

KENYAPLEX EXAMS

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

TERM 2 ENDTERM 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. Three learners at **Mombasa Senior School** are discussing the future of Power Mechanics.

- ✗ **Abdi:** "I want to design high-speed electric trains in Nairobi."
- ✗ **Bakari:** "I am interested in repairing heavy-duty tractor engines in Narok."
- ✗ **Chantal:** "I want to work for a car manufacturing plant in Thika."

(a) **List** three career opportunities Abdi, Bakari, and Chantal are aiming for. (3 marks)

i. _____

ii. _____

iii. _____

(b) **Outline** the importance of Power Mechanics in the agricultural sector of Kenya. (2 marks)

i. _____

ii. _____

2. In the **Nanyuki Senior School** workshop, the following safety signs are displayed.



Q



R

(a) **Identify** and **Name** the type of safety signs shown above. (2 marks)

Q: _____

R: _____

(b) **State** the specific Personal Protective Equipment (PPE) required when working under a vehicle chassis. (2 marks)

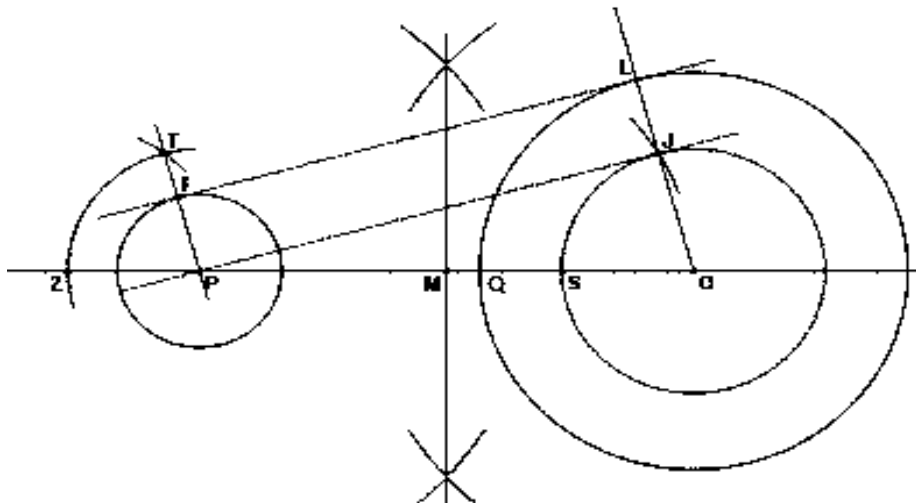
i. _____

ii. _____

(c) **True or False:**

It is safe to use a screwdriver as a chisel in the workshop. [_____] (1 mark)

3. Study the geometric illustration below showing a link mechanism used in a pump in **Kisumu**.



(a) **Define** the term *Locus* as used in technical drawing. (2 marks)

(b) **Identify** the method used to construct the tangent labeled **FL and PJ** (1 mark)

(c) **Name** the locus shape generated by a point on a circle rolling along a straight line. (1 mark)

(d) **Mention** one application of link mechanisms in an automobile engine. (2 marks)

4. A mechanic in **Eldoret** is inspecting a tire with the following specification: **205/55 R 16**.

(a) **Interpret** the tire specification "R" and "16". (2 marks)

(b) **Identify** the ply orientation shown in the cross-section diagram below. (1 mark)



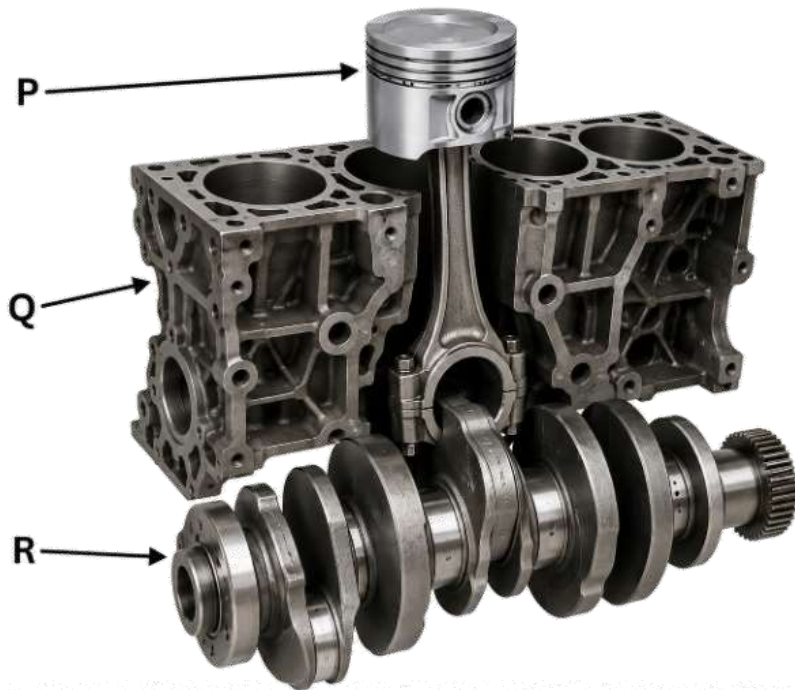
(c) **List** two functions of the road wheels in a moving vehicle. (2 marks)

iii. _____

iv. _____

(d) **Distinguish** between a tube tire and a tubeless tire. (1 mark)

5. Study the diagram of the Internal Combustion Engine (ICE) components used at **Kabarak High School**.



(a) **Identify and Name** the parts labeled **P, Q, and R**. (3 marks)

P: _____

Q: _____

R: _____

(b) **Define** the term *Bore* as used in engine measurements. (1 mark)

(c) A single-cylinder engine has a bore of 80mm and a stroke of 90mm. **Calculate** the engine capacity. (Take $\pi = 3.142$). (3 marks)

(d) **Select** the correct engine cycle: Is the piston at TDC or BDC during the start of the power stroke? (1 mark)

SECTION B: [50 MARKS]

Answer ALL questions in the spaces provided.

