



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

APRIL EXAMINATION

PLUMBING THEORY N1

25 MARCH 2013

This marking guideline consists of 7 pages.

QUESTION 1

- 1.1 1.1.1 To prevent tools, materials or equipment sliding off the edge of the working platform (1)
- 1.1.2 To prevent operatives stepping or falling off the working platform (1)
- 1.2
- Keep the back straight, though not necessarily vertical.
 - Tuck the chin in well and do not drop the head forwards or backwards.
 - Keep the arms straight and close to the body.
 - Place feet 200–300 mm apart, pointing in the direction of travel.
 - Grip the object firmly with the whole hand.
 - Bend the knees and lift by straightening the legs.
 - Lift gradually – floor to knees – knees to carrying position.
 - Ensure the load does not obscure your vision.
 - Move in the direction of the front foot, keeping the load close to the body.
 - When putting the load down reverse the lifting position. (Any 5 × 1) (5)
- [7]

QUESTION 2

- 2.1
- Metallic tape
 - Scriber
 - Dividers
 - Trammel points
 - Centre punch
 - Prick punch
 - Wire gauge
 - Rule
 - Steel rule
- (Any 5 × 1) (5)

2.2

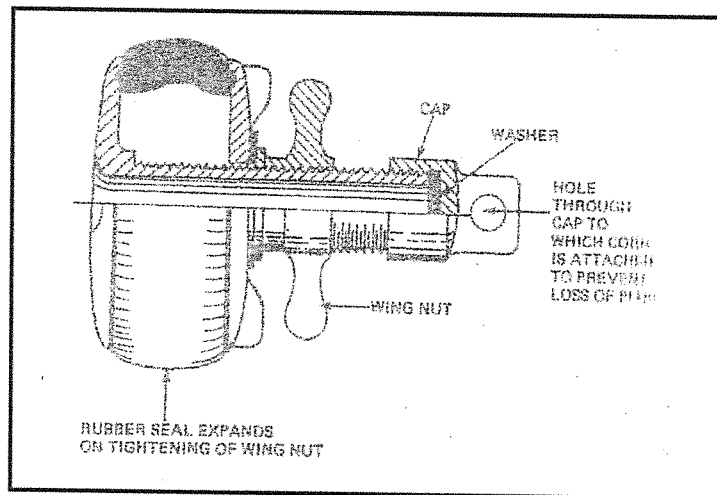


FIGURE 1

(8)
[13]

QUESTION 3

- 3.1 3.1.1 Unplasticised polyvinyl chloride (2)
 - 3.1.2 Galvanised mild steel (2)
 - 3.1.3 Polyvinyl chloride (2)
 - 3.2 The expansion of material by one thousandth (1/1000) per °C when heated (2)
- [8]**

