

INTERNATIONAL TEACHERS TRAINING COLLEGE

2012

SCIENCE

Mock 1

February 2020

MARKING SCHEME

PRIMARY TEACHER EDUCATION

SCIENCE

MARKING SCHEME

(CONFIDENTIAL)

This marking scheme consists of 8 printed pages.

SECTION A (60 marks)

1. (a) (i) - Place a funnel into each of the beakers and place equal amounts of cotton wool at the base of each funnel.
- To one of the funnels put clay soil, to the second, loam and to the third sand, all in equal amounts
- Add equal amounts of water to each of the soils
- Compare the volumes of water collected from each of the soils after a specified equal duration.
- Record the observations

(5 marks)

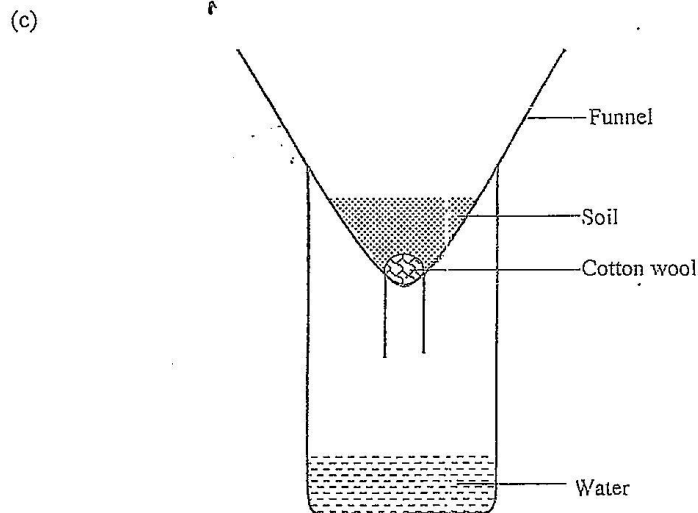
(ii) In which soil will the water drain through fastest/slowest?

- (b) (i) - encourages collaborative learning
- development of scientific attitudes
- efficient use of resources
- learners share tasks

(1 mark)

- (ii) - size of the class
- quantity of materials
- ability of learners

Any two correct (2 marks)



- (c) - One mark for diagram showing correct position of beaker, funnel and cotton wool (1 mark)
- Soil in the funnel (1 mark)
- Water in the beaker

2. (a) - By the end of the lesson the learner should be able to name at least two characteristic of reptiles (1 mark)

- (b) - Some reptile can be dangerous and so can only be studied as preserved specimens
- Ensures environmental preservation of animals instead of killing fresh ones for the study
- They are difficult to obtain as live specimens

Any two correct (2 marks)

- (c) - Presence of scales on the body
- Presence of nostrils
- Presence of a backbone

Any two correct (2 marks)

- (d) - Snakes
- Chameleons
- Lizards
- Young tortoises
- Young crocodiles

(2 marks)

3. (a) - Pre-visit the places of study
- Prepare key questions/questionnaires to enable learners make relevant observations
- Discuss with learners the different habitats in the locality/study area
- Obtain materials required for the nature walk
- Inform pupils about the intended nature walk.

Any four correct (4 marks)

- (b) - Observe plants in different habitats
- Take photographs of the plants in the different habitats
- Ask and answer questions based on the subtopic
Reject: uproot plants, for this will lead to destruction of the environment.

