higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

WELDERS' THEORY N2

28 November 2024

This marking guideline consists of 6 pages.

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QUESTION 1

1.1
A Weight/Balance weight
B Handle/Clamp bar handle
C Top leaf
D Bending leaf
E Handle/Handle to raise the bending leaf
F Fingers

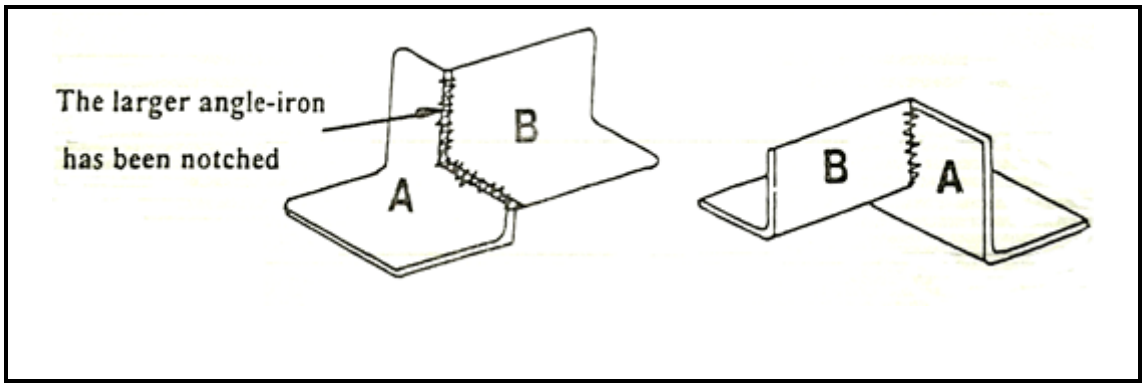
(6 × 1) (6)

1.2
- Wear goggles to protect the eyes from metal fillings that usually fly about during drilling.
- Ensure that the workpieces are securely clamped.
- Select the correct speed for the size of the drill bit that will be used.
- Feed gradually and do not apply more downward pressure on the drill bit than is necessary.
- Do not wear any loose hanging clothes.
- If you have long hair, wear a hair net to avoid hair being caught by the revolving drill bit.
- Keep your drill bits sharp. (Any 4 × 1) (4)

[10]

QUESTION 2

2.1



(Any view accepted) (ONE mark for accuracy and neatness) (6)

2.2 Rolled steel joist (1)

[7]

QUESTION 3

3.1 Length of bend = $\frac{45}{360}$ × 6.283 × 240 ✓✓

= 0.125 × 6.283 × 240 ✓✓

= 188,49 mm ✓✓

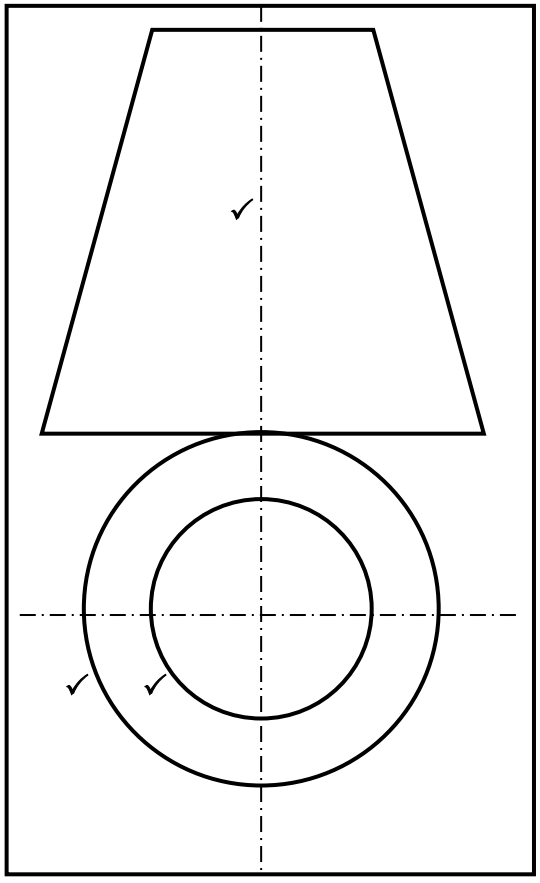
(6)

3.2 Contour marker✓✓ (2)

[8]