QUESTION 4

4.1

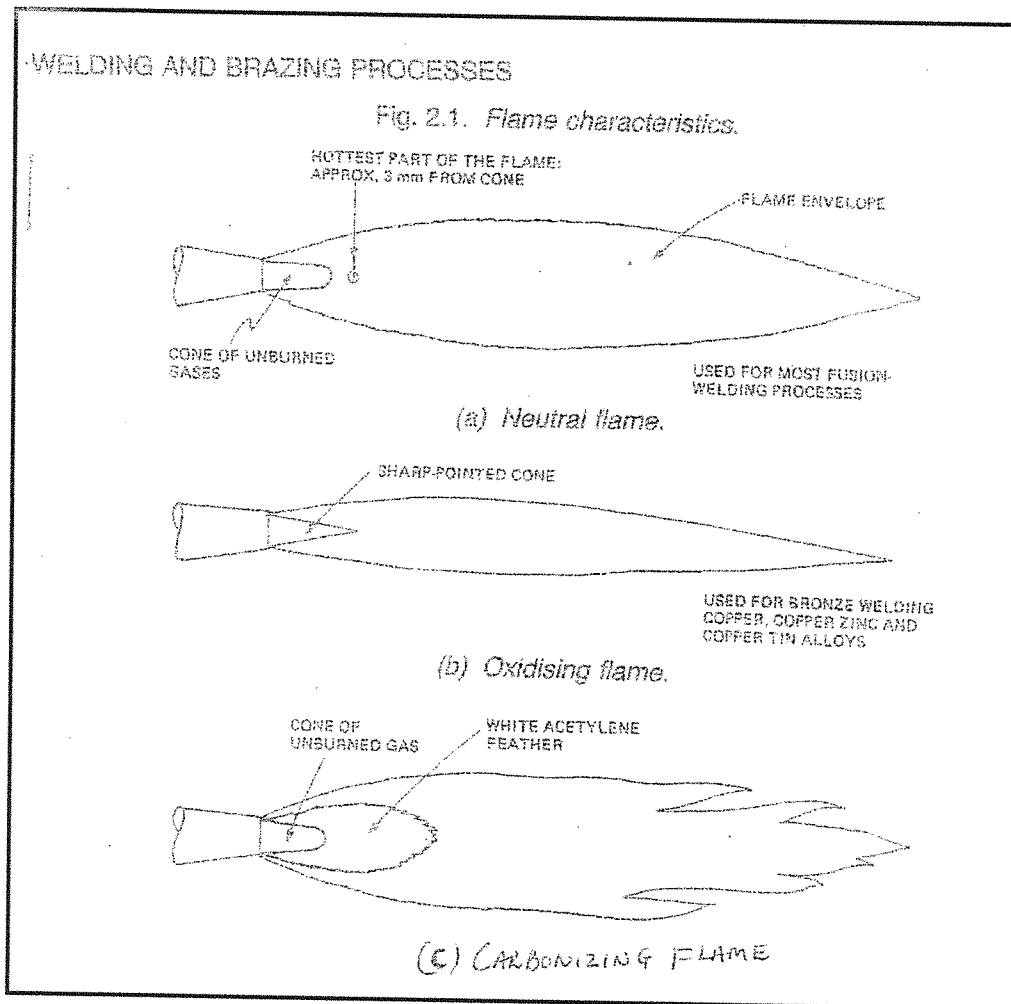


FIGURE 2

(9)

4.2

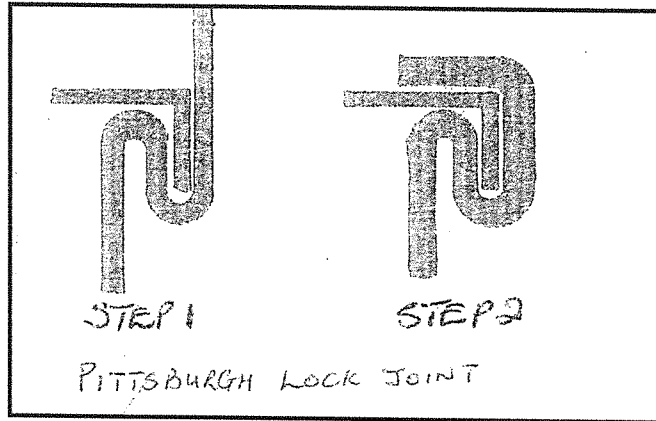


FIGURE 3

(4)
[13]

QUESTION 5

- | | | |
|-----|---|------|
| 5.1 | H ₂ O | (1) |
| | Tasteless | (1) |
| | Colourless | (1) |
| | Odourless (no smell) | (1) |
| 5.2 | Mass of material as compared to volume of water | (2) |
| 5.3 | Compression fittings | (1) |
| | Capillary soldering | (1) |
| 5.4 | Hemp | (1) |
| | Thread seal tape (PTFE) | (1) |
| | | [10] |

QUESTION 6

6.1 Radiation – transfer of heat from one body to another not in contact (2)

Conduction – distribution of heat by contact through the layers of a substance with one another (2)

Convection – distribution of heat by circulation of a liquid or gas (2)

6.2

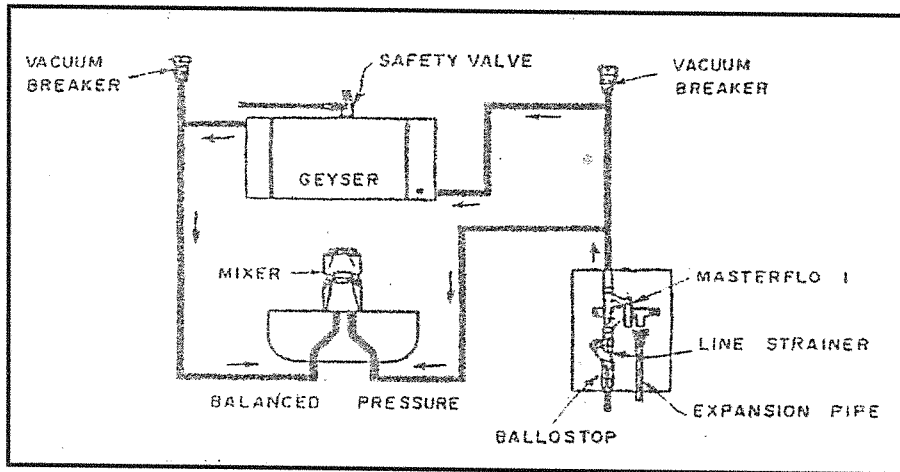


FIGURE 4

(8)
[14]

