



**RAJARATA UNIVERSITY OF SRI LANKA  
FACULTY OF APPLIED SCIENCES**

B.Sc. (General) Degree in Information and Communication Technology

First Year – Semester I Examination – June / July 2018

**FDN 1205 / CMP1007 – BASIC SCIENCE FOR NON SCIENCE STUDENTS**

Time: Two hours

Answer **all** the questions on the paper itself

**INDEX NO:** .....

**(1) a) State Newton's Laws.**

i. First Law

(03 Marks)

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ii. Second Law

(04 Marks)

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**Contd.**

iii. Third Law

(03 Marks)

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b) i. What does the speedometer of a car measure, speed or velocity?

(02 Marks)

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ii. How is it possible for an object to be accelerating even though it has stopped moving?  
Illustrate your answer with a simple example.

(07 Marks)

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iii. You use your car to push a friend's pickup truck that has broken down. To bring both of your vehicles to stop, your friend applies the brakes in the truck. What can you say about the magnitude of the force by the car on the truck and that of the force by the truck on the car? Explain.

(06 Marks)

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Contd.

(2) a) i. What is it meant by Science and Technology? Explain with an example.

(05 Marks)

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ii. Use an example to describe the Scientific Method as an on going process.

(06 marks)

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**Contd.**

b) i. What is an earthquake?

(04 marks)

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ii. Describe Focus and Epicenter of an earthquake with a use of a schematic diagram.  
(06 marks)

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iii. Does earthquakes always cause tsunami? Substantiate your answer.

(04 marks)

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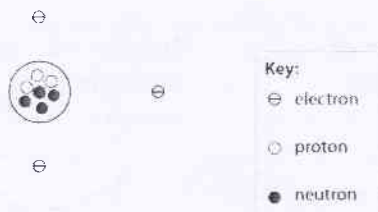
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**Contd.**

(3) a) (i) The diagram represents an atom of an element.

(10 marks)



Complete the table

Atomic number of the atom	
Number of shells shown	
Mass number of the atom	
Number of protons in an isotope of this element	
Group where the element is found in the Periodic Table	

b) i. The decomposition of hydrogen peroxide,  $\text{H}_2\text{O}_2$ , produces oxygen and water. Give the balanced equation for this reaction.

(03 marks)

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ii. Neon belongs to the family of noble gases and is inert. What is meant by the term inert? Why are noble gases inert?

(06 marks)

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**Contd.**

- 6
- C) The term species is sometimes used to refer to neutral atoms and to positive and negative ions.

The table shows the numbers of various subatomic particles in eight different species.

Species	Number of protons	Number of neutrons	Number of electrons
A	5	5	5
B	5	6	5
C	6	7	5
D	6	7	7
E	7	7	7
F	7	7	10
G	8	8	10
H	8	10	10

- i. Explain which two species represent neutral atoms of the same element

(03 marks)

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- ii. Explain which two species represent negative ions formed from the same element.  
(03 marks)

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(4) a) Name and define the levels of organization in ecology. (03 marks)

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b) Describe the following terms using suitable examples.

i) Mutualism.

ii) Commensalism.

iii) Parasitism

(06 marks)

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**Contd.**

c) Differentiate niche and habitat using an example

(06 marks)

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d) List three types of ecological pyramids and explain one of them.

(10 marks)

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END.