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SET 2

GRADE 10 END OF YEAR EXAMS

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

GRADE 10 – GENERAL SCIENCE

Time: 2 Hours

LEARNER'S DETAILS

Name: _____. **School:** _____.

Assessment Number: _____. **Date:** _____.

School Code: _____. **Signature:** _____.

INSTRUCTIONS TO CANDIDATES

1. Write your name in the spaces provided above.
2. Write the name of your school and your stream in the spaces provided.
3. Write your admission number and the date of the assessment in the spaces provided.
4. This paper consists of two sections: A and B.
5. Answer all questions in section A and section B.
6. Answer the questions in English.
7. All answers MUST be written in the spaces provided in PAPER.
8. Do NOT remove any page from this question paper.

FOR OFFICIAL USE ONLY

SECTION	SECTION A	SECTION B	% SCORE	EE1	EE2	ME1	ME2	AE1	AE2	BE1	BE2
SCORE RANGE	30 MARKS	50 MARKS		90-100	75-89	58-74	41-57	31-40	21-30	11-20	1-10
POINTS				8 POINTS	7 POINTS	6 POINTS	5 POINTS	4 POINTS	3 POINTS	2 POINTS	1 POINT
LEARNER'S TOTAL SCORE											

SECTION A (30 MARKS)

Answer ALL questions in this section.

1. Three learners at Nairobi Science Senior School are conducting an investigation in the laboratory.

   Aisha Listed: Cells, human body systems, ecology, genetics, microorganisms.

   Brian Listed: Matter, acids and bases, elements and compounds, laboratory analysis.

   Kevin Listed: Electricity, energy, waves, magnetism, light.

a) Identify ONE branch of General Science represented by each learner. (3 marks)

Name of learner	**Aisha**	**Brian**	**Kevin**
Branch of general science			

b) State ONE importance of General Science in daily life. (1 mark)

_____

_____

c) Name ONE career related to the activities in the laboratory. (1 mark)

_____

_____

d) Define the term "General Science". (1 mark)

_____

_____

2. A Grade 10 class at **Kisumu High School** observes the image above.

a) Identify TWO differences between plant and animal cells shown. (2 marks)

_____

_____

b) Name TWO organelles visible in both cells. (2 marks)

_____

_____

c) State ONE function of the nucleus. (1 mark)

_____

d) What instrument is used to view such detailed images? (1 mark)

3. A ball is released from rest at the top of a hill and rolls down with increasing speed.

a) Define acceleration. (1 mark)

b) Identify the type of motion shown. (1 mark)

c) State ONE reason why the speed of the ball increases. (1 mark)

d) Mention TWO real-life examples of linear motion. (2 marks)

e) State ONE safety measure in experiments involving moving objects. (1 mark)

4. A teacher at **Mombasa High School** displays selected elements.

a) Classify sodium and magnesium into their chemical families. (2 marks)

b) Name the group of chlorine. (1 mark)

c) State ONE property of noble gases. (1 mark)

d) Explain why sodium is reactive. (2 marks)

5. A student is seen breathing heavily after a 100m race.

a) Name the type of respiration occurring in muscles during intense exercise. (1 mark)

b) Define respiration. (1 mark)

_____

_____

c) State ONE product of anaerobic respiration. (1 mark)

_____

_____

d) Explain oxygen debt. (2 marks)

_____

_____

e) State ONE importance of respiration in humans. (1 mark)

_____

_____

6. A student tests substances using universal indicator.

a) Identify TWO acidic substances in the picture. (2 marks)

_____

_____

b) State the colour of acid in universal indicator. (1 mark)

_____

_____

c) Name ONE salt formed in neutralisation. (1 mark)

_____

_____

d) State ONE use of salts in agriculture. (1 mark)

_____

_____

e) Define a base. (1 mark)

_____

_____

SECTION B: (50 MARKS)

7. A stone is dropped vertically from a bridge and falls freely to the ground.

a) Define free fall motion. (2 marks)

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_____

b) State TWO effects of gravity on falling objects. (2 marks)

_____

_____

c) Explain why objects fall at different speeds in air. (2 marks)

_____

_____

d) State TWO safety measures when carrying out free fall experiments. (2 marks)

_____

e) Calculate the velocity of a body after 5 seconds if acceleration due to gravity is 10 m/s^2. (2 marks)

8. Two children are seated on opposite sides of a seesaw.

Tasks:

a) Define moment of a force. (2 marks)

b) Explain how balance is achieved on a seesaw. (2 marks)

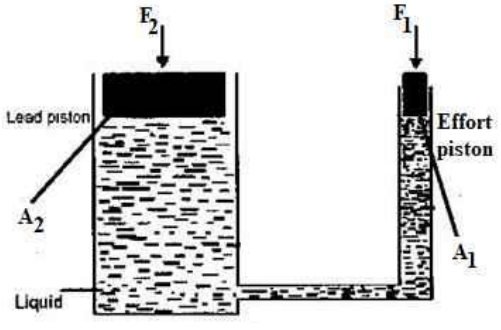
c) State TWO applications of moments in daily life. (2 marks)

d) Distinguish between clockwise and anticlockwise moments. (2 marks)

9.

a. Give a reason why water is not a suitable liquid for use in a barometer

b. The figure below is a simplified diagram of a hydraulic jack. The cross selection area A_2 of the load piston is 25 times the A_1 of the effort piston, A_2 = 25N. F_1 is the force applied (Effort) while F_2 represents A_1 the load.



i. Write an expression for the pressure exerted on the liquid by the effort piston.
A mechanic applies a force of 100N on the effort piston while raising the rear part of a car.

ii. Determine the maximum load that can be raised (2 marks)

iii. Give a reason why gas is not suitable for use in place of the liquid in the jack

_____

_____

10. A student observes magnesium reacting rapidly with oxygen.

a) Define rate of reaction. (2 marks)

_____

_____

b) State TWO factors affecting rate of reaction. (2 marks)

_____

_____

c) Explain the role of catalyst in reactions. (2 marks)

_____

_____

d) Describe ONE experiment to show effect of temperature on reaction rate. (2 marks)

_____

_____

e) State ONE industrial application of reaction rates (Haber process). (2 marks)

_____

_____

11. a) Define chemical bond. (2 marks)

_____

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b) Identify TWO types of bonds shown. (2 marks)

_____

_____

c) Explain ionic bonding using sodium chloride as an example. (2 marks)

_____

d) State TWO properties of ionic compounds. (2 marks)

e) Explain ONE use of graphite or diamond based on structure. (2 marks)

12. A health officer in Nairobi reports an outbreak of flu and food spoilage cases.

a) Identify THREE types of microorganisms shown. (3 marks)

b) State TWO modes of transmission of microorganisms. (2 marks)

c) Explain ONE method of preventing infections. (2 marks)

d) State TWO economic importance of microorganisms. (2 marks)

e) Name ONE disease caused by viruses. (1 mark)