THE 47 COUNTIES C1 SCHOOLS' JOINT NATIONAL SBA ASSESSEMENT

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

TERM 2 MIDTERM ASSESSMENTS 2026

GRADE 10 – POWER MECHANICS

Time: 2 Hours 30 Minutes

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 the paper.
8. Do NOT remove any page from this question paper.
9. For technical drawing questions, ensure **all construction steps are clearly shown**

FOR OFFICIAL USE ONLY (EXAMINER'S USE)

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. At NEP Girls Senior School, Grade 10 learners are being introduced to Power Mechanics and its role in modern transport and careers.

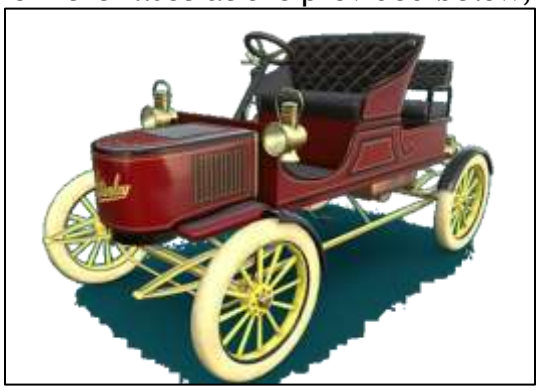
(a) Explain the meaning of Power Mechanics as a subject studied in Senior School. (1 mark)

_____

_____

_____

(b) From the illustrations provided below,



Q



R

Identify the stages in the evolution of motor vehicles. (2 marks)

Q: _____.

R: _____.

(c) State any two career paths available to learners specializing in Power Mechanics. (2 marks)

(i) _____.
(ii) _____.

2. Grade 10 learners of Hola Boys Senior School visited a workshop to study safety rules and the use of protective equipment in Power Mechanics.

(a) Classify each of the signs into the correct category: **(3 marks)**

(Mandatory / Warning /Prohibition)

		
R	**S**	**T**

R:_____.

S: _____.

T: _____.

(b) List any two Personal Protective Equipment (PPE) **required when working beneath a vehicle. (2 marks)**

(i) _____.
(ii) _____.

3. At Ngao Girls Senior School, Grade 10 learners are studying wheel systems and tyre markings as part of Power Mechanics.

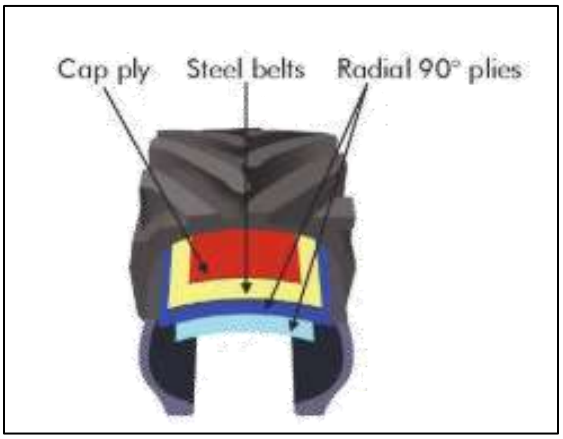
Consider the tyre marking below:

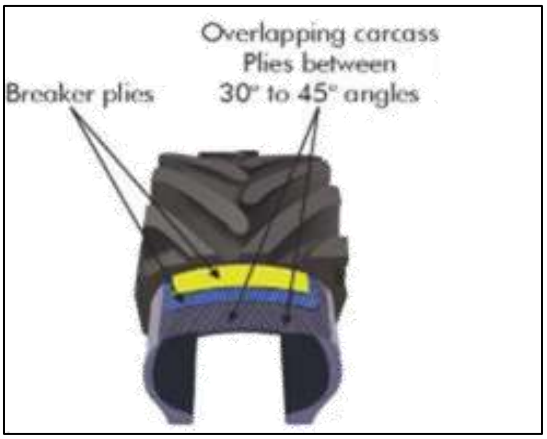


(a) State the meaning of the following components: (4 marks)

A. 205: _____.

(b) Identify the type of tyre ply arrangement shown in the diagrams. (2 marks)





X **Y**

X: _____.

Y: _____.

