SENIOR PHASE

GRADE 9

NOVEMBER 2013
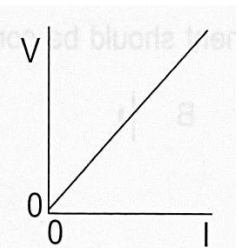
NATURAL SCIENCES MEMORANDUM

MARKS: 100

This memorandum consists of 7 pages.

INSTRUCTIONS AND INFORMATION

1.   Note carefully the distribution of marks.

2.   Any other possible answers must be considered especially in open-ended questions.

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

1.1   C √

                                                                           (1)

1.2   D √   Milk of magnesia [$Mg(OH)_2$]   (1)

1.3   D √   carbon dioxide, water and energy   (1)

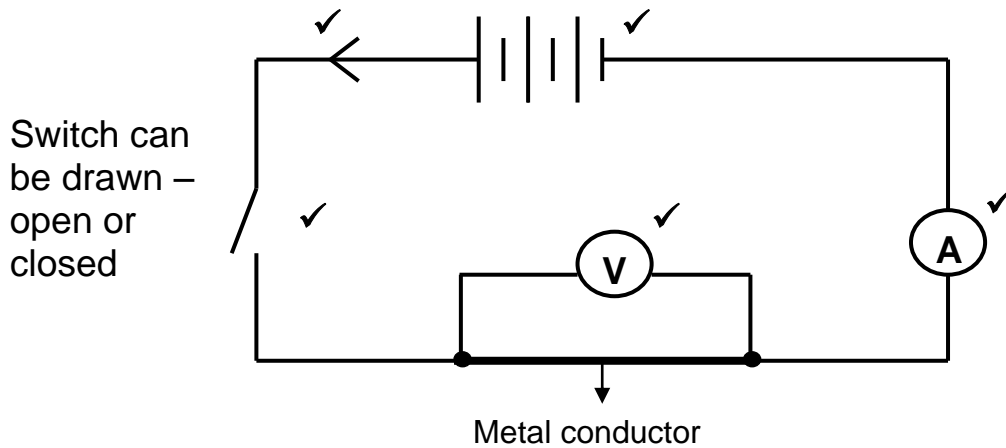1.4   D √   Calcium (Ca)   (1)

1.5   D √   to pump blood   (1)

                                                                               [5]

QUESTION 2: MATCH THE WORDS

2.1   I   antibiotics √   (1)

2.2   G   excretion √   (1)

2.3   A   corrosion √   (1)

2.4   B   indicator √   (1)

2.5   C   volcano √   (1)

                                                       (5 x 1)   **[5]**

QUESTION 3: FILL IN THE MISSING WORDS

3.1   body √   (1)

3.2   lungs √   (1)

3.3   right √   (1)

3.4   oxygen √   (1)

3.5   left √   (1)

                                                       (5 x 1)   **[5]**

QUESTION 4: ENERGY AND CHANGE

4.1

Switch can
be drawn –
open or
closed

Metal conductor (5)

4.2   Thickness or diameter of the conductor √ (1)

4.3   If the thickness (diameter) of a conductor increases, √ then the resistance
of the conductor will decrease. √

OR

If the thickness of the conductor decreases, √ then the resistance of the
conductor will increase. √ (2)

4.4 $R = \frac{V}{I}$

$3\Omega = \frac{V}{1,5\ A}$ √√   OR   (V = IR, V = 3 Ω x 1,5 A √√)

V = 4,5 V √ (3)

4.5   1,5 coulomb √ of charge passes through the conductor or ammeter in
1 second. √ (2)

4.6   4.6.1   C2. √ An additional conductor, connected in parallel with C will
increase the total thickness √ and therefore decrease the
resistance. (3)
[16]

QUESTION 5: LIFE AND LIVING

5.1   Animal cell √   (1)

5.2   • Part marked 1 – cell membrane √
        • Part marked 4 – nucleus √
        • Part marked 5 – cytoplasm √   (3)

5.3   The part of the cell that is referred as the brain is the nucleus √ because it
        controls everything that takes place inside the cell. √   (2)

5.4   Part marked 1 controls the entry and exit of substances into and out of the
        cell. √   (1)
                                                                                                            [7]

QUESTION 6: LIFE AND LIVING

6.1   Tuberculosis is caused by a bacterial infection of the lungs. √   (1)

6.2   The abbreviation of tuberculosis is TB. √   (1)

6.3   Tuberculosis is spread by inhaling the bacteria into the lungs when
        someone who has the disease coughs. √√   (2)

