



GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

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

NATURAL SCIENCES

MEMORANDUM

8 pages

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MEMORANDUM

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 \checkmark on the rising of the dough. \checkmark

OR

To test / investigate / to prove the effect of temperature \checkmark on the production of carbon dioxide \checkmark . **[Mark any one]** (2)

12.2 Yes \checkmark / the test was fair.
Same amount of water \checkmark Same amount of ingredients to make the dough \checkmark
Same size of dough used in the different cylinders \checkmark **[Mark any two]** (3)

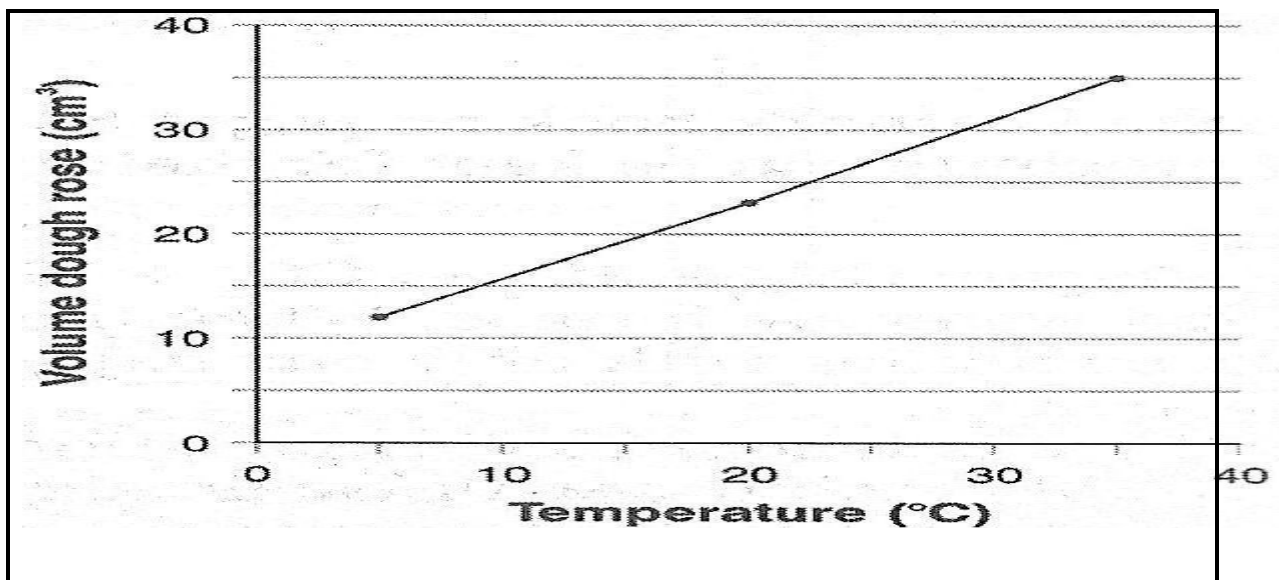
12.3 Dependent variable: The volume that the dough rose \checkmark .
Independent variable: The change in temperature \checkmark (2)

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

OR

The temperature affects the production of carbon dioxide \checkmark **[Mark any one]** (2)

12.5 MARKING CODES:



- Heading \checkmark
- X-axis : Temperature \checkmark
- Y-axis : Volume of dough \checkmark
- Both scales (x and y axis) correct \checkmark
- Plotting and joining points correctly \checkmark (5)

[14]

TOTAL SECTION C: [40]

TOTAL: 100