higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ENGINEERING FABRICATION
(First paper)
NQF LEVEL 2

17 November 2022

This marking guideline consists of 5 pages.

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SECTION A

QUESTION 1

1.1 I
1.2 F
1.3 A
1.4 J
1.5 D
1.6 H
1.7 B
1.8 C
1.9 E
1.10 G

(10 × 1) **[10]**

TOTAL SECTION A: 10

SECTION B

QUESTION 2

2.1
- The parts will be interchangeable.
- Templates save time as developments are made only once.
- Semi-skilled labour can be employed to cut the pieces.
- Using templates increases productivity. (4)

2.2
- They may be used continually.
- They may be used at a later stage.
- They may be used in a harsh environment.
- This may include wet or dry conditions. (4)

2.3 2.3.1 New diameter = 408 – 2✓
= **<u>406 mm</u>**✓

2.3.2 New diameter = 408 + 2✓
= **<u>410 mm</u>**✓

(2 × 2) (4)
[12]

QUESTION 3

3.1
- To protect you and your fellow workers
- To avoid damage to the machinery, tools and equipment
- To provide you with the safety concepts you need to deliver quality workmanship (3)

3.2
- Measure/mark the two ends where the line is to be drawn.
- Hook/hold the chalk line at one end and pull it tight for snapping.
- Strike the line once and use the reel to pull the line back into the pear-shaped case. (3)

3.3
- Riveting
- Soldering
- Spot-welding (3)

3.4 3.4.1 A
3.4.2 A
3.4.3 B

(3 × 1) (3)
[12]

QUESTION 4

4.1 4.1.1 Combination snips
4.1.2 Combination notcher, coper and shear

(2 × 1) (2)

4.2 4.2.1 Elasticity is the property that allows metal to stretch without breaking.

4.2.2 Malleability is the property that allows a metal to be rolled or bent.

4.2.3 Ductility is the property that allows a metal to be hammered or drawn into wires.

(3 × 1) (3)

4.3
- Job card
- Work permit
- Standard working procedure
- Procedure for producing layout
- Material to be used
- Manufacturing procedure (Any 4 × 1) (4)

4.4
- The plain forming machine
- The slip-roll forming machine (2)

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4.5 4.5.1 A handy seam prevents the edges of the seam from buckling when two full sheets of metal are being seamed together.

4.5.2 This seam is generally used in large ducts that need two or more sheets of metal.

(2 × 1) (2)
[13]

QUESTION 5

5.1 A – Pressure regulator
B – Torch/mixer
C – Control valves
D – Oxygen hose
E – Acetylene hose

(Any 3 × 1) (3)

5.2
- Screen off or remove all flammable materials from the cutting area to protect workers.
- Wear appropriate leather safety clothing.
- Use the proper shade of tinted lens.
- Make sure the area under the cut is clear.
- Keep the cutting hoses clear from beneath the cut. (Any 3 × 1) (3)

5.3
- When you need to replace the oxygen or acetylene cylinder
- When the oxyacetylene equipment is not going to be used again for a long time
- When the equipment is faulty (3)

5.4
- Be aware of the colour coding for hoses: oxygen is blue and acetylene is maroon.
- Do not repair or join the hoses with tape, clamps or any fitting except the supplier's fitting.
- Only use hoses designed for the purpose of oxyacetylene plant.
- Suspend the hoses overhead where required, so that they are not run over or cut. (4)

[13]

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QUESTION 6

6.1 The cutting motion of the reciprocating saw is backwards and forwards. As the saw blade moves forwards on the cutting stroke, each tooth makes contact with the stock and removes chips. (2)

6.2
- A hand file
- A handheld disc grinder
- Pedestal grinder if work piece is small to manage
- A drill bit bigger than the drilled hole (4)

6.3
- Always be on the lookout for others in the vicinity of the power saw before commencing work.
- Make sure that the machine cannot be started accidentally while performing setup operations.
- Never use the machine without a guard.
- Be aware of faulty electrical connections.
- Wear protective gloves when handling steel sections.

(Any correct/relevant answers 3 × 1) (3)

6.4
- Higher cutting speeds and feed rates are possible.
- The life of the blade is extended.
- The surface finish and dimensional accuracy are improved.
- Swarf is carried away from the work area.
- The power consumption is reduced. (Any 3 × 1) (3)

6.5
- Ensure that the required length of the material protrudes beyond the outer disc face.
- Ensure that the material is clamped rigidly.
- Ensure that you obtain help when the material is too heavy.
- Ensure that you do not bump the disc with the material. (3)

[15]

TOTAL SECTION B: 65
GRAND TOTAL: 75

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