(c) Indicate whether the following statements are TRUE or FALSE**: (4 marks)**

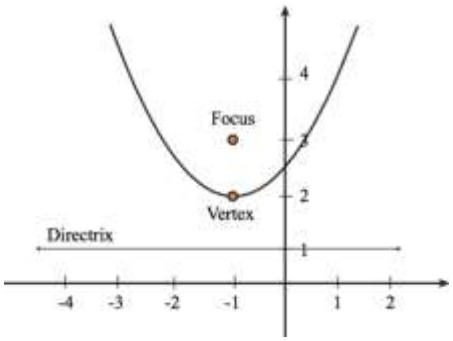
(i) A tubeless tyre contains an inner tube to hold air. [_____]
(ii) Under-inflated tyres wear out faster on the edges. [_____]
(iii) Rotating tyres helps to ensure even wear. [_____]
(iv) Aspect ratio refers to tyre height as a percentage of its width. [_____]

4. Members of the Bahari Girls Senior School Power Mechanics Club are practicing technical drawing skills, focusing on loci and the correct use of drawing instruments.

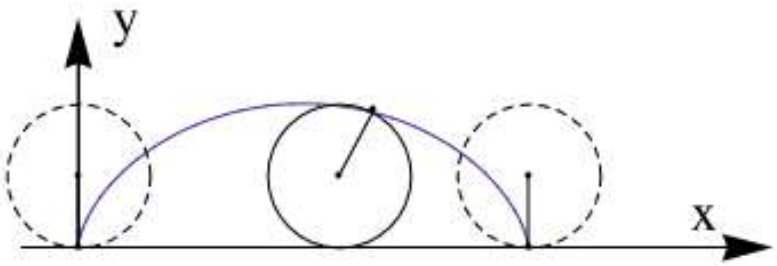
(a) Match each drawing tool with its correct function: (4 marks)

Tool	**Function**
(i) T-Square	(a) Used to draw circles and arcs
(ii) Set Square	(b) Used to draw horizontal lines
(iii) Compass	(c) Used for measuring angles
(iv) Protractor	(d) Used to draw vertical and inclined lines

(b) Name the type of loci illustrated in the diagrams. (2 marks)



G



H

G: _____.

H: _____.

(c) Mention two types of scales used in technical drawing. (2 marks)

(i) _____.
(ii) _____.

(d) Underline the correct option: (2 marks)

A diagonal scale is used to read measurements up to
(one / two / three) decimal places.

SECTION B (50 MARKS)

5. Chief Lemayian intends to establish a community garage in Namanga and seeks guidance from Moraa, a Power Mechanics student.

(a) Name the following floor markings. (3 marks)

		
J	K	L

(b) Identify three essential sections required in the workshop layout. (3 marks)

i. _____

ii. _____

iii. _____

(c) Outline two safety precautions when storing flammable substances such as petrol and oil. (2 marks)

i. _____

ii. _____

(d) Explain why the office should be separate from the working area. (2 marks)

i. _____

ii. _____

(e) Identify the following safety gear. (2 marks)





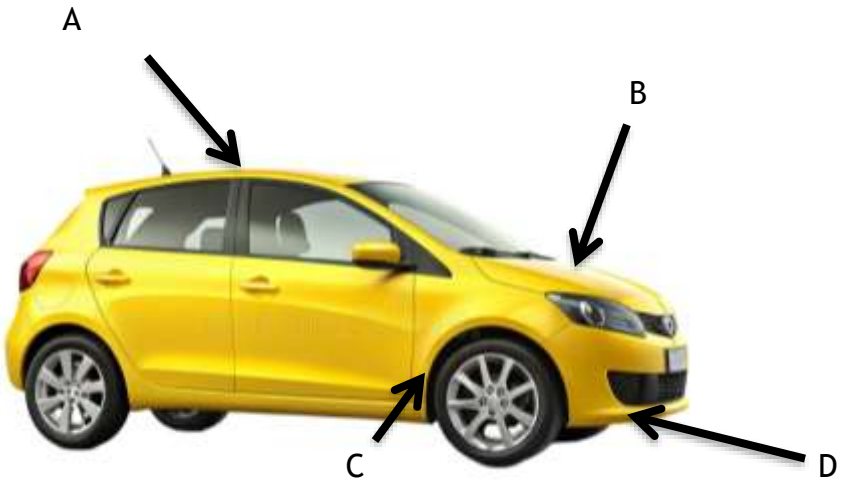
_____. _____.

6. During a visit to Isiolo Town, students observed different vehicles.

(a) Classify the following vehicles based on their function: (3 marks)

		
M	**N**	**O**

(b) Identify the labeled exterior parts of the car shown below. (4 marks)



A: _____ B: _____
C: _____ D: _____

(c) State the role of emergency vehicles in the community. (3 marks)

i. _____

ii. _____

iii. _____

(d) Differentiate between a station wagon and a convertible. (3 marks)

Station wagon	Convertible

7. Mr. Lentaaya demonstrates different chassis designs.

(a) Name the two types of chassis shown. (2 marks)





S: _____.

