

Spring Semester Examination 2022  
Paro College of Education  
Royal University of Bhutan  
Paro

**Module:** SCA201 (Teaching Primary Science I)

**Programme:** B.Ed (P)

**Level:** II

**Writing time:** Three Hours

**Full marks:** 100

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**Instructions:**

Do not write for the first fifteen minutes. This time is to be spent in reading the questions. You will get three hours to answer the questions.

This question paper consists of three sections: Section A, Section B and Section C. You must read the questions carefully and ensure how many questions are required to be answered from each section.

Marks for each question are indicated within brackets. Follow the instructions given in each section.

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**SECTION A**  
ONE Question-20 Marks

**Direction:** There are four possible answers for each question. Choose and write the MOST APPROPRIATE answer in your answer paper with proper letter against it.

**Question 1**

(10x2=20 marks)

- a. The rough endoplasmic reticulum is so named because it has an abundance of
  - A. lysosomes.
  - B. ribosomes.
  - C. peroxisomes.
  - D. mitochondria.
  
- b. All heterotrophic organisms without a cell wall are placed under kingdom
  - A. Fungi.
  - B. Plantae.
  - C. Animalia.
  - D. Eubacteria.
  
- c. Pulses, egg, milk & cheese are foods classified as
  - A. minerals.
  - B. protective.
  - C. energy giving.
  - D. body building.

- d. Loss of water from the aerial parts of the plants in the form of water vapour is called
- A. cohesion.
  - B. transpiration.
  - C. ascent of sap.
  - D. surface tension.
- e. Which of the following best describes the law of conservation of energy?
- A. Energy can be created or destroyed.
  - B. Energy cannot be created or destroyed.
  - C. Energy cannot destroy but create things.
  - D. Energy can destroy but cannot create things.
- f. Which of the following measures how tightly packed and how heavy the molecules are in an object?
- A. Mass.
  - B. Volume.
  - C. Density.
  - D. Matter.
- g. The energy possessed by a body due to its state of rest and motion is called
- A. kinetic energy.
  - B. chemical energy.
  - C. potential energy.
  - D. mechanical energy.
- h. Particles are extremely far apart, move extremely fast and can exist only at very high temperature. These characteristics of matter best describe
- A. gaseous state.
  - B. plasma state.
  - C. superconductors.
  - D. Bose Einstein condensate.
- i. Substances can be classified as pure or impure substances, metals or non-metals etc. The compounds are classified as
- A. metals.
  - B. non-metals.
  - C. pure substances.
  - D. impure substances.

- j. Which of the following statement is incorrect?
- A. The composition of a substance alters during a chemical reaction.
  - B. Substances that are made of more than one type of atoms are called elements.
  - C. The process of obtaining cheese from the milk is a chemical change.
  - D. Collisions between the particles are perfectly elastic where by no energy is lost.

**SECTION B**  
ONE Question-30 Marks

**Direction:** You must answer **ALL** the sub-questions. The intended marks for each sub-question is given in the brackets.

**Question 2**

- a. The aim of teaching primary science is to learn scientific knowledge, develop science process skills and acquire scientific values and attitudes. How will you make sure children learn the scientific values adequately during the primary years? Suggest two strategies. (2.5x2=5)
- b. Discuss any two best pedagogies you would use to teach & learn any one topic from primary science. (5)
- c. What are the significances of laboratory for science learning? (5)
- d. How is the primary science curriculum organized/designed/structured? (5)
- e. Design laboratory equipment that you will improvise in the primary science using locally available materials? What content will you teach using that equipment? Mention the safety concerns addressed while improvising it. (2.5x2=5)
- f. What is the importance of scientific learning environment? How will you use the botanical/science garden to teach about plants and animals in the primary years? (2+3=5)

**SECTION C**  
FIVE Questions-50 Marks

**Direction:** There are SIX questions in this section. Choose FIVE questions and answer the questions as directed in the answer sheet provided to you. The intended marks for each question is given in the brackets.

**Question 3** (10)

“By the end of the lesson, the learner will be able to prepare a temporary mount of onion cell using all experimental procedures correctly in the group”. Prepare an analytic rubric for assessing the above learning outcome with a set of 4 criteria and 3 levels of performance. You need to describe each criterion against the performance level and focus on all aspects of science learning.

**Question 4** (2.5 x 4)

You are to teach “how to prepare lime water to class VI students” in the laboratory.

- a. How would you conduct the experiments?
- b. How would you ensure safety in the laboratory?
- c. What theory would you teach about the preparation of lime water?
- d. How do you explain the test for lime water?

**Question 5** (5+5)

- a. Discuss at least 2 ways you would like to adopt to inculcate the values of saving energy with your students through science lessons.
- b. Design a learning activity using any appropriate strategy to teach and learn the concept of properties of light in primary science.

**Question 6** (1+5+3+1=10)

- a. What is a fair test in science?
- b. Design a fair test to learn the effect of water on the growth of plants.
- c. Identify and define the variables used in the experiment.
- d. Justify the validity and reliability of the test.

**Question 7** (3+7=10)

- a. What are food, nutrition and nutrient? Explain with an example each.
- b. Design a learning activity for 30 minutes to 30 class six children using an appropriate method to teach healthy eating habits.

**Question 8** (2+8=10)

- a. What is the importance of field science teaching?
- b. Design a lesson plan to teach primary students any of the topics that you think is appropriate through field based learning. You should choose an appropriate teaching method and consider safety issues during field based teaching and learning.