



**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,  
KUMASI  
FACULTY OF EDUCATIONAL STUDIES  
COLLEGES OF EDUCATION  
FOUR-YEAR BACHELOR OF EDUCATION (B. ED)**

**END OF FIRST SEMESTER EXAMINATION – MAY, 2023**

Index Number of Candidate:																				
College:											Signature:									

**COURSE CODE: ISC 151**

**COURSE TITLE: INTRODUCTION TO INTEGRATED SCIENCE I**

**TIME ALLOWED: 2HRS**

**LEVEL: 100**

**INSTRUCTIONS:**

**This paper consists of THREE sections**

1. SECTION A has twenty (20) Multiple Choice items. Each stem is followed by four options lettered A to D. Read each question carefully and write the letter of the option that corresponds to the correct or best answer on page one (1) of the answer booklet.
2. SECTION B has questions which require short answers. You must answer all the questions in the booklet.
3. SECTION C has three Essay type Questions. You are required to answer only TWO (2) questions in the answer booklet.
4. Ensure that your index number is correctly written on every page of the answer booklet provided.
5. DO NOT WRITE YOUR NAME ANYWHERE IN THE BOOKLET.

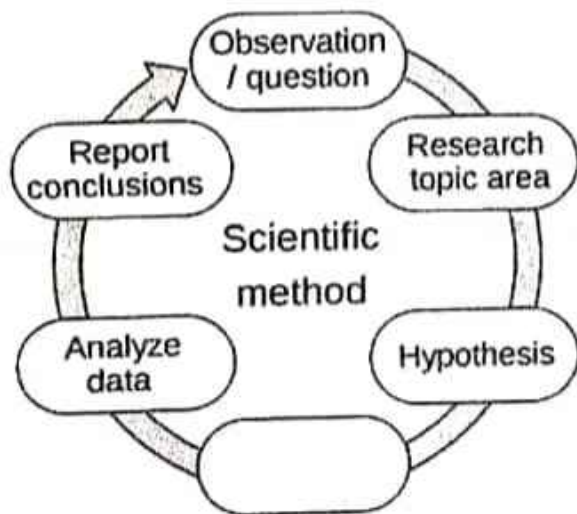
## SECTION A (20 Marks)

Read each question carefully and write the letter of the option that corresponds to the correct or best answer on page one (1) of the answer booklet (1-20)

1. Which one of the following is NOT a way of correcting students' misconceptions about science?
  - A. Tell students that lightning never strikes the same place twice
  - B. Provide a forum for students to confront their misconceptions
  - C. Identify students' misconceptions
  - D. Help students reconstruct and internalize their knowledge, based on scientific models
2. Which of the following is NOT a feature of solids?
  - A. The particles are firmly held in their positions
  - B. Their particles are very close to each other
  - C. There exist weak intermolecular forces between their particles
  - D. They have a definite shape and definite volume.
3. Which of the following pairs of scientists have conducted many experiments with light.
  - A. Albert Einstein and Isaac Newton
  - B. Albert Einstein and Rook Hooke
  - C. Isaac Newton and James Prescott Joule
  - D. James Prescott Joule and Aristotle
4. The prefix micro means
  - A.  $10^9$
  - B.  $10^{-9}$
  - C.  $10^{-6}$
  - D.  $10^6$
5. The Prehistoric Period dates from 2.5 million years ago to 1,200 B.C. It is generally categorized into three archaeological periods namely the .....,
  - A. Stone Age, Science Age and Iron Age.
  - B. Stone Age, Bronze Age and Iron Age
  - C. Stone Age, Bronze Age and gold age
  - D. Observation age, Bronze Age and Iron Age

6. The Paleolithic age is also referred to as .....
- Stone age
  - Middle age
  - Old stone age
  - New stone age
7. A supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation in science is known as ....
- Inquiry
  - Hypothesis
  - Experiment
  - Controlling variables

8. Which step of the scientific method in the diagram below is missing?



- Inference
  - Identification of problem
  - Experimentation
  - Evidence
9. A type of misconceptions that arises from the use of words that mean one thing in everyday life and another in a scientific context is best referred to as -----
- Vernacular misconceptions

- B. Preconceived notion
- C. Non-Scientific belief
- D. Conceptual misunderstanding

10. Bose-Einstein Condensate is a state of matter which forms when particles (bosons) are cooled to almost absolute zero. What is absolute zero in degree Celsius?

- A.  $273.15^{\circ}\text{C}$
- B.  $37^{\circ}\text{C}$
- C.  $-37^{\circ}\text{C}$
- D.  $-273.15^{\circ}\text{C}$

11. A Mixture of salt and water will form a .....

- A. Homogenous mixture
- B. Heterogenous solution
- C. Colloidal solution
- D. Alloy

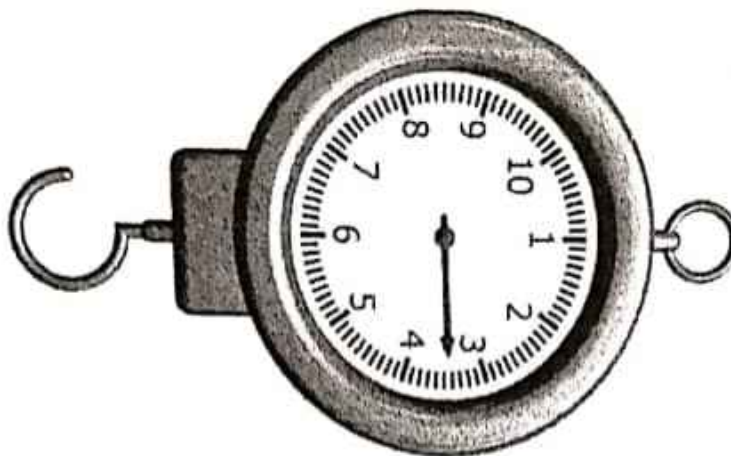
12. The method of separation used to separate insoluble solid or suspension from a liquid is known as ....