T: _____.

(b) List three functions of a chassis. (3 marks)

i. _____

ii. _____

iii. _____

(c) Identify the shapes of the frame sections shown. (3 marks)



W **X** **Y**

W: _____.

X: _____.

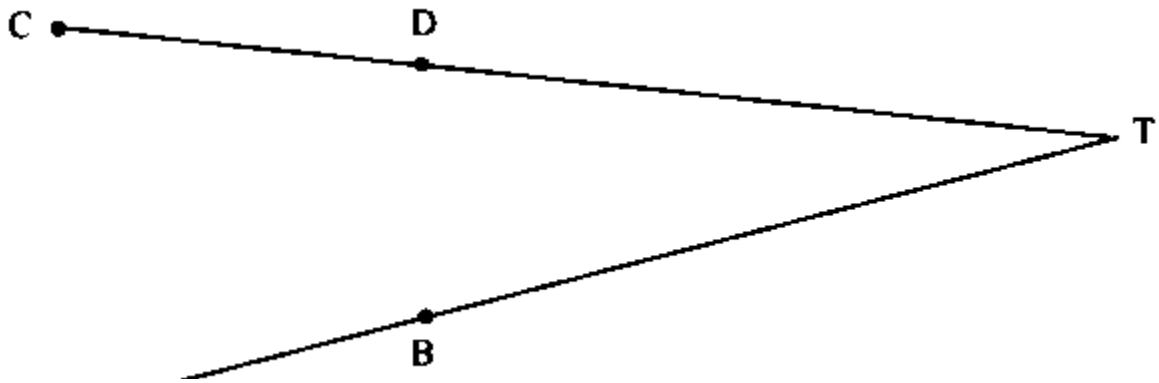
Y: _____.

(d) Explain how crumple zones reduce injuries during accidents. (2 marks)

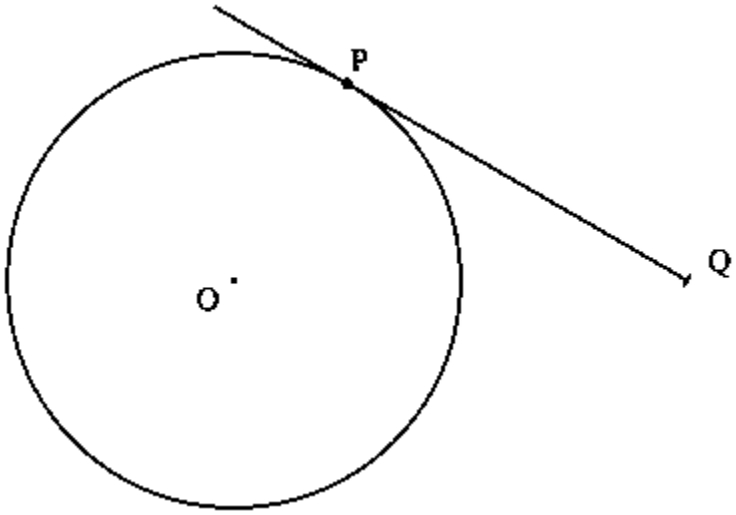
i. _____

ii. _____

8. In the figure below, AB and CD are chords of a circle that intersect externally at point T. Using a ruler and a pair of compasses only, construct the circle hence construct a tangent from point T to the circle at E. Measure ET. [2 marks]



9. In this question, use a ruler and a pair of compasses. The following figure shows a circle, centre O. A tangent to the circle at P is drawn.



Construct another tangent to the circle to intersect the drawn tangent at an angle of 60°. (2 marks)

10. At Chogoria Girls Senior School, Grade 10 learners are undertaking a technical drawing lesson where they practice constructing curves such as involutes and tangents

a. Define the term involute. (2 marks)

_____

_____

b. Draw an involute to a circle of with a diameter of 30mm. (3 marks)

c. Draw a tangent to any point T on the involute. (2 marks)

11. At Ribe Boys Senior School, Grade 10 learners are learning technical drawing and vehicle safety features in Power Mechanics lessons.

(a) Explain what is meant by blending in technical drawing. (1 mark)

_____

_____

(b) State two interior safety features of a vehicle. (2 marks)

i. _____

ii. _____

(c) Explain why understanding a locus of mechanisms is important in Power Mechanics. (1 mark)

_____

_____

THIS IS THE LAST PRINTED PAGE