

END TERM 3 2026

GRADE 10

METALWORK

MARKING SCHEME & TEACHER'S GUIDE

Total: 100 marks

Marking codes: C = Concept/curriculum point; M = Method/process; A = Accuracy/correct response. Award marks for other technically correct alternatives supported by the curriculum.

QUESTION 1

Metalwork is the study/practice concerned with working, shaping, joining and finishing metals using appropriate tools, materials and processes. (1)

Any two: develops practical/technical skills; prepares for training/career; enables fabrication of useful items; supports problem solving in society; develops entrepreneurial skills. (2)

QUESTION 2

Any three valid rules, 1 mark each: wear appropriate PPE; keep the workshop orderly; use tools correctly; observe safety procedures; report hazards; maintain safe working area; handle tools/materials carefully. (3)

QUESTION 3

(a) Any two: file, hacksaw, hammer, pliers, snips, chisel, etc. (2)

(b) One correct use for each named tool. (2)

QUESTION 4

Measuring tools are used to determine/check dimensions; marking-out tools are used to transfer/indicate required lines or points on work. (2)

Examples: steel rule/tape/try square/vernier where appropriate for measuring; scribe/centre punch/odd-leg caliper for marking-out. (2)

QUESTION 5

Any three: nature of task; accuracy required; material; tool condition; safety; accessibility of work; size/shape of workpiece. (3)

QUESTION 6

Ferrous metals contain iron as the principal constituent; non-ferrous metals do not have iron as the principal constituent. (2)

Ferrous: mild steel, high carbon steel, cast iron. Non-ferrous: copper, aluminium, zinc, tin, lead. Any two from each category. (4)

QUESTION 7

Any three: strength, hardness, ductility, malleability, toughness, corrosion resistance, machinability, conductivity. (3)

QUESTION 8

Any two: sheets, plates, tubes, wires, rods, bars, etc. (2)

QUESTION 11

Any six correctly sequenced stages, e.g. interpret drawing/specification; select material; select tools; measure; mark out; check dimensions; cut/form; join where required; finish/deburr; inspect final work. (6)

QUESTION 12

Accept labels according to generated figure: steel rule, try square, file, hacksaw, centre punch, scribe. Award 1 each for A–C correct. (3)

One correct use for each identified tool. (3)

QUESTION 13

Any three: communicate technical information; ensure accuracy; standardise drawings; simplify interpretation; show dimensions/features clearly. (3)

Plane scale uses a straight graduated scale; diagonal scale uses diagonals to permit more precise subdivision/readings. (2)

QUESTION 14

Pictorial drawing represents a three-dimensional object on a two-dimensional surface. (2)

Isometric and oblique projection. (2)

Any two: three principal axes represented; equal scale along isometric axes; parallel edges remain parallel; gives three-dimensional appearance. (2)

QUESTION 15

Correct isometric construction using the stated dimensions and three-dimensional form. (4)

Correctly shown 80 mm, 50 mm and 30 mm dimensions. (2)

QUESTION 16

Any three: maintains accuracy; prevents damage; prolongs tool life; improves safety; reduces errors; ensures reliable measurements/markings. (3)

QUESTION 17

Any three: riveting, fastening, screw-thread joining. (3)

One suitable application for each named method, e.g. rivets for permanent sheet-metal joints; fasteners for detachable joints; screw thread for detachable threaded joints. (3)

QUESTION 18

Any four: required strength; permanence/detachability; thickness/type of sheet; accessibility; equipment available; appearance; cost; safety; intended use. (4)

QUESTION 19

Edge treatment: shaping/finishing an edge to remove sharpness or prepare it for joining. (2)

Hollowing: forming sheet metal into a concave/hollow shape. (2)

Sinking: forming/depressing sheet metal into a die or former. (2)

Raising: stretching/forming sheet metal to increase its depth/shape around a former. (2)

Any two safety precautions: PPE; secure work; use correct tools; handle sharp edges carefully; maintain orderly workspace. (2)

QUESTION 20

(a) Any practical metal item suitable for local fabrication, e.g. dustbin, door latch, simple rack, tray, tool holder. (2)