- A. Filtration
- B. Distillation
- C. Decantation
- D. Centrifugation

13. Which one of the following is NOT a physical property of matter?

- A. Volume
- B. Mass
- C. Flammability
- D. Density

14. The name of the instrument in the diagram below is -----



- A) Barometer
- B) Nurses watch
- C) Spring balance
- D) Stop watch.

15. Objectives that may be achieved through the use of the laboratory in science classes include all of these except for ----

- A. Skills
- B. Faith
- C. Cognitive ability
- D. Attitudes

16. It is made of porcelain and used to heat small amounts of solid substances that are being heated strongly at high temperatures. This laboratory apparatus is called ---

- A. Bunsen burner
- B. Evaporating dish
- C. Crucible and lid
- D. Spatula

17. A curved glass used as a beaker cover or for evaporating very small amounts of liquid is best known as ----

- A. Mortar
- B. Crucible
- C. Test tube
- D. Watch glass

18. What is 160km/h in metres per second?

- A. 44.44m/s
- B. 60m/s
- C. 70m/s
- D. 1600m/s

19. What is the implication of the hazard symbol below



- A. Health hazard
  - B. Highly inflammable
  - C. Irritant
  - D. Toxic
20. The instrument used for measuring the diameter of a thin copper wire is -----
- A. Vernier calipers
  - B. Micrometre screw gauge
  - C. Laser lever
  - D. Inclinator



**SECTION B (30 Marks)**

**Answer all questions here by providing the term, phrase, clause or statement that suits the question IN THE ANSWER BOOKLET (21-30)**

21. The part of the vernier caliper that measures the depth of a hollow object is called -----  
-----
22. The dimension of power is -----
23. A block of mass 30kg is pushed with a force of 5kN. What is the acceleration of the block?
24. Total solar eclipse happens when the -----  
-----
25. The ability to focus on yourself and how your actions, thoughts, or emotions do or don't align with your internal standards is called -----
26. The skill of using the senses to gather information about objects or events including the use of instruments to extend the range of our senses is known as -----  
-----
27. It is a process by which differences among learners are accommodated so that all learners in a group have their best chance of learning -----
28. The SI unit of the derived unit  $\text{kgm}^{-1}\text{s}^{-2}$  -----
29. What happens when gases are heated to such high temperatures that electrons are ripped away from the atoms to form an ionised gas? -----  
-----
30. Which Ghanaian scientist is known globally for postulating the "Formalism" which is the technique used to determine how matter moves in outer space. -----  
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## SECTION C (50 Marks)

Answer only two questions from this section **IN THE ANSWER BOOKLET**. Each question carries 25 marks

### QUESTION 1

1. A) Explain the following terms as applied to inquiry learning (8 marks)





B) Convert the following temperatures to degree Celsius (6 Marks)

i. 98.7 °F

ii. 212°F

iii. 30K

C) Provide the meaning of the following hazard symbols (8 marks)

Q		
R		
S		
T		




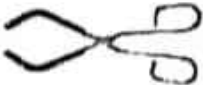
D) Name the three pillars of the National Teacher's Standards (3 Marks)

### QUESTION 2



2. A) Briefly explain any two environmental mishaps in your community and offer two control measures each for environmental sustainability (8 marks)

B) State the uses of each of the apparatus in the table below (8 Marks)

NAME	Use	Picture
BEAKER		
BUNSEN BURNER		
BURETTE		
BEAKER TONGS		

C) State the types of equilibrium (stability). With the help of a diagram, demonstrate the types of equilibriums. (7 Marks)

D) Name all the outer planets in the Solar System (2 Marks)

### QUESTION 3

3. A) Outline any four pedagogical approaches emphasized by the Basic School Science curriculum. (4 Marks)

B) Copy and complete the table below (8 Marks)

S/N	Traditional Belief	Prescribed Repercussion/	Scientific Implication

		Punishment	
1	Don't sing when bathing		
2	Don't put your palm on the floor when eating		
3	Don't sweep your bed room at night		
4	Don't talk when you are eating		

C) I) Give any two characteristics of the states of matter shown the diagram below (6 Marks)



**A**



**B**



**C**

II)) Assuming the weighed mass of a spherical metal ball is 250g and the radius of the sphere is 0.02m. Calculate the density of the spherical ball. (Take  $\pi = 3.142$ ). (4 Marks)

D) Mention four reasons why Mercury is a better thermometric liquid than alcohol (4 Marks)

END OF PAPER