

ENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

AUGUST ASSIGNMENT 2026

GRADE 10 – METAL TECHNOLOGY

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 the 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. Grade 10 learners at **Wote Senior School** are touring a local Jua Kali workshop. They see various items and are asked to define them. Match the term to its correct definition.

Term

Definition

- | | |
|----------------------|---|
| (a) Metal Technology | (i) Equipment used to protect the body from injury. |
| (b) Workshop | (ii) Materials that do not contain iron as a main base. |
| (c) PPE | (iii) The study of tools, materials, and processes used in metal. |
| (d) Non-Ferrous | (iv) A building where metalwork or repairs are carried out. |
| (e) Machine | (v) A device with moving parts that performs a specific task. |

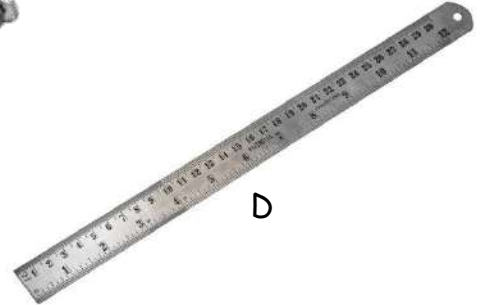
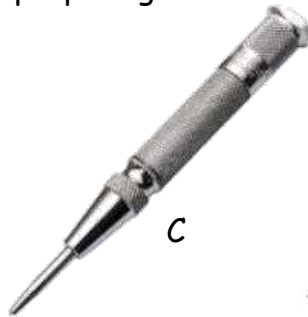
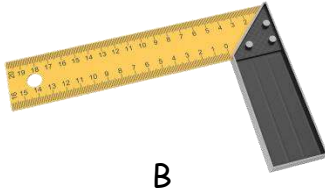
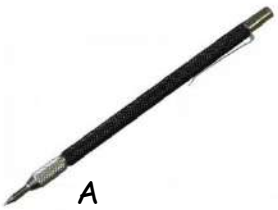
2. Three learners are discussing safety rules under the Occupational Safety and Health Act (OSHA). A learner used the following safety equipment



- (a) **Identify** the specific PPE being used in the image. (1 mark) _____
- (b) **State** one possible cause of an accident in a workshop as shown by a blocked gangway. (1 mark)

- (c) **Outline** the first-aid procedure for a minor burn in the workshop. (3 marks)
- i. _____
- ii. _____
- iii. _____

3. At Nyabisase Senior School, learners are preparing to mark a mild steel plate for a project.



- (a) **Name** tool B: _____
- (b) **Identify** which tool is used for making permanent marks at the center of a hole. (1 mark)

- (c) **Explain** the function of tool A:

- (d) **State** one maintenance practice for the Steel Rule (D). (1 mark)

4. **Stating** whether the following statements are **TRUE** or **FALSE**: (5 Marks)

- (a) High carbon steel is more brittle than mild steel. [_____]
- (b) Aluminum is an example of a ferrous metal. [_____]
- (c) "Malleability" is a mechanical property of metal. [_____]
- (d) Copper is a good conductor of electricity used in wiring. [_____]
- (e) Tin is obtained from iron ore in a blast furnace. [_____]

(i) _____

(ii) _____

(iii) _____

Butt Joint	Lap Joint

6. A community in **Makueni** is facing a problem with storage of clean water. Learners at the local Senior School suggest making a galvanized sheet metal container.



(a) **Identify** the joint labeled **A**. (1 mark) _____

(b) **Explain** why a grooved seam is preferred for a water container over a simple lap joint. (4 marks)

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

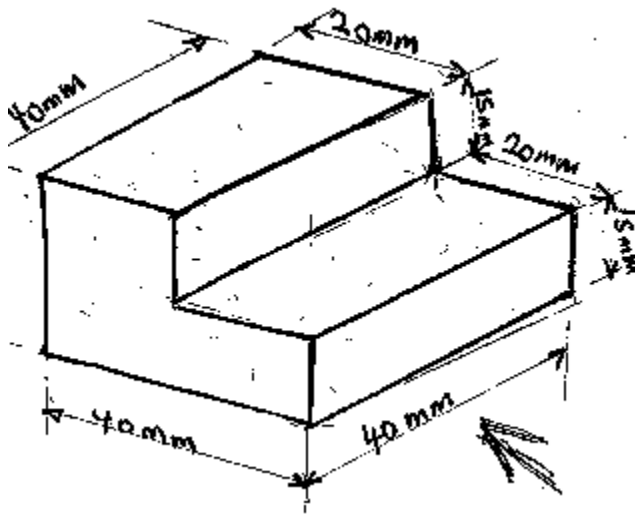
(c) **Outline** the steps for carrying out a riveting process on the container handle. (6 marks)

