

2012

PI SCIENCE

MOCK. MARCH 2019

TIME: 2½ HOURS

1. A standard IV teacher wanted to carry out an experiment to demonstrate convection currents in gases using: a convection box, a candle, matches and a rag.

a) i. Write down a suitable introduction for the lesson. (2 marks)

ii. State **two** factors to consider during the introduction. (2 marks)

b) Give **three** reasons why demonstration method is a static approach to teaching. (3 marks)

c) State **three** ways in which the teacher would involve the learners during the demonstration. (3 marks)

d) Draw the experimental set up that the teacher would use as the chalkboard summary. (3 marks)

2. A standard four teacher wanted to teach the sub-topic “weeds in the locality” using the dynamic approach.

a) State **one** skill objective for the lesson. (1 mark)

b) Other than the lesson plan, state **three** preparations that the teacher would make before the lesson. (3 marks)

c) State **four** activities that the teacher would involve learners in during the lesson. (4 marks)

d) List **two** methods that learners would use to record information during the lesson. (2 marks)

3. In a practical activity to investigate agents of soil erosion, a teacher for standard IV provided the following materials; water and a cardboard.

a) State **three** instructions that the teacher could have given to enable the learners carry out the activity. (3 mark)

b) State **one** precaution that the teacher was expected to give the learners at the start of the activity. (1 mark)

c) Write **one** question that the teacher would ask learners to enable them to draw conclusions on agents of soil erosion. (2 marks)

d) During the activity one of the pupils noticed that vegetation affected the rate of soil erosion. State **two** skills and **two** attitudes that the learner had developed.

i. Skills

ii. Attitude

4. A standard V science teacher involved his learners in a project to improvise and use weather instruments.

a) Give **two** reasons why project method was appropriate for this topic. (2 marks)

b) State **four** factors the teacher would consider while assessing the improvised weather instruments. (4 marks)

c) Other than improvisation, name **two** ways of acquiring materials in science. (2 marks)

State **two** reasons why a science teacher would improvise apparatus. (2 marks)

5. A teacher intended to teach standard VII learners the sub-topic “Effects of drug abuse” using role play.

a) Give **three** reasons why it was necessary for the teacher to prepare a lesson plan. (3 marks)

b) State **three** Social and Health effects of drug abuse that learners would role play

i. Social effects

ii. Health effects

c) State any **two** possible remarks that the teacher can make at the end of the lesson. (2 marks)

d) In a class discussion, one of the pupils stated that one of the effects of drug abuse is the spread of HIV and AIDS. Explain why this is not a misconception. (1 mark)

6. a) Provide options for the multiple choice item below, for which the key is at A.

i. When breathing in, the diaphragm flattens. The ribs move. (4 marks)

A

B

C

D

ii. State the ability by the multiple choice item. (1 mark)

b) State **three** characteristics of a good multiple choice item. (3 marks)

c) State **three** disadvantages of an essay test to the learner. (3 marks)

SECTION B (40 MARKS)

Answer ALL the questions in this section in the spaces provided.

7. A group of college students measured the height of healthy seedlings after every five days.

The average height of seedlings is as shown in the table below.

Time (Days)	0	5	10	15	20	25	30	35
Height (cm)	0	2	8	24	36	37	38	39

- a) i. On the graph paper provided, draw a graph of the height of seedlings against time. (4 marks)
- ii. Calculate the growth rate between day 12 and 19. (2 marks)
- iii. During which the interval was the rate of growth fastest. (1 mark)

- b) State **two** methods used to preserve seeds. (2 marks)

8. Explain how each of the following causes pollution of the environment.

- a) Dumping of plastic materials. (1 mark)

- b) Pouring oil on water to kill mosquito larvae. (1 mark)

- c) Using earphones. (1 mark)

9. The diagram below represents a set up that could be used to demonstrate a certain property of air.

- a) State the property being demonstrated. (1 mark)

b) Explain what would happen if the plasticine is removed. (2 marks)

c) State **two** other properties of air. (2 marks)

d) _____

e) Give a practical application of the property demonstrated by the set up. (1 mark)

10. a) Differentiate between meteors and comets. (2 marks)

b) State three characteristics of amphibians. (3 marks)

c) The diagram below represents an improvised weather instrument.

Describe how it works. (3 marks)

11. a) Give three disadvantages of vegetative propagation. (3 marks)

b) i. Describe how an inclined plane makes work easier. (1 mark)

ii. State two uses of inclined planes. (2 marks)

12. a) Describe two factors that affect speed of sound in air. (2 marks)

b) Give two advantages of hard water. (2 marks)

13. Fill in the blank spaces in the table below which shows endocrine glands.

Endocrine glands	Hormones secreted	functions
i. _____	Adrenaline	Prepares the body for fight or flight.
Pituitary	ii. _____	Controls re-absorption of water by the kidney
Ovary	Oestrogen	iii. _____

14. a) Other than being colourless and odourless. State two physical properties of carbon IV oxide. (2 marks)

b) Name two substances from the local environment that would be used in the preparation of carbon IV oxide. (2 marks)