



UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
DEPARTMENT OF CHILDHOOD EDUCATION
AUGUST SPECIAL EXAMINATION - 2018

PROGRAMME: B.Ed. Intermediate Phase.
MODULE: Introduction to Science and Technology for the Intermediate
Phase1.
CODE: SATINA1.
CAMPUS: SWC.
TIME: 2 Hours.
MARKS: 100.
EXAMINER: Dr. M.M.M. Kazeni.
EXTERNAL EXAMINER: Dr. B. Ndawonde (University of Zululand).

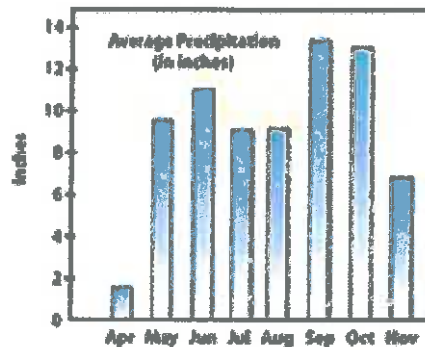
INSTRUCTIONS:

1. Read the questions carefully and answer all the questions.
 2. Number your answers correctly and write clearly and legibly.
 3. Write your surname, name and student number on your answer book.
 4. Relax and enjoy.
-

QUESTION ONE – NATURE AND PROCESSES OF SCIENCE

[13]

- 1.1 The graph below shows the amount of rainfall in different months. Study the graph and answer the questions that follow.

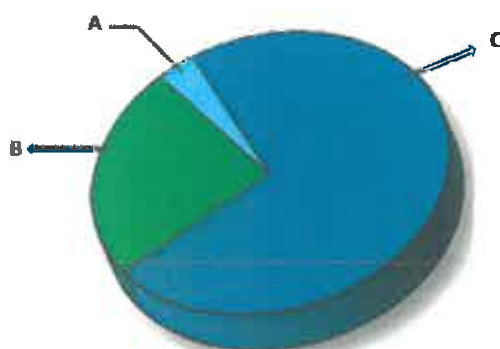


- 1.1.1 State the;
- Dependent variable and the axis on the graph, where it should be indicated. (2)
 - Independent variable and the axis on the graph, where it should be indicated. (2)
- 1.1.2 Provide a suitable title for the graph.
- 1.1.3 Based on the graph, state the following; (3)
- The month that received the least amount of rainfall.
 - The month that received the highest amount of rainfall.
 - The month that received an average amount of rainfall.
- 1.1.4 Suggest a possible hypothesis for the investigation, which could have led to the results displayed on the graph. (2)
- 1.2 One of the tenets (characteristics) of the nature of science is that, 'scientific knowledge is a human endeavor and is socially constructed'. Explain the meaning of this statement. (2)

QUESTION TWO – THE UNIVERSE

[17]

The diagram below shows the main components of the current universe.

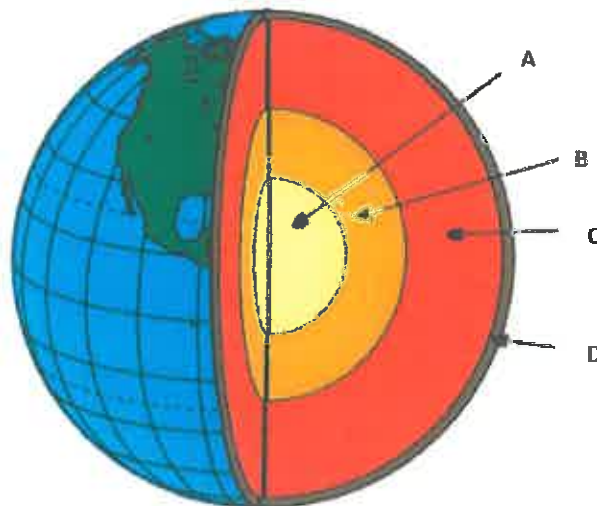


- 2.1 Answer the following questions based on the diagram above.
- 2.1.1 Label components A to C. (3)
- 2.1.2 List four materials found in component A (4)
- 2.2 Explain how the materials found in component A were formed. (½ a page)(10)

QUESTION THREE – OUR SOLAR SYSTEM

[20]

- 3.1 Answer the following questions.
- 3.1.1 Name three types of plate tectonics movements. (3)
- 3.1.2 Name five natural activities associated with the movements of plate tectonics that occur on earth. (5)
- 3.2 State four (4) characteristics of planet Jupiter. (4)
- 3.3 The figure below shows the internal structure of planet Earth. Name the layers represented by the letters A to D, and provide one feature of each layer (Excluding the position of the layer relative to the other layers). (8)



QUESTION FOUR – ORIGIN AND CHARACTERISTICS OF LIFE

[15]

- 4.1 Describe the 'panspermia' theory of the origin of life. (5)
- 4.2 Jane stumbled over an irregular soft object, which had some hair-like structures. She wanted to know whether the object was a living organism or not. How would you help Jane to determine whether the object is a living organism or not. (1 page) (8)
- 4.3 Define the term 'organelle'. (2)

QUESTION FIVE – INTERACTIONS AMONG LIVING THINGS [15]

- 5.1 Name the three domains of life. (3)
- 5.2 Distinguish between biotic and abiotic factors in an ecosystem, and give an example of each (4)
- 5.3 Describe the following processes and provide one example of an organism where each process takes place.
- 5.3.1 Photosynthesis (4)
- 5.3.2 Respiration (4)

QUESTION SIX – EVOLUTION OF LIFE [20]

- 6.1 Discuss the process of artificial selection and explain how it can be used to explain evolution by natural selection. (½ a page) (10)
- 6.2 Discuss three facts about populations, which guided Charles Darwin's formulation of the theory of evolution. (6)
- 6.3 Briefly discuss two criticisms against the theory of evolution. (4)

TOTAL MARKS [100]

THE END