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

(d) **Acknowledge** two safety precautions to observe when handling thin sheet metal. (4 marks)

- i. _____
- ii. _____

7. A technician at **Mombasa Senior School** needs to draw a 3D figure for a metal bracket.



(a) **Identify** the type of pictorial drawing shown in the image. (1 mark)

(b) Draw the orthographic projection in first angle from isometric projection. (5 marks)

(c) **State** the importance of "Dimensioning" in a pictorial drawing. (4 marks)

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

8. Grade 10 learners are studying the production of iron from its ore.

(a) **Name** three raw materials fed into the top of the furnace. (3 marks)

- (i) _____
- (ii) _____
- (iii) _____

(b) **Describe** the process of "Sinking" as applied in sheet metal processes. (3 marks)

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

(c) **Compare** Ferrous and Non-Ferrous metals based on their reaction to a magnet. (4 marks)

Ferrous metals	Non ferrous metals

9. **Mutua**, a learner at **Machakos Senior School**, is selecting tools for a task that involves cutting and filing a metal bar.



J



K



L

(a) Name the tools labelled. (3 marks)

J: _____.

K: _____.

L: _____.

(b) **Identify** the tool used to hold the metal bar firmly during cutting. (1 mark) _____

(b) **Explain** how to maintain the tool J to ensure it lasts long. (1 mark)

(c) **Outline** the components of a standard metal workshop layout. (6 marks)

- i.

- ii.

- iii.

- iv.

- v.

- vi.

(d) **Mention** four career opportunities related to metal technology in Kenya. (4 marks)

- (i)

- (ii)

- (iii)

- (iv)

MARKING SCHEME (ANSWERS)

SECTION A

1. (a)-iii, (b)-iv, (c)-i, (d)-ii, (e)-v.

2. (a) Safety Goggles.

(b) Trip hazard.

(c) Run under cold water, cover with sterile dressing, do not burst blisters.

3. (a) Try Square.

(b) Center Punch.

(c) To draw/scribe lines on metal surfaces.

(d) Clean after use/apply oil to prevent rust.

4. (a) True

(b) False

(c) True

(d) True

(e) False.

5. (a) A permanent mechanical fastening method using a metal pin.

(b) Sheets, Bars, Tubes, Plates.

(c) Butt: Edges touch. Lap: One edge over the other.

SECTION B

6. (a) Grooved Seam.

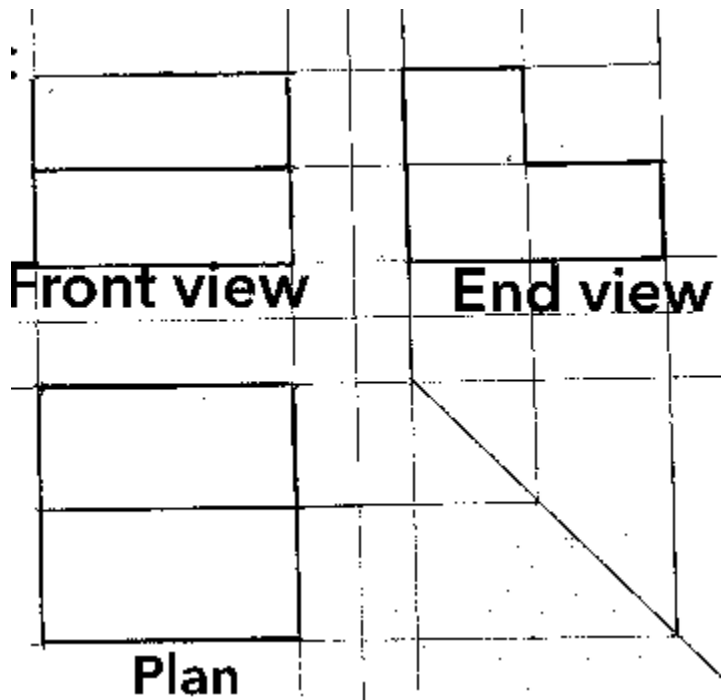
(b) It is more watertight and provides a smoother finish without sharp edges.

(c) Drilling holes, inserting rivet, snapping/forming the head.

(d) Wear gloves (sharp edges), use a mallet for folding.

7. (a) Isometric.

(b)



(c) Provides accurate sizes for fabrication.

8. (a) Iron ore, Coke, Limestone.

(b) Pushing a metal sheet into a concave depression to form a bowl shape.

(c) Ferrous contain iron (magnetic); Non-ferrous do not (non-magnetic).

9.

(a)

J-Hack saw

K-Flat file

L-Bench vice

(b) Bench Vice.

(c) Tension the blade correctly, replace blunt blades, oil the frame.

(d) Benches, Tool room, Storage area, Machine area, Safety exits.

(e) Welder, Mechanical Engineer, Tool Maker, Blacksmith.