GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

JUNE 2019

GRADE 9

NATURAL SCIENCES

MARKING GUIDELINES

9 pages

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SECTION A

ANSWER ALL QUESTIONS IN THE ANSWER BOOK.

QUESTION 1

MULTIPLE-CHOICE QUESTIONS

1.1 C√

1.2 D√

1.3 B√

1.4 A√

1.5 A√

1.6 B√

1.7 B√

1.8 C√

[8]

QUESTION 2

TERMINOLOGY

2.1 Nucleus √

2.2 Uterus / womb √

2.3 Oxygenated blood / Oxygen rich blood √

2.4 Periodic table of Elements√

2.5 Menstruation √

2.6 Non-Metal Oxide√

[6]

QUESTION 3

MATCHING ITEMS

3.1 F√ / Magnifying glass

3.2 H√ / Balancing

3.3 A√ / Arteries

3.4 B√ / Photosynthesis

3.5 G√ / Additives

3.6 E√ / Rust

[6]

TOTAL SECTION A: 20 MARKS

SECTION B

LIFE AND LIVING

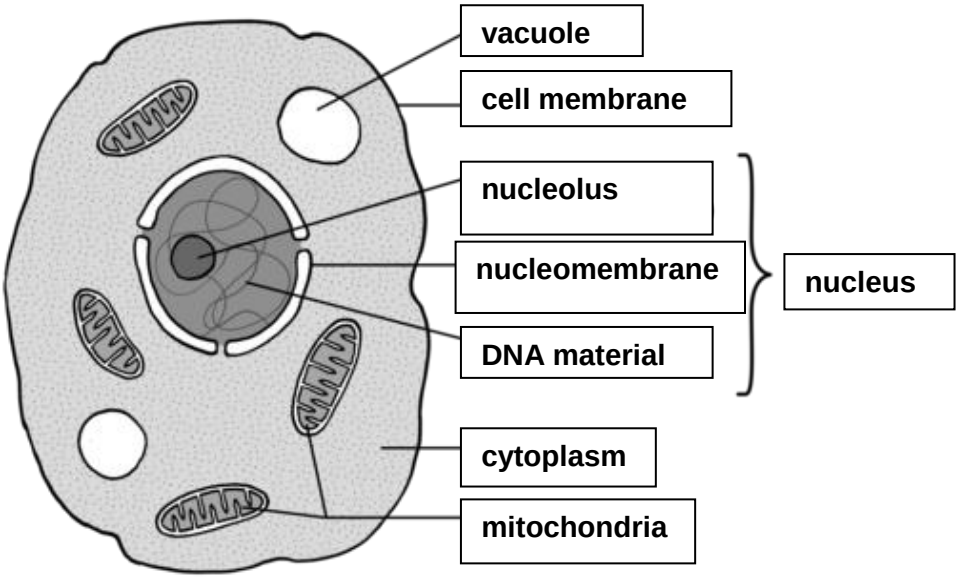
QUESTION 4

CELLS AS BASIC UNIT OF LIFE

4.1 Animal Cell √ (1)

4.2 Irregular shape √ (1)

4.3 **The structure of an animal cell**



Marking Grid for drawing of an animal cell

Correct heading	1 mark
Any two correct labels	2 marks
Correct drawing	1 mark

(4)

4.4

- All living organisms (plant – and animal cells) need the mitochondrion to release energy √ during cellular respiration √ to perform cellular activities. (2)

OR

- Responsible for cellular respiration √ to release energy √ from food.

4.5

	PLANT CELL	ANIMAL CELL
1	Has a cell wall	Does not have a cell wall √
2	Has chloroplasts	Does not have chloroplasts √
3	Has one or two large vacuoles	Has very small vacuoles or none √
4	Has a regular and rigid structure	Has an irregular structure and is not rigid√

[MARK ANY ONE] (1)

[9]

QUESTION 5

THE HUMAN DIGESTIVE SYSTEM

5.1 5.1.1 B – Oesophagus √ (1)
D – Large intestines / Colon √ (1)
F – Rectum √ (1)

5.1.2 A – Ingestion √ (1)
C – Digestion √ (1)

5.2 5.2.1 1. Mechanical Digestion: The physical breakdown of food √ through chewing, churning and mashing. √ (2)
2. Chemical digestion: The mixing of food with digestive enzymes√ and hydrochloric acid √. Breaking the food into smaller pieces. (2)