Any two correct (2 marks)

- (c) - Learners might take the lesson as leisure time and not learn
- Learners may fail to see any differences in the plants if different habitats are not visited
- Learners may not grasp what was intended due to lack of focus
- Learner's safety may be compromised

Any two correct (2 marks)

- (d) - Discussion on the observation made by the learners about plant in different habitats
- Learners sing songs on different plants in the habitats
- Learners fill crossword puzzles on plants
- Learners draw diagrams of plants in different habitats
- Learners model different plants in their habitats

Any three correct (3 marks)

Total - 11 marks

4. (a) - What would happen if the glass contained hot water instead of ice
- Does sweating occur in a cold situation

Any one correct (1 mark)

- (b) - Have two glasses of the same size and put some ice cubes in one while the other is left without
- Leave the two set-ups in a room for about ten minutes and let the learners observe that wetness is only on the glass with ice cubes
- Explain to the learners that the wetness is due to the water vapour in the surrounding air condensing on the cold surface of the glass with ice cubes

(3 marks)

- (c) - Provide learners with pieces of glass
- Ask learners to breath out onto the glass
- Explain the observation as; due to the condensation of water vapour from breathed out air on the cold surface of the glass

(3 marks)

- (d) - It promotes creativity and discovery of knowledge
- It enhances development of scientific skills
- It involves more senses and therefore much is retained
- It enhances development of scientific attitudes

Any three correct 3 marks

Total = 10 marks

5. (a) Production of positive attitudes towards good health and environmental protection.
(2 marks)

- (b) - Tree planting takes longer duration and cannot be accommodated within class time
- To enable application of classroom work to benefit the community

(2 marks)

- (c) - Organization of tree planting in the community can be difficult/complicated
- Assessing contributions of individual learners
- Security of the planted trees
- Management of the trees to maturity
- Unavailability of space to plant the trees

Any two correct (2 marks)

- (d) - Provide instructions on how to plant the tree seedlings
- Provide necessary materials for tree planting
- Ensure participation by all learners
- Identify area where to plant trees

Any three correct (1 mark)

- (e) - Creativity and critical thinking in addressing challenges
- Manage and conserve the available resources
- Identify and utilize opportunity for productive work in school, home and community.

Any one correct = 1 mark
TOTAL = 10 marks

6. (a) (i) - A layout/plan/matrix; showing the distribution of content and abilities to be tested.

(2 marks)

- (ii) - To balance content
- To balance cognitive abilities

- (b) (i) - In inclined planes less effort; moves through a longer distance to lift a load
- In both a stair case and a winding road up hill, less effort is needed; to move a longer distance to lift a load

(4 marks)

