higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MANUAL MANUFACTURING
NQF LEVEL 2

24 NOVEMBER 2023

This marking guideline consists of 6 pages.

Copyright reserved

QUESTION 1

1.1 The condition of being safe from undergoing or causing injury or loss. (1)

1.2
- Contact with harmful chemicals.
- Exposure to excessive noise, radiation or vibration.
- Actions harmful to the environment. (3)

1.3
- Occupational health addresses potential health concerns.
- Occupational safety addresses potential safety hazards that can cause injury. (2)

1.4 Refer to ADDENDUM A (6)

1.5
- Turn off lights, computers, and other appliances when not in use.
- Use energy-efficient globes.
- Insulate all pipes transporting hot water. (3)

1.6
- Wet floors.
- Maintenance workers.
- Unsecured electrical wiring.
- Work done without the relevant warning signs or protective guards.
- People loitering on or around the workplace who do not have any particular business there. (Any 2 × 1) (2)

[17]

QUESTION 2

2.1 2.1.1 To divide or cut into two equal portions.

2.1.2 Manufacturing

2.1.3 Drawing with the plane of projection at equal angles to the three principal axes.

(3 × 1) (3)

2.2 2.2.1 True
2.2.2 True

(2 × 1) (2)

2.3
- Stencil
- French curve
- Flexible curve
- Protractor
- Scale ruler
- Ruler
- Compass
- Eraser (Any 5 × 1) (5)

[10]

QUESTION 3

3.1
3.1.1 Anvil
3.1.2 Spindle
3.1.3 Spindle lock
3.1.4 Datum line
3.1.5 Sleeve
3.1.6 Frame
3.1.7 Thimble
3.1.8 Ratchet

(8 × 1) (8)

3.2 Micrometer (1)

3.3 To use the engineering square, you place the stock firmly against the reference face of the workpiece with the blade a small distance away from the face to be checked.✓ Slowly lower the square until the blade makes contact.✓ The assembly is then held up towards the light and viewed to assess the size of any gap or error.✓ (3)

3.4
- Flat chisel
- Cross-cut chisel
- Diamond point chisel
- Round-nose chisel (4)

3.5
3.5.1 Combination pliers: For all types of holding, gripping, twisting, pulling and cutting.✓✓

3.5.2 Long-nosed pliers: Used to hold small work pieces and also useful in confined spaces.✓✓

3.5.3 Water pump pliers: For any size of the bolt, especially when other pliers are too small.✓✓

3.5.4 Slip-joint plier: Used for gripping flat and round workpieces.✓✓

(4 × 2) (8)

[24]

QUESTION 4

4.1
4.1.1 An alternating current (AC) is an electric current that periodically reverses direction and changes its magnitude continuously in contrast to a direct current (DC), which flows only in one direction.✓✓

4.1.2 A component of the electrical welding circuit that terminates at the arc, molten conductive slag or base metal.✓✓

(2 × 2) (4)

4.2 4.2.1 Replaceable bit
4.2.2 Guard/Rest
4.2.3 Switch
4.2.4 Heat-proof handle
4.2.5 Nut
4.2.6 Heating element cover
4.2.7 Cord

(7 × 1) (7)

4.3
- Check the handle for cracks.
- Never use a soldering iron while standing in water.
- Check the plug for loose connections and damaged casing.
- Check the electrical cord for cracks, burn marks, and loose connections.
- Ensure that the handle is secured to the soldering iron housing. (5 × 1) (5)

4.4
- Heat the tip until it is hot enough to melt the solder.✓✓
- Rub some solder onto the hot tip and spread the molten metal over the surface.✓✓
- If the tip is too hot, the power tip will tarnish. To avoid it, allow the tip to cool slightly before tinning.✓✓ (3 × 2) (6)

4.5 A process that uses a flux-covered metal electrode✓ to carry an electrical current that causes an arc✓ to be formed across the gap between the electrode and a workpiece.✓ Molten metal from the electrode is transferred through the arc to the molten weld pool where it combines with the base metal.✓ The flux coating on the electrode burns to form a gaseous cloud that protects the weld pool from the oxygen and nitrogen in the air.✓ After the flux has melted the arc, along with the core wire,✓ it covers the weld with a slag that protects the weld bead as it cools down to room temperature.✓ (7)

[29]

QUESTION 5

5.1
- Reduced handling to ease the flow of material.
- Fewer tripping and slipping incidents in clutter-free and spill-free work areas.
- Fewer fire hazards.
- Better control of tools and materials, including inventory and supplies.
- More efficient equipment clean-up and maintenance.
- Better hygienic conditions leading to improved health.
- More effective use of space.
- Reduced property damage by improving preventive maintenance.
- Less janitorial work.
- Improved morale.
- Improved productivity (tools and materials will be easy to find).

(Any 5 × 1) (5)

Copyright reserved

5.2
- Draw attention to health and safety hazards.
- Point out hazards that may not be obvious.
- Provide general information and directions.
- Remind employees that personal protective equipment must be worn.
- Show where emergency equipment is located.
- Indicate where certain actions are prohibited. (Any 5 × 1) (5)

5.3 5.3.1 A bill of materials (BOM) is a centralised source of information containing a list of items used to manufacture a product and the instructions in how it is done.✓✓

5.3.2 A procedure plan is a list of operations in their sequential order to be followed in the construction of your project.✓✓

(2 × 2) (4)

5.4 5.4.1
- Gears
- Aluminium foil
- Motor vehicle parts (Any 2 × 1)

5.4.2
- Cables
- Pipes
- Electrical bolts
- Electrical instruments (Any 2 × 1)

5.4.3
- Roof sheeting
- Water tanks
- Water pipes (Any 2 × 1)

(3 × 2) (6)
[20]

TOTAL: 100

ADDENDUM A

EXAMINATION NUMBER: | | | | | | | | | | | | | |

COMPANY NAME: CORONA MECHATRONICS				
FAULTY TOOL REPORT				
TOOL NAME	**Screwdriver** √			
DESCRIPTION	**Phillips with plastic handle** √			
ITEM NUMBER	**Any number** √	**DATE**	**Any date** √	
FAULT DESCRIPTION	**Screwdriver tip is damaged** √			
PERSON REPORTING	**Any name** √			
FOR OFFICE USE ONLY				
STOCK NUMBER				
REPAIR OF TOOL				
COMPANY DOING REPAIRS	**DATE SENT**	**DATE RETURN**	**COST OF REPAIR**	**SIGNATURE**

(6 MARKS)

Copyright reserved