5.3 5.3.1 A healthy diet contains all the essential nutrients √ in the right (correct) proportions √ that are needed for normal growth and good health. (2)

5.3.2 Yes √
The different nutrients √ (proteins, carbohydrates, fats and oils, vitamins, minerals, fibre and water) are available for a healthy and balanced diet. (2)

5.3.2. Anorexia Nervosa √ (1)

[14]

QUESTION 6

HUMAN REPRODUCTIVE SYSTEM

6.1.1 Structure A – Female reproductive system √
Structure B – Male reproductive system √ (2)

6.1.2 Womb / Uterus √ (1)

6.1.3 Fallopian tube / Oviduct √ (1)

6.1.4 Carries sperm from the testes to the urethra / penis √ (1)

6.1.5 When the part labeled 1 is tied, the sperm cells will never be part of ejaculation√ and there will be no pregnancy √ (2)

OR

No transfer of sperm cells√ to the vagina √

6.2 6.2.1 Ovulation √ (1)

6.2.2 28 days √ (1)

6.2.3 The uterine wall thickens in preparation for the implantation and growth of a fertilized egg √ (1)
[10]

QUESTION 7

RESPIRATORY SYSTEM

7.1 Respiratory system / breathing system √ (1)

7.2 Circulatory system√ (1)

7.3 Oxygen is inhaled, carbon dioxide is exhaled and gaseous exchange happens between alveoli and the capillaries through diffusion.√ Oxygenated blood is transported (circulated) from the lungs to the left side of the heart√ and pumped through the arteries to the cells of the body.√

OR

Carbon dioxide diffuses from the cells into the blood capillaries for excretion√ and is transported (circulated) in the blood √ to the right side of the heart by veins back to the lungs to be exhaled.√ (3)
[MARK ANY THREE CONCEPTS USED]

7.4. The arteries transport the blood away from the heart √, the veins transport the blood towards the heart.√

OR

The arteries transport oxygenated blood √, the veins transport deoxygenated blood. √

OR

The arteries have thick muscle walls √; the veins have thin muscle walls.√

OR

The arteries have high blood pressure √; the veins have low blood pressure. √

OR

Pulmonary arteries carry (transport) deoxygenated √ blood, the Pulmonary veins carry (transport) oxygenated blood.√ (2)
[MARK ANY ONE] **[7]**

SECTION C

MATTER AND MATERIALS

QUESTION 8

THE PERIODIC TABLE OF ELEMENTS

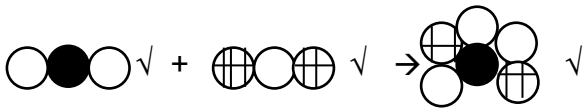
8.1 a 12 √
b Sodium √
c 6 √
d 8 √
e 26 √
f Iron √ **[6]**

QUESTION 9

NON-METALS WITH OXYGEN

9.1 Carbon dioxide√+ Water√→ Carbonic acid √ (3)

9.2 CO_2√+ H_2O √→ H_2CO_3√ (3)

9.3  (3)

9.4 Arnot Power Station √

It burns the most coal - 30% and it will therefore release more gases into the atmosphere√ which will contribute the most to acid rain√ (3)

9.5 Acid rain acidifies soil, lakes and rivers killing plants and animals. √

Acid rain can damage zinc roofs.√

Acid rain can damage buildings made from limestone. √ (2)
[MARK ANY TWO] **[14]**

QUESTION 10

ACIDS, BASES AND pH-VALUES

10.1 A universal indicator is a chemical √ that has the ability to show (indicate) a full range of pH values on the ph scale by colour changes.√ (2)

10.2 D√ and E√ (2)

10.3 A √ and C√ (2)

10.4 B√ (1)

10.5 Distilled water is neutral and will have a green colour when tested with an universal indicator √ (1)

10.6 D – pH = 4 OF pH=5 √
E – pH = 1 OF pH=2 √ (2)
[10]

QUESTION 11

REACTION OF ACIDS AND BASES

11.1 The anti-acid neutralizes the acid √√ (2)

11.2 The Ph would be neutral (almost neutral) (ph 7) √ (1)

11.3 $Mg(OH)_2$ √ + 2HCL √ → $MgCl_2$ √ + $2H_2O$ √ (4)

11.4 He would repeat the test a few times. √ (1)

11.5 Use the same type of antacid.√
Use the same amount of water.√
Use the same amount of acid. √ (2)
[MARK ANY TWO] **[10]**

TOTAL: 100 MARKS