QUESTION 7

7.1

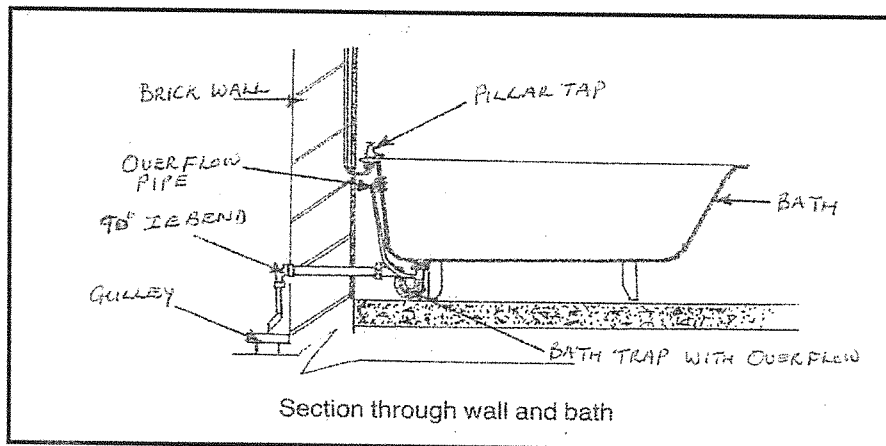


FIGURE 5

(5)

- 7.2 7.2.1
- Pipe at the highest point that leads to the open air and provides ventilation throughout drainage installation
 - Pressure activated, one way mechanical vents used in plumbing to eliminate the need for conventional pipe venting and roof penetration

- 7.2.2
 - Access opening in a drainage installation to gain full bore access to the interior of drain for cleaning
 - Any access opening to the interior of any pipe or fitting in a drainage installation

- 7.2.3
 - Chamber deeper than 750 mm and of such dimensions that it allows entry of a person
 - Pipe fitting incorporating a trap into which waste water is discharged

(6 × 2) (12)
[19]

QUESTION 8

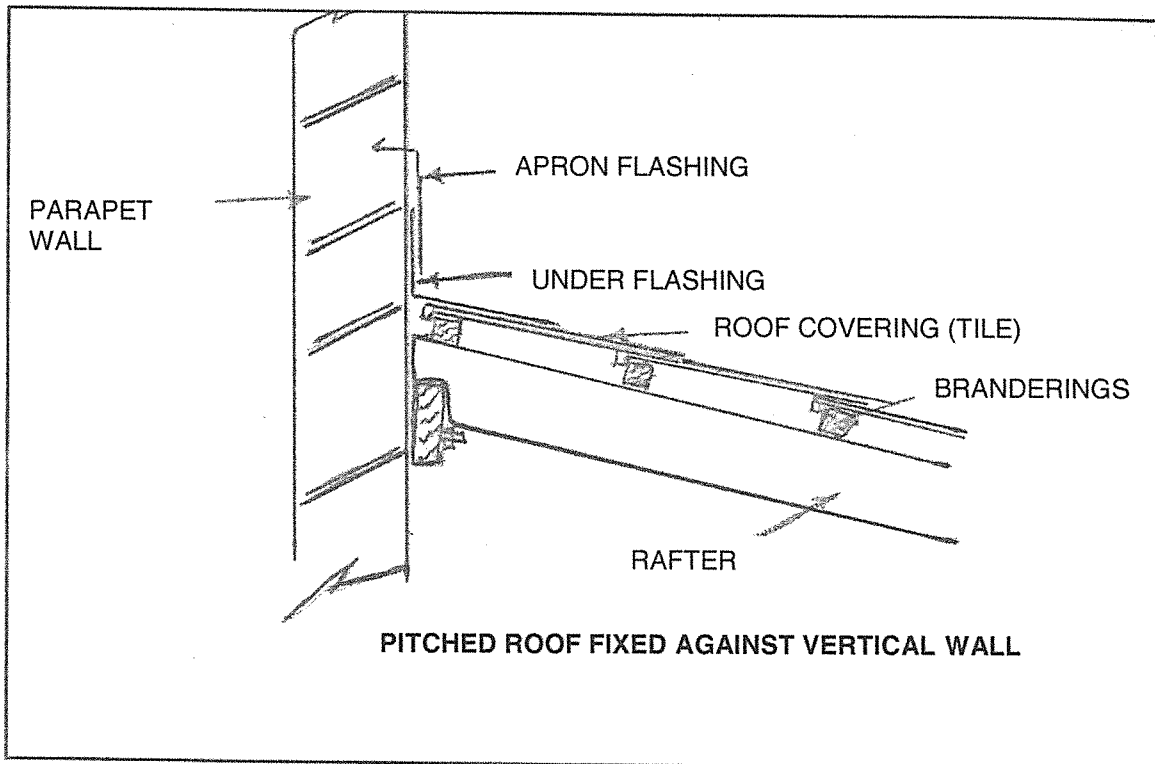


FIGURE 6

[6]

QUESTION 9

$$\text{Area of circle} = \pi r^2$$

$$= 3,142 \times 0,9^2$$

$$= 3,142 \times 0,81\text{m}^2$$

$$= 2,545 \text{ m}^2$$

$$= 2,545/2$$

$$= 1,272 \text{ m}^2$$

[10]**TOTAL: 100**