



**GAUTENG DEPARTMENT OF EDUCATION
PROVINCIAL EXAMINATION
JUNE 2018
GRADE 9**

NATURAL SCIENCES

MEMORANDUM

8 pages

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SECTION A

ANSWER ALL QUESTIONS IN THE ANSWER BOOK.

QUESTION 1

MULTIPLE-CHOICE QUESTIONS

1.1	D✓
1.2	A✓
1.3	D✓
1.4	A✓
1.5	C✓
1.6	B✓
1.7	B✓
1.8	C✓

[8]

QUESTION 2

TERMINOLOGY

2.1	Puberty ✓	(1)
2.2	Compound ✓	(1)
2.3	Excretion ✓	(1)
2.4	Chloride✓	(1)
2.5	Chemical digestion ✓	(1)
2.6	Hypothesis ✓	(1)
		[6]

QUESTION 3**MATCHING ITEMS**

- 3.1 C (Tissue) ✓
3.2 E (Alkali) ✓
3.3 H (Condom) ✓
3.4 D (Product) ✓
3.5 A (Digestion) ✓
3.6 B (Antibiotics) ✓

[6]**TOTAL SECTION A: [20]**

SECTION B

LIFE AND LIVING THINGS

QUESTION 4

CELLS AS BASIC UNITS OF LIFE

4.1 Plant Cell ✓ (1)

4.2

- It has a cell wall ✓
- It has a large vacuole ✓
- It has chloroplasts ✓

[Mark any one] (1)

4.3

1 – Chloroplasts ✓

4 – Cell membrane ✓ (2)

4.4

3 – Mitochondrion ✓

It is responsible for respiration ✓

Responsible for the production of energy by breaking down glucose ✓

[Mark any two] (2)

4.5

- Stores substances ✓
- Provides support ✓

[Mark any one] (1)

4.6 The nucleus that controls all the activities of the cell ✓ and contains the hereditary / DNA of a cell. ✓✓ (2)

4.7 The difference between plant cell and animal cell

PLANT CELL	ANIMAL CELL
<ul style="list-style-type: none"> • Has a rigid, regular shape • Has one or two vacuoles • Has a cell wall • Has chloroplasts • Can photosynthesise • Has a double membrane 	<ul style="list-style-type: none"> • Has an irregular shape. ✓ • Has small or no vacuoles. ✓ • Does not have a cell wall. ✓ • Does not have chloroplasts. ✓ • Cannot photosynthesise ✓ • Single membrane ✓

[MARK ANY TWO]

(2)

[11]

QUESTION 5**HUMAN REPRODUCTIVE SYSTEM**

- 5.1 Number 1✓ (1)
- 5.2 Ovulation ✓ (1)
- 5.3 Number 4. Implantation ✓ / Pregnancy [Mark any one]
The embryo sinks into the blood layer of the uterus. ✓ / Foetus growing inside the uterus [Mark any one] (2)
- 5.4 A process where a sperm cell and an egg cell unite or fuse✓ to form a zygote✓ (2)
- 5.5 Testosterone ✓ (1)
- 5.6 The same canal is used for the insertion of the male organ, penis to release sperm cells✓ and during birth the foetus moves through the same canal (birth canal) ✓ to the outside world. (2)
[9]

QUESTION 6**CIRCULATORY SYSTEM**

- 6.1 1. Lung ✓
2. Heart ✓ (2)
- 6.2 3. Artery ✓
4. Vein✓
5. Capillary ✓ (3)
- 6.3 Gaseous exchange ✓ (1)
- 6.4 (3) The blood in the artery that moves away from the heart is rich in oxygen.
(Oxygenated blood) ✓
- (4) The blood in the vein that goes towards the heart is rich in carbon dioxide / poor in oxygen. (De-oxygenated blood) ✓ (2)
[8]

QUESTION 7

RESPIRATORY SYSTEM AND THE DIGESTIVE SYSTEM

- 7.1 Tuberculosis is caused by a bacterial infection of the lungs or other parts of the body. ✓ (1)
- 7.2 Tuberculosis spreads by inhaling the bacteria into the lungs ✓ when someone with the disease coughs. ✓ (2)
- 7.3
- Have well ventilated rooms ✓
 - Cover your mouth when coughing ✓
 - Eat healthy food ✓
 - Exercise regularly ✓
- [Mark any one] (1)
- 7.4 Mechanical digestion is a process where food is physically broken, crushed and mashed into smaller pieces: ✓
- Chemical digestion is a process where food is mixed with digestive enzymes and hydrochloric acid into simpler nutrients that can be absorbed by cells. (2)
- 7.5 Roughage adds bulk to the food that we eat ✓
Helps in the digestion process ✓
Prevents constipation ✓
- [Mark any two] (2)
[8]

QUESTION 8

CIRCULATORY AND RESPIRATORY HEALTH ISSUES

- 8.1 Between any **number range** of **213 – 215** active smokers die of heart diseases ✓
(Mark any number between range) (1)
- 8.2 Active smokers ✓ (1)
- 8.3 Non-smokers ✓ because many people die of smoking-related diseases ✓ /
(Accept any answer with a reasonable explanation) (2)
[4]

