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higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

NOVEMBER EXAMINATION

PLUMBING THEORY N1

12 NOVEMBER 2013

This marking guideline consists of 7 pages.

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QUESTION 1

1.1
- Do not use two short ladders tied together.
- Always use a ladder long enough for the job.
- Never use a board to form a working platform resting on a rung of a ladder.
- The slope of a ladