



<u>FACULTY</u>	: Education
<u>DEPARTMENT</u>	: Childhood Education
<u>CAMPUS</u>	: SWC
<u>MODULE</u>	: SATINA1 Introduction to Science and Technology for the Intermediate Phase1
<u>SEMESTER</u>	: First
<u>EXAM</u>	: July supplementary examination 2019

<u>DATE</u>	: JULY 2019	<u>SESSION</u>	:
<u>ASSESSOR(S)</u>	: Dr. M.M. Kazeni (UJ)		
<u>MODERATOR</u>	: Mr. E. Libusha		
<u>DURATION</u>	: 2 HOURS	<u>MARKS</u>	: 100

NUMBER OF PAGES: **5** PAGES

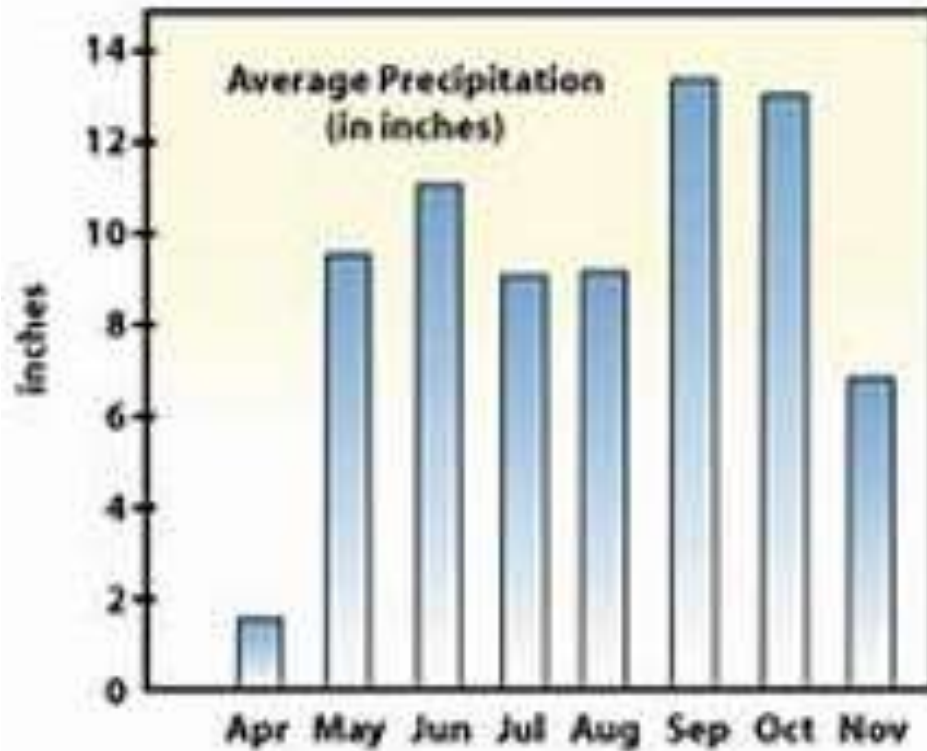
INSTRUCTIONS:

1. Answer ALL THE QUESTIONS.
 2. Number your answers clearly
 3. Answer ALL questions in the same exam booklet
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QUESTION 1: THE NATURE AND PROCESSES OF SCIENCE [13]

1.1 Provide for (4) limitations of science. (4)

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



1.2.1 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)

1.2.2 Provide a suitable title for the graph.

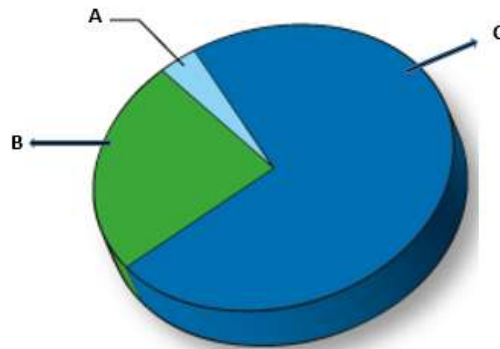
1.2.3 Suggest a possible hypothesis for the investigation that could have led to the results displayed on the graph. (2)

1.2.4 Based on the graph, state the following;

- The month that received the least amount of rainfall. (1)
- The month that received the highest amount of rainfall. (1)
- The month that received about 6.9 inches of rainfall. (1)

QUESTION 2: THE UNIVERSE [17]