TOTAL SECTION B: [40]

SECTION C**MATTER AND MATERIALS****QUESTION 9****PERIODIC TABLE OF ELEMENTS AND COMPOUNDS**

- 9.1 S✓ (1)
- 9.2 Sulphur ✓ (1)
- 9.3 16✓ (1)
- 9.4 Non-metal✓ (1)
- 9.5 Sulphur dioxide✓ (1)
- 9.6 Acidic / below 7✓ (1)
- [6]**

QUESTION 10**REACTION OF METALS WITH OXYGEN**

- 10.1 Iron✓ + Oxygen✓ → Iron Oxide ✓ (3)
- 10.2 $4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$ ✓ Balancing✓ (4)
- 10.3
- Painting the metal ✓
 - Coating the metal with oil / grease✓
 - Galvanizing metal / coating with a more reactive metal✓
 - Electroplating metal✓
- [Mark any TWO] (2)**
- [9]**

QUESTION 11**REACTIONS OF ACIDS WITH CARBONATE**

- 11.1 pH=1 ✓ (1)
- 11.2 Bicarbonate of soda (Sodium bicarbonate) is alkaline. ✓ So it neutralizes the excess acid in the stomach. ✓ (2)
- 11.3 The gas is carbon dioxide✓ (1)
- 11.4 The gas that is released is bubbled through clear lime water✓, the lime water should turn milky (cloudy) ✓. (2)
- 11.5 $\text{NaHCO}_3 + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$ ✓ (5)
- [11]**

QUESTION 12

INVESTIGATIVE EXPERIMENT

12.1 To test / investigate / prove the effect of temperature✓ on the rising of the dough. ✓

OR

To test / investigate / to prove the effect of temperature✓ on the production of carbon dioxide✓.

[Mark any one] (2)

12.2 Yes✓ / the test was fair.

Same amount of water✓ Same amount of ingredients to make the dough✓

Same size of dough used in the different cylinders✓

[Mark any two] (3)

12.3 Dependent variable: The volume that the dough rose✓.

Independent variable: The change in temperature✓

(2)

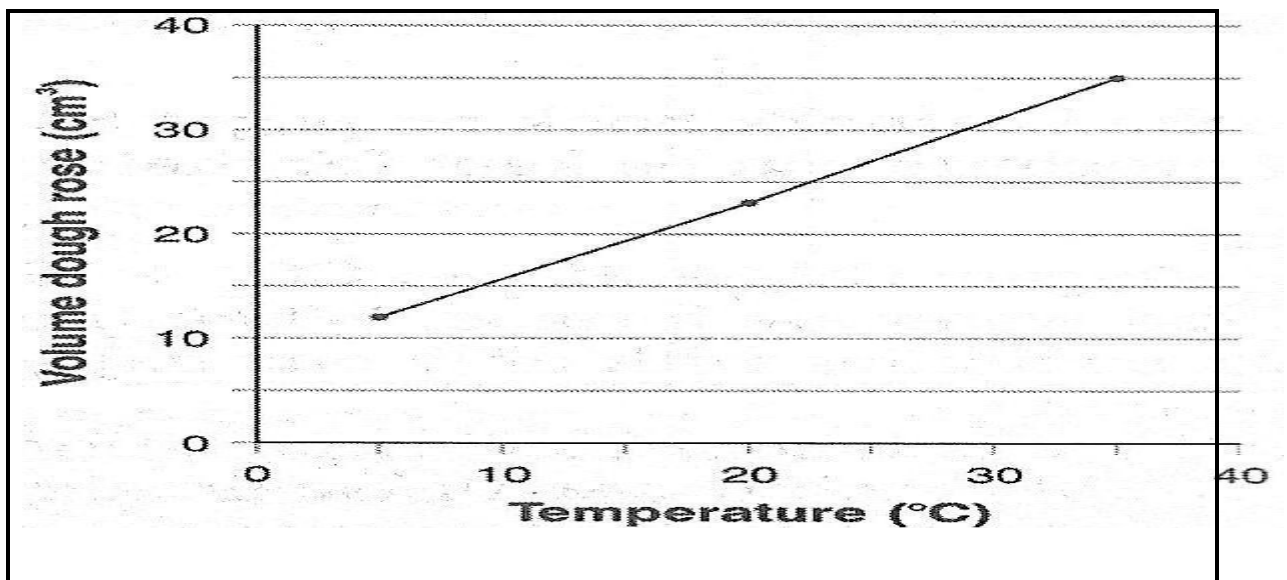
12.4 The temperature does affect OR has an effect on the rising of the dough ✓

OR

The temperature affects the production of carbon dioxide✓

[Mark any one] (2)

12.5 MARKING CODES:



- Heading✓
- X-axis : Temperature ✓
- Y-axis : Volume of dough ✓
- Both scales (x and y axis) correct ✓
- Plotting and joining points correctly ✓

(5)

[14]

TOTAL SECTION C: [40]

TOTAL: 100