higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATERIALS
NQF LEVEL 3

8 November 2022

This marking guideline consists of 6 pages.

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QUESTION 1

1.1
1.1.1 True
1.1.2 False
1.1.3 True
1.1.4 True
1.1.5 True

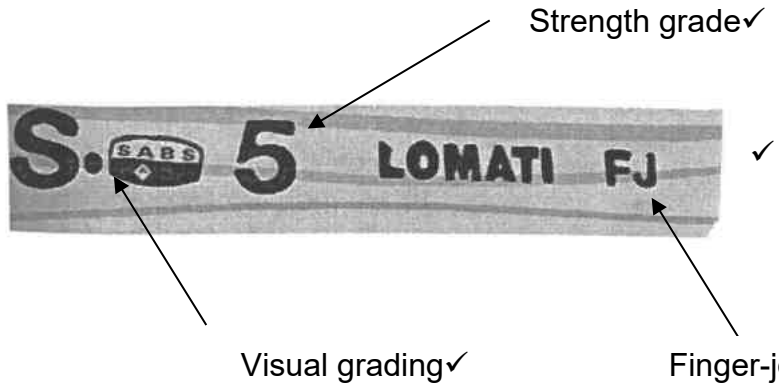
(5 × 1) (5)

1.2

HARDWOOD	SOFTWOOD
• Broad, flat leaves	• Needle-like leaves
• Branches grow at different levels	• Grow much quicker
• Thicker cell walls	• Long, thin-walled cells
• Covered seeds	• Have cones
• Shed leaves in autumn	• Usually evergreen

(Any 3 × 2) (6)

1.3



(4)
[15]

QUESTION 2

2.1
2.1.1 Sawing
2.1.2 Cropping
2.1.3 Guillotining
2.1.4 Plasma arc cutting
2.1.5 Punching

(5 × 2) (10)

2.2 A pure metal is a metal that is found in nature and does not contain other materials, while an alloy is made up of two different chemical elements of which one is a metal. (2)

2.3 Copper and zinc (2)

2.4
- Aluminium tends to be more expensive than ordinary steel.
- It has become the norm to use steel for entire structures.
- Steel is chosen because of its affordability.
- Steel is also reliable and easily compatible with other materials.
- Aluminium is used for external cladding and door and window frames for aesthetic purposes. (Any 4 × 1) (4)

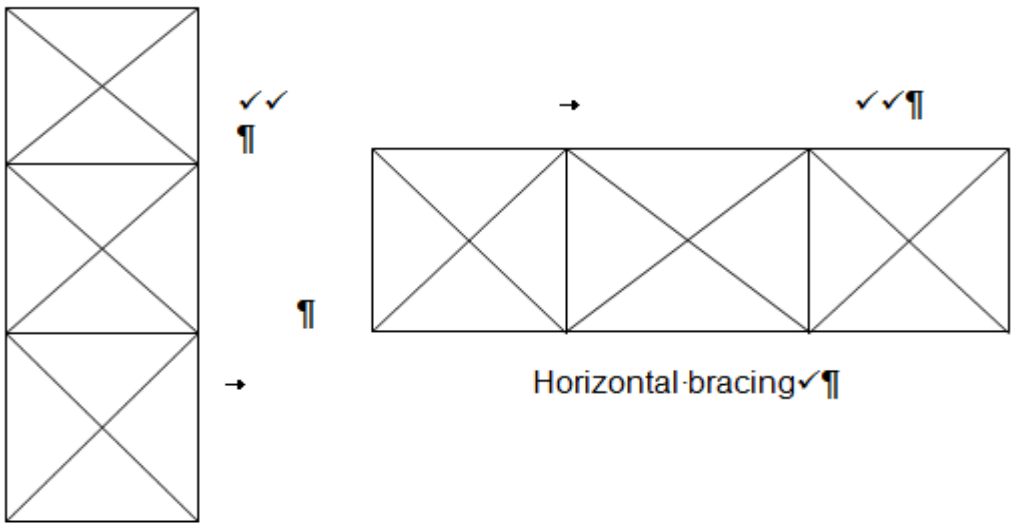
2.5 2.5.1 Copper
2.5.2 Aluminium

(2 × 1) (2)
[20]

QUESTION 3

3.1
- Check the steel panels for moisture and transport damage before signing off the delivery invoice.
- When handling painted surfaces, protect the finish by not dragging the panels over one another.
- Identify and remove any agent that causes corrosion.
- Keep the steel indoors in a dry atmosphere.
- Use wooden blocks to elevate and slope the steel panels in a way that will allow the moisture to drain. (Any relevant answers 5 × 1) (5)

3.2



(Any relevant drawing 6 × 1) (6)

3.3 The base plate allows for the transfer of the load in the column onto the concrete foundation. (1)

3.4
- To ensure that the column base is in the correct position
- To anchor the column to the foundation to prevent it from lifting (2)

3.5 Shims are small steel plates used to adjust a base plate on uneven ground to ensure that the base plate rests level. (2)

3.6
- All work has been completed as stipulated in the contractual agreement.
- The area of the project has been left in a safe condition.
- Any defective work has been fixed.
- All potential hazards arising from the work have been controlled. (4)

[20]

QUESTION 4

4.1
- Use metals that are close together in the galvanic series.
- Prevent the movement of ions by applying impermeable coating.
- Make sure that the environment is dry and that liquids cannot be trapped.
- Paint both metals where possible.
- Apply a compatible metal or sacrificial metal coating.
- Provide additional corrosion allowance on the less noble metal.
- Avoid relatively small areas of the less reactive metal and large areas of the more reactive metal. (Any 5 × 1) (5)

4.2
- Anode
- Cathode
- Electrolyte
- Electrical conductor (4)

4.3 Steel or iron sheets are coated with a thin layer of zinc by submerging them into a molten bath of zinc✓ at a temperature of around 450 °C.✓ (2)

4.4
- Coating should be continuous
- Relatively smooth
- Free from sharp points
- Free from gross imperfections (4)

[15]

QUESTION 5

5.1
- Current
- Electrode diameter
- Moisture content of electrodes
- Travel speed
- Arc length
- Angle of electrode
- Weave pattern
- Temperature of metal
- AC or DC
- Quality of earth connection (Any 5 × 1) (5)

5.2
- Welding helmet
- Leather apron
- Thermal gloves
- Respiratory mask
- Safety boots (5)

5.3
- Check the equipment every day before work to look for any visible faults.
- Avoid touching the live electrode and the workpiece at the same time during the welding process.
- The working area must always be dry and well ventilated.
- Keep yourself insulated by standing on a rubber mat or dry wood when working.
- Wear your full personal protective clothes. (Any relevant answers 5 × 1) (5)

5.4 Soldering iron (2)

5.5 It is very important to perform welding work in a well-ventilated space,✓ because the burning and melting of metals causes fumes✓ that may be dangerous to one's health if inhaled.✓ (Any relevant answer) (3)

[20]

QUESTION 6

6.1
6.1.1 Frameless shower doors, office partitions and large windows
6.1.2 Windshields for cars and shopfronts
6.1.3 Smaller windows in domestic housing
(3 × 1) (3)

6.2 Putty should be stored in a sealed container away from direct sunlight or a very cold place where it could freeze. (2)

6.3
- It is resistant to explosions.
- It is resistant to windstorms.
- It blocks unwanted noise.
- It prevents unlawful entry.
- Thicker types of laminated glass can resist impact from bullets. (Any 3 × 1) (3)

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6.4 Hollow drill bit (1)

6.5 Putty knife (1)
[10]

TOTAL: 100