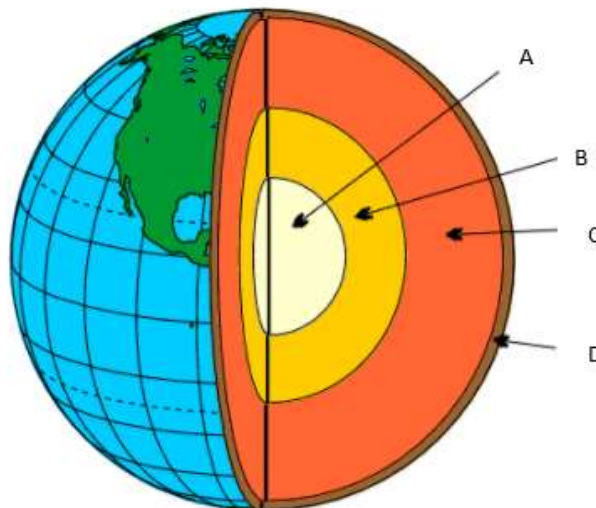
The diagram below shows the main components of the current universe.



- 2.1 Answer the following questions based on the diagram above.
- 2.1.1 Label components A to C of the current universe. (3)
- 2.1.2 List any four (4) materials found in component A. (4)
- 2.2 Explain how the universe was formed according to the Big bang theory. (½ a page) (10)

QUESTION 3: OUR SOLAR SYSTEM [20]

- 3.1 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)



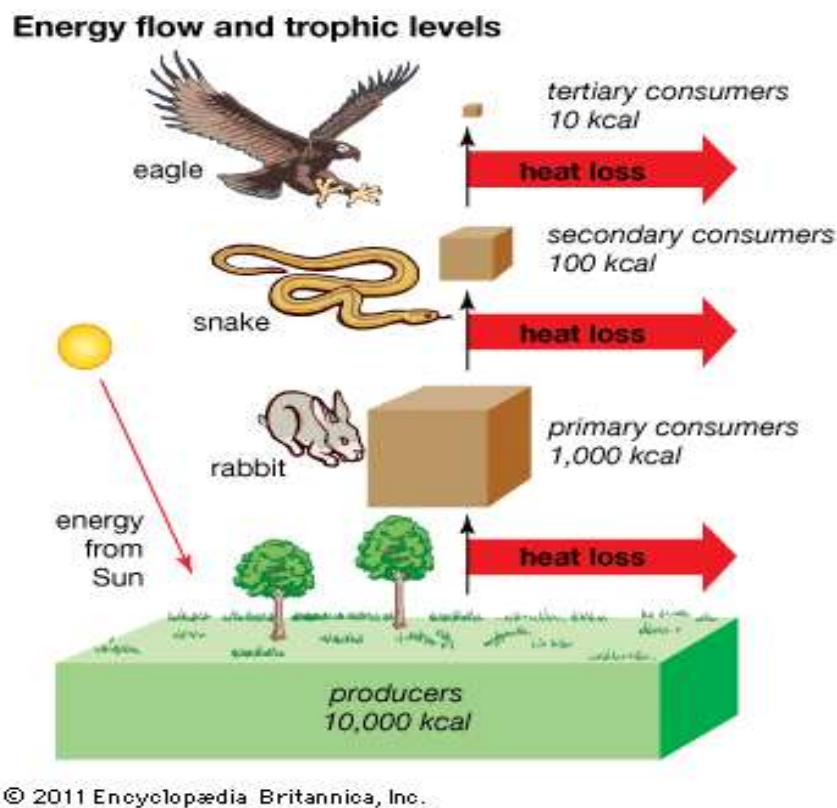
- 3.2 Answer the following questions.
- 3.2.1 Name three types of plate tectonics movements. (3)
- 3.2.2 Name five natural activities that occur on earth, which are associated with the movements of plate tectonics. (5)
- 3.3 State four (4) characteristics of planet Jupiter. (4)

QUESTION 4: 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) (10)

QUESTION 5: INTERACTIONS AMONG LIVING THINGS [15]

The diagram below shows energy flow at different trophic levels.



- 5.1 Explain how the plants in this food chain convert the energy obtained from the sun into the chemical (food) energy transferred to the rabbit. (1/4 page) (5)
- 5.2 The eagle receives the least amount of energy in this food chain. Discuss the factors that could have reduced the amount of energy transferred to the eagle, through the food chain. (½ a page) (10)

QUESTION 6: EVOLUTION OF LIFE [20]

During his visits to the island of Galapagos, Charles Darwin observed some universal characteristics of organisms. Based on these observations, he proposed the theory of evolution by natural selection.

- 6.1 Discuss three facts about populations, which Charles Darwin observed, that guided his formulation of the theory of evolution. (6)
- 6.2 Describe the concept of natural selection. (1/4 page) (5)
- 6.3 Discuss three criticisms of Darwin's theory of evolution. (1 page) (9)

TOTAL MARKS [100]

THE END