6.4   • Chest pains √
        • Coughing blood √
        • Fever and sweating √
        • Lose weight √
        • No appetite √   (Any 4 x 1)   (4)

6.5   Keep body healthy, √ /do exercise, √/ eat healthy√/ and have well
        ventilated rooms. √   (Any 2 x 1)   (2)
                                                                                                            [10]

QUESTION 7: LIFE AND LIVING

7.1   220 active smokers die of heart diseases √   (1)

7.2   active smokers √   (1)

7.3   Non-smoker √ because many people died of smoking related diseases. √   (2)
                                                                                                            [4]

QUESTION 8: MATTER AND MATERIALS

8.1 CH_4 √ + O_2 √ $\rightarrow$ CO_2 √ + H_2O √   (4)

8.2 H_2 √ +O_2 √ $\rightarrow$ H_2O √   (3)
                                                                                                            [7]

QUESTION 9: MATTER AND MATERIALS

9.1 Hydrochloric acid has a pH value of 1. √ (1)

9.2 Taking bicarbonate of soda helps to relieve indigestion because it neutralises excess acid in the stomach. √√ (2)

9.3 The gas that is released is carbon dioxide. √ (1)

9.4 When carbon dioxide is bubbled through clear lime water, the lime water turns clear lime water milky cloudy. √√ (2)

9.5 Sodium bicarbonate + hydrochloric acid √ → Sodium chloride + Water + Carbon dioxide √ (2)

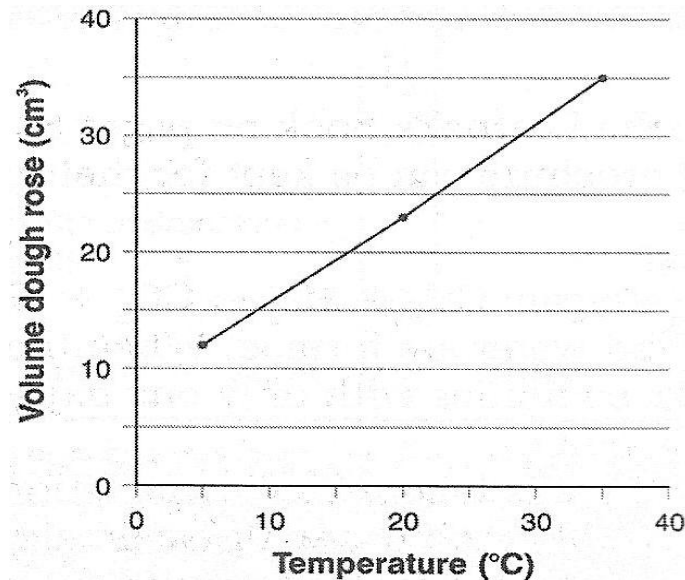9.6 $NaHCO_3$ √ + HCl √ → NaCl √ + H_2O √ + CO_2 √√ (6)

[14]

QUESTION 10: MATTER AND MATERIALS

10.1 The exposed iron reacted with oxygen and water in the air. √√ Oxidation started and the outer layer of iron reacted producing iron oxide which is called rust. √ (3)

10.2 Shanti's father would have to remove the rusted area or remove the rust. √ Then the area would have to be coated with paint. √ (2)

[5]

QUESTION 11: MATTER AND MATERIALS

11.1 What is the effect of temperature √ on carbon dioxide production? √ (2)

11.2 The time the dough was left to rise, √/ the ingredients, √/ the amount of each ingredient the amount and type of yeast, √/ the temperature of the ingredients at the start. √ (Any 2 x1) (2)

11.3 The test was fair √ because all other variables were kept the same. √√ (3)

11.4

Marking codes:

Labels: drawing of X-axis and Y-axis using a proper scale. (√√)
X-axis √ Temperature and Y-axis √ Volume of dough.
Plotting the points correctly and for joining the lines (√)
Heading (√)   (6)
                                                                                            [13]

QUESTION 12: ENERGY AND CHANGE

12.1   Sulphur dioxide, √ chloride, √ fluoride √   (Any 3)   (3)

12.2   **Lava** is the molten hot rock that reaches the surface of the earth from
        volcanic eruptions. √ Destroy vegetation, cause health problems and
        contamination of water. √   (3)

12.3   **Acid rain** is formed when sulphur dioxide and nitrogen oxide are in the
        atmosphere. √ These two oxides react with rain droplets to form sulphuric
        acid and nitric acid. √ Destroys crops, √ vegetation and wild animals. √   (3)
                                                                                            [9]

                                                                        TOTAL: 100