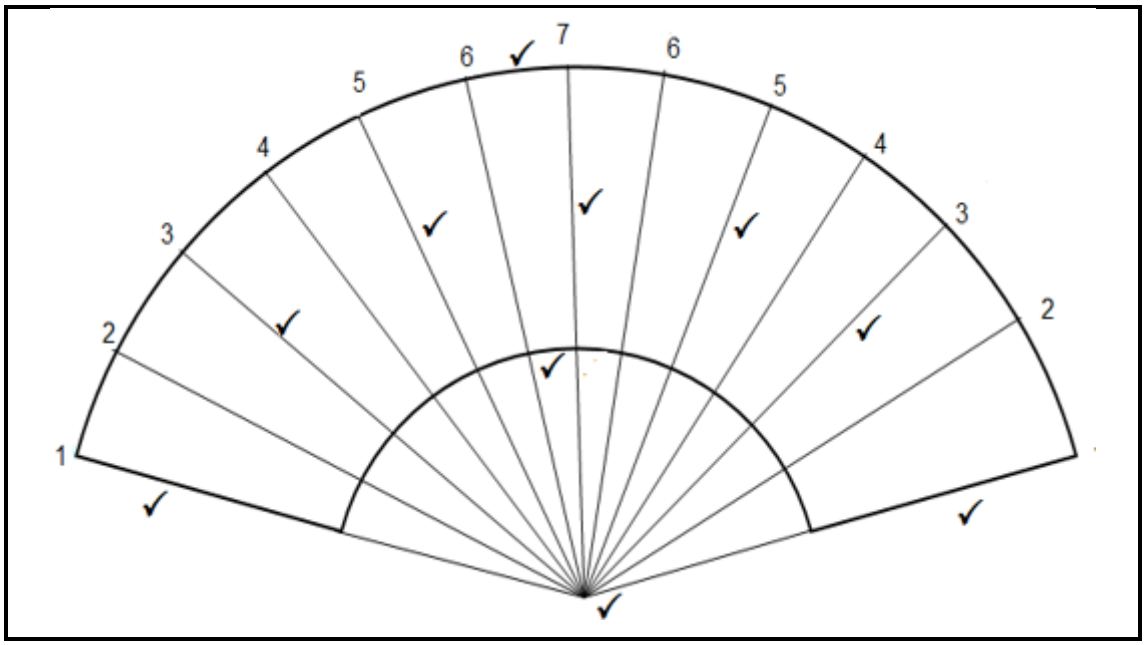
QUESTION 4

4.1



GIVEN VIEWS OF THE RIGHT CONE (3)

4.2



DEVELOPMENT OF THE RIGHT CONE (10)
(Neatness) (2)
[15]

QUESTION 5

5.1 False
5.2 True
5.3 True
5.4 True
5.5 True

(5 × 1) **[5]**

QUESTION 6

6.1
- Aluminium
- Copper
- Brass
- Lead
- Zinc
- Stainless steel

(Any 5 × 1) (5)

6.2
- White cast iron
- Grey cast iron
- Malleable cast iron

(3)

6.3
- Local preheating
- Overall preheating
- Indirect preheating

(Any 2 × 1) (2)

6.4
- Hardening is achieved by heat treatment
- It is resistant to oxidisation as well as to corrosion
- It is magnetic
- It has a lower expansion co-efficient than mild steel
- It is a poor heat conductor (5)

[15]

QUESTION 7

7.1
A Removable cap
B Cylinder valve
C Steel body
D Porous material
E Foot ring
F Fusible plugs

(6 × 1) (6)

7.2
- Low-pressure acetylene is supplied from a generator. It is purified and dried and then passed through the blow torch.✓
- Oxygen is supplied from the high-pressure cylinder. Pressure is controlled via the cylinder gauge.✓
- The blow torch is designed so that the high-pressure oxygen injects✓
- the low-pressure acetylene into the nozzle.✓ (4)

7.3
- Magic-eye type
- Magnetic-wheel type (2)

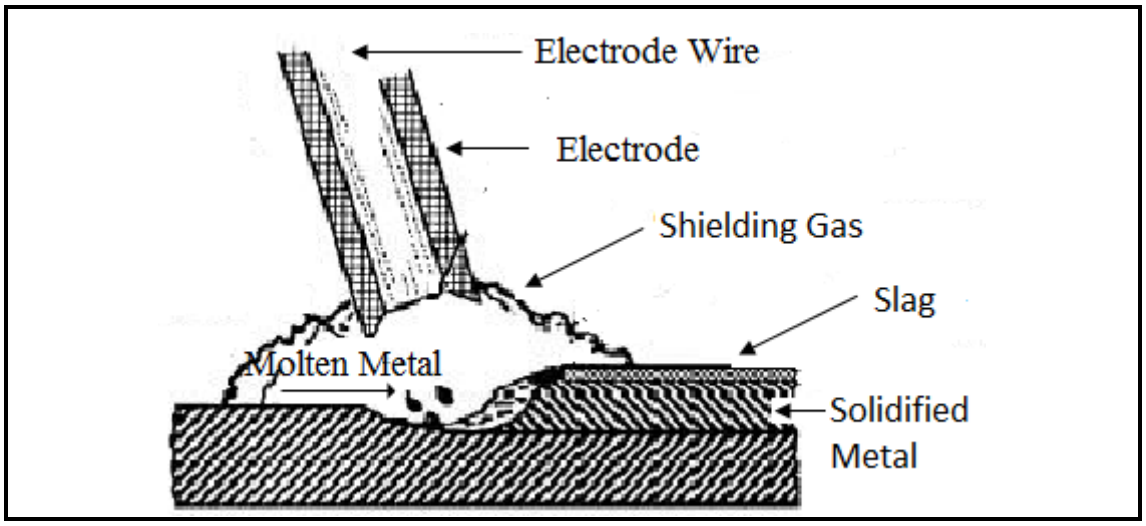
[12]

QUESTION 8

8.1
- Power source
- Wire-feed unit
- Ga- feed unit
- Gas flow meter
- Control system
- Welding gun (Any 5 × 1) (5)

8.2
- Preheating is applied to the base metal before welding or cutting. Preheating assists the weld metal to fuse properly.✓✓
- Postheating is applied after welding to remove any stresses that may have been set up during welding.✓✓ (2 × 2) (4)

8.3



(6)
[15]

QUESTION 9

- Porosity
- Slag inclusion
- Cracks
- Lack of root penetration
- Lack of sidewall fusion **[5]**

QUESTION 10

10.1
- The chemical composition of the steel
- Heating time
- Heating temperature
- Carbon content
- Method of quenching (5)

10.2
- Carbonisation (box method)
- Cyaniding (bath method)
- Nitriding (gas method) (3)

[8]

TOTAL: 100

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