(b) Clear description of a real community problem and beneficiaries. (4)

(c) Any four logical project stages: identify problem; investigate/design; select materials/tools; fabricate; test/finish; present/evaluate. (4)

QUESTION 21

Any four explained points: use tools correctly; wear PPE; maintain/return tools; prevent waste/damage; keep work area safe; follow workshop procedures; handle materials responsibly; protect self and others. (4)

QUESTION 22

Materials identified appropriately. (1)

Tools/equipment identified appropriately. (1)

Major operations logically sequenced. (2)

Safety precautions included. (1)

Final product clearly identified/sketched/described. (1)

CURRICULUM TRACEABILITY

Question	Strand	Sub-strand	Learning outcome focus	Cognitive level	Marks
1	1.0	1.1 Introduction to Metalwork	Define metalwork; explain importance of studying metalwork	Understand	3
2	1.0	1.2 Safety at the workshop	Explain workshop safety	Understand	3
3	2.0	2.1 Hand tools and bench tools	Select and use hand/bench tools	Remember/Apply	4

4	2.0	2.2 Measuring and marking out tools	Identify and explain measuring/marketing tools	Understand	4
5	2.0	2.1 Hand tools and bench tools	Select appropriate tools	Apply	3
6	2.0	2.3 Ferrous and non-ferrous metals	Distinguish metals and give examples	Understand	6
7	2.0	2.3 Ferrous and non-ferrous metals	Describe properties of metals	Understand	3
8	2.0	2.3 Ferrous and non-ferrous metals	Illustrate forms/material supply	Remember	2
11	2.0	2.2 Measuring and marking out tools / 4.2 Sheet metal processes	Apply measuring, marking and process knowledge	Apply	6
12	2.0	2.1 Hand tools and bench tools	Identify tools and uses	Apply	6
13	3.0	3.1 Scales and conventions	Identify/use drawing conventions	Understand	5
14	3.0	3.2 Pictorial drawing	Identify and explain pictorial drawing	Understand	6
15	3.0	3.2 Pictorial drawing	Construct isometric drawing	Create/Apply	6
16	2.0	2.2 Measuring and marking out tools	Maintain measuring/marketing tools	Evaluate	3
17	4.0	4.1 Methods of joining sheet metal	Identify joining methods and applications	Understand/Apply	6
18	4.0	4.1 Methods of joining sheet metal	Explain selection of joining methods	Analyse	4
19	4.0	4.2 Sheet metal processes	Describe and apply sheet-metal processes	Understand	10
20	2.0/4.0	2.4 Project / 4.3 Project	Identify and solve a community problem using metalwork	Create	10
21	1.0/2.0/4.0	1.2 Safety / tools / project	Apply safety and responsibility	Apply	4
22	2.0/4.0	2.4 Project / 4.3 Project	Plan fabrication using tools, materials and processes	Create	6

TEACHER/EXAMINER GUIDANCE

1. The assessment is cumulative across the complete Grade 10 Metalwork Curriculum Design, not restricted to Term 3.
2. Accept equivalent technically correct terminology and procedures where the meaning is clear and consistent with the curriculum.
3. For practical/drawing responses, assess accuracy, appropriate conventions, correct sequence and safe working practice.
4. For Question 12, the image-generation prompt in the Question Paper defines the intended visual; the examiner should use a clean six-tool diagram matching those specifications.
5. For Questions 15 and 22, award marks holistically according to the stated components while accepting reasonable construction approaches.
6. The curriculum contains four strands and eleven sub-strands: 1.1, 1.2; 2.1, 2.2, 2.3, 2.4; 3.1, 3.2; 4.1, 4.2, 4.3. All are represented in the assessment.

TOTAL-MARK VERIFICATION

Section A = 30 marks; Section B = 30 marks; Section C = 20 marks; Section D = 20 marks; GRAND TOTAL = 100 marks.

No multiple-choice or conventional objective-test questions are included. The paper uses structured responses, technical drawing, tool identification, application, project planning and process-based questions.

END OF MARKING SCHEME