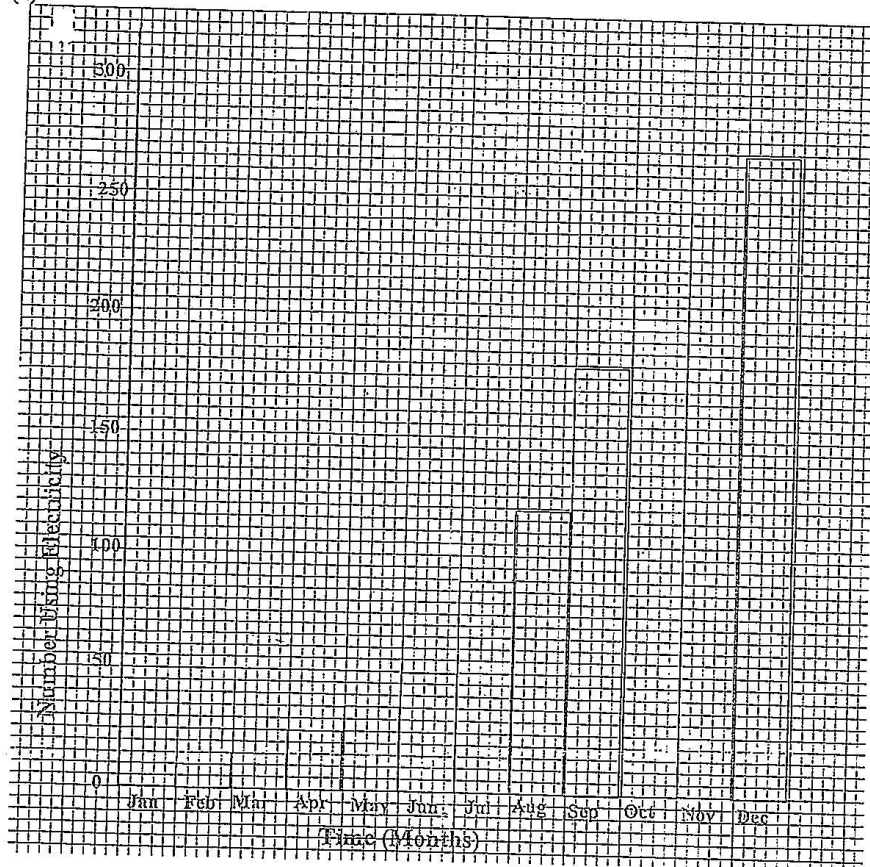
- (ii) - Analysis

(1 mark)

TOTAL (9 marks)

SECTION B (30 marks)

7. (a)



Scale	1
Plotting (height of bars)	1
Labelling	1
Bars drawn	1
	(4 marks)

(b) $\frac{210 - 50}{5} = 32$ (2 marks)

(c) Gradual increase from January to June, then rapid increase from June to December.

(2 marks)

TOTAL (8 marks)

(a) Bee sting is acidic which can be neutralised by sodium bicarbonate which is alkaline. (2 marks)

(b) Graphite has high melting and boiling points and it will not melt or boil due to high temperatures produced by the moving parts; while oil relatively has low boiling point and will therefore vaporize easily due to high temperatures produced by the moving parts

(2 marks)

TOTAL= 4 marks

9. (a) - Mercury has a high boiling point unlike water
- Mercury does not wet glass/has high cohesion forces unlike water which wets glass/
has high adhesive forces
- Water is colourless while mercury is silvery and can be seen easily
- Mercury expands uniformly, while water does not

Any two correct = (2 marks)

(b) Figure 1: Scorpion (1 mark)

Figure 2: Orion (1 mark)

TOTAL = 4 marks

10. (a) - To avoid wastage
- To increase effectiveness. (2 marks)

(b) Withdrawal symptoms
Truancy; untidiness/failure to observe personal hygiene
Rudeness
Aggressiveness

Any two correct 2 marks

TOTAL (4 marks)

11. (a) - Wood ash extracts water from/dehydrates the grains, making them (the grains) less
vulnerable to pest attacks
- Wood ash kills pests due to acute dehydration

(2 marks)

(b) Taking balanced diet; in an adequate quantities

2 marks

TOTAL (4 marks)

12. (a) (i) Both organisms living together benefit from each other. (1 mark)

(ii) One of the organisms benefits while the other does not and neither is it harmed. (1 mark)

- (b)
- Some energy is lost through undigested matter
 - Some energy is used in metabolic processes
 - Some energy is lost to decomposers
 - Some energy is lost as heat to the environment

Any two correct (2 marks)

TOTAL (4 marks)

13. (a) Structure K - gall bladder (1 mark)

Structure M - rectum (1 mark)

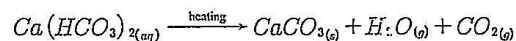
- (b)
- Long and coiled/large surface area for absorption of digested food
 - Has numerous villi for absorption/ has villi which are vascularised for absorption

(2 marks)

TOTAL (4 marks)

14. (a) The sun causes evaporation of water which later condenses to form clouds; that come down as precipitation which collects into water bodies/sources and the cycle repeats. (2 marks)

(b) Temporary hardness of water is due to the presence of calcium hydrogen carbonate/ magnesium hydrogen carbonate which decomposes on heating to insoluble calcium carbonate/magnesium carbonate, water and carbon (IV) oxide. (2 marks)



OR word equation

TOTAL (4 marks)

15. (a) (i) Air expands when heated and contracts when cooled (1 mark)

(ii) The balloon drops/collapses/shrinks. As the water cools, the air inside the bottle contracts and have the drooping/collapsing/shrinking of the balloon. (2 marks)

(b) - Provide allowance in tyre pressure to avoid tyre burst when air expands due to increase in temperature. (1 mark)

TOTAL: (4 marks)