6. The Board of Management at **Butere Girls School** wants to set up a new Power Mechanics workshop. You are provided with a list of areas: *Storage, Office, Workbenches, and Passage Ways.*

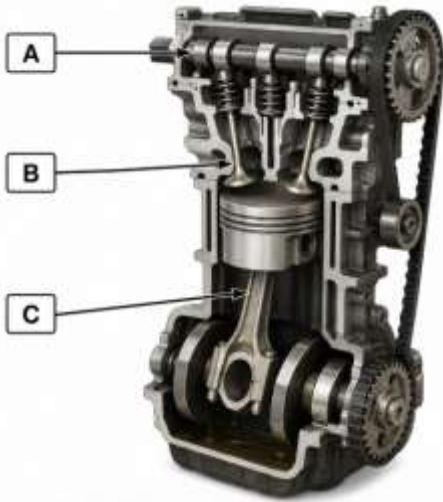
(a) **Sketch** a simple layout of a standard Power Mechanics workshop showing the four areas mentioned. (4 marks)

(b) **Explain** why the "Storage Area" should be separated from the "Working Area." (3 marks)

(c) **Describe** the importance of clear "Passage Ways" in a workshop environment. (3 marks)

- i. _____
- ii. _____
- iii. _____

7. During a practical lesson at **Machakos Boys**, learners are stripping a four-stroke petrol engine. They encounter the following components:



(a) **Name** the components labeled **A, B, and C**. (3 marks)

A: _____

B: _____

C: _____

(b) **Describe** the function of the **Camshaft** in relation to the **Valves**. (3 marks)

- i. _____
- ii. _____
- iii. _____

(c) **Match** the component to its function: (4 marks)

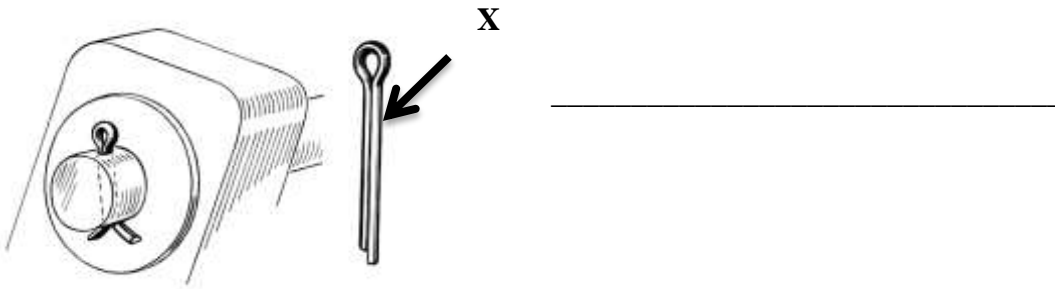
Component	Function
Piston Rings	(i) Converts reciprocating motion to rotary motion
Crankshaft	(ii) Connects the piston to the crankshaft
Connecting Rod	(iii) Houses the cooling water jackets
Cylinder Block	(iv) Prevents compression leakage

(d) **Outline** the importance of the **Sump** in a vehicle's lubrication system. (4 marks)

- i. _____
- ii. _____
- iii. _____

8. A vehicle body specialist in **Juja** is repairing a station wagon body. He needs to choose between threaded fasteners, rivets, and adhesives.

(a) **Identify** the locking device shown in the picture above. (1 mark)



(b) **Explain** the process of **Riveting** as applied to joining thin sheet metals of a vehicle body. (4 marks)

- i. _____
- ii. _____
- iii. _____
- iv. _____

(c) **Compare** the use of **Adhesives** versus **Bolts and Nuts** in terms of permanent versus temporary joining. (4 marks)

Adhesives	Bolts and Nuts

(d) **Mention** three interior body parts of a modern Kenyan bus. (3 marks)

- i. _____
- ii. _____
- iii. _____

9. Technicians at **Ganjoni Garage** in **Mombasa** are performing an engine overhaul. They are using specialized tools to measure wear.

(a) **Identify** the tool being used to measure the **Crankshaft Journal**. (1 mark)

(b) **Explain** how to measure the **Piston Ring Gap** using a feeler gauge. (4 marks)

- i. _____
- ii. _____
- iii. _____
- iv. _____

(c) **Distinguish** between a **Cylinder Bore** and **Cylinder Clearance**. (4 marks)

Cylinder bore	Cylinder clearance

(d) **Discuss** why measuring the **Journal** diameter is critical before installing new bearings. (5 marks)

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____