C. questioning of all things.
 - D. request for logic.

5. The skills of using scientific methods when conducting an investigation to solve a problem is termed as skills.
 - A. basic process
 - B. integrated process
 - C. manipulative
 - D. scientific

6. Which **one** of the following is **not** a basic process skill?
 - A. Inferring
 - B. Interpreting data
 - C. Measuring
 - D. Predicting

7. All the following are commonly used integrated process skills **except**
 - A. communicating.
 - B. controlling variables.
 - C. formulating hypothesis.
 - D. raising questions.

8. When a scientist performs an experiment that requires observations concerning the quality of what has happened in the experiment, it is considered as
 - A. observed naturally.
 - B. qualitative observation.
 - C. quantitative observation.
 - D. staged observation.

9. The procedure of asking questions and then testing probably answers could be termed as
 - A. scientific investigation.
 - B. scientific method.
 - C. scientific process.
 - D. scientific values.

10. An investigation in which scientific questions are investigated and observations of phenomena are recorded and catalogued is termed as
 - A. comparative investigation.
 - B. descriptive investigation.
 - C. experimental investigation.
 - D. scientific inquiry.

11. Which **one** of the following is **incorrect**? Dependent variable
 - A. acts in response to the independent variable.
 - B. is called manipulated variable.
 - C. is called the responding variable.
 - D. is measured or observed.

12. The process of understanding a concept or concepts belonging to the stated problem is termed
- A. conceptualization.
 - B. exploration.
 - C. investigation.
 - D. orientation.
13. The type of inquiry where a teacher chooses and identifies the resources students use to answer questions is termed as inquiry.
- A. controlled
 - B. free
 - C. guided
 - D. structure
14. The scientific process of active exploration by which we use critical, logical, and creative thinking skills to raise and engage in questions of personal interests is called inquired based
- A. instruction.
 - B. learning.
 - C. method.
 - D. teaching.
15. Round the following number to four significant figures **742, 396**.
- A. 007424
 - B. 742000
 - C. 742300
 - D. 742400
16. The uncertainty in the measurement of a physical quantity is called
- A. error.
 - B. mistake.
 - C. true value.
 - D. variation.
17. Gross errors arise due to one or more of the following reasons, **except**
- A. improper setting of the instrument.
 - B. taking into account sources of error and precautions.
 - C. usage of wrong values in the calculation.
 - D. wrong recordings of the observation.
18. The ability of the measuring instrument to repeat the same results for the measurements for the same quantity is known as
- A. calibration.
 - B. readability.
 - C. repeatability.
 - D. reproducibility.
19. Instruments that measure and indicate the magnitude of the electricity is called instrument.
- A. absolute
 - B. indicating
 - C. integrating
 - D. recording

20. Which one of the following is **not** an advantage of Science Models? Models
- A. are used for communication.
 - B. are used to make and test predictions.
 - C. build scientific knowledge.
 - D. cannot include all the details of the object that they represent.