higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

PLUMBING
NQF LEVEL 2

XX February 2020

This marking guideline consists of 5 pages.

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QUESTION 1: INTRODUCTION TO PLUMBING

1.1 Waste water is water that has been used and must be taken away from the building. (2)

1.2
- Evaporation,✓ transpiration,✓ condensation,✓ precipitation✓
- Solid,✓ liquid,✓ gas✓ (Any 3 × 1) (3)

1.3
- Maintenance plumbing
- Construction plumbing (2)

1.4
- Collection dam
- Water screening
- Mixing tank
- Sedimentation tank
- Storage tank
- Chlorination
- Filtration
- Carbonation tank (Any 3 × 1) (3)

1.5
- Tender invitation documents and bill of quantities
- Tender quote
- Appointment letter
- Plans
- Sanitary schedule
- Monthly and final certificates
- Variations (Any 5 × 1) (5)

[15]

QUESTION 2: PLUMBING PRINCIPLES AND CODE OF PRACTICE

2.1
- Dams
- Rivers
- Lakes (3)

2.2 Friction loss is the loss of water pressure due to the friction of the inside walls of the pipe that the water flows through. (2)

2.3 A national standard is the level of work quality that everyone in a country (nation) must meet, while a code of practice is a set of regulations that all plumbers must follow. (2 + 2) (4)

2.4 Desalination plants are places where machines that separate salt from sea or salty water are operated to make water suitable for household use. (2)

2.5
- To know that the work they do is safe
- To know the type and quality of equipment they must use
- To know how to do a task properly (3)

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2.6 Water supply for buildings (1)
[15]

QUESTION 3: MATERIALS, TOOLS AND EQUIPMENT

3.1 3.1.1 True
3.1.2 False
3.1.3 False
3.1.4 True
3.1.5 True
(5 × 1) (5)

3.2 3.2.1 

3.2.2 
(2 × 1) (2)

3.3
- Flux
- Solder (2)

3.4 A stopcock is a valve that controls or stops the flow of water in a pipe. (1)
[10]

QUESTION 4: WATER-PIPE ASSEMBLY

4.1
- Elbow 90°
- Elbow 45°
- Socket
- Union
- Stopcock
- Reducing bush (Any 5 × 1) (5)

4.2
- Collect and select all tools, materials and equipment to solder the copper.
- Remove all dirt from the pipe by using sandpaper or a flat file.
- Put a thin coating of flux onto the end of the pipe.
- Measure how much solder is needed and clamp the pipe into a vice on the workbench.
- Slot the T-piece or another connector over the pipe.
- Heat the copper pipe using a gas flame.
- Put the ends of the solder wire at the joins.
- After finishing and satisfied that the solder has been drawn in all around, remove any excess flux and solder by wiping round the ends of the joint with a clean cloth.
- Collect and clean all tools and equipment as well as the working area.

(Any 8 × 1) (8)

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4.3
- Hacksaw
- Copper/Pipe cutter (2)

4.4
- Monolayer – same layer
- Multilayer – two or three different layers (2 + 2) (4)

4.5
- Brass compression fittings
- Rubber O-ring couplings
- PVC – weld or solvent cement
- Electrofusion (Any 3 × 1) (3)

4.6
4.6.1 Modified polyvinyl chloride
4.6.2 Unplasticised polyvinyl chloride
4.6.3 Polyvinyl chloride
(3 × 1) (3)
[25]

QUESTION 5: CUTTING AND JOINING OF METALS

5.1
- Cover flashing
- Apron flashing
- Stepped flashing
- Raked flashing
- Eaves flashing
- Soakers
- Vent-pipe flashing (Any 6 × 1) (6)

5.2 Borax✓ and silicon✓ (2)

5.3 An electrode is a wire rod used in arch welding.✓ It helps to create an electric arch between the metal being welded and the rod.✓ (2)
[10]

QUESTION 6: SET OUT BELOW-GROUND DRAINAGE SYSTEMS

6.1
- At the beginning of the drainage area
- Where a pipe bends
- Where a pipe joins another pipe
- If the pipe is very long (4)

6.2
- The gully helps to prevent grease and dirt from entering the system.
- The gully stops the smell of used water. (2)

6.3 Less than 750 mm (smaller than manholes) (1)

6.4 Septic tanks are chambers designed and built to hold the solids of the sewage while it decomposes naturally. Most of the liquid runs through the septic tank into the trench drain. A French drain has a pipe with holes in it that is laid over course fill. (2 + 2) (4)

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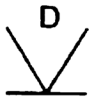
6.5 6.5.1 

6.5.2 

6.5.3 

6.5.4 

6.5.5 

(5 × 1) (5)

6.6 The invert level is the lowest level of the inside of the pipe. (2)

6.7
- Hard ground
- Loose or wet ground (2)

6.8 To support the pipes✓✓ and pack them so that they do not move and change direction✓✓ (4)

6.9 Local authority (1)
[25]

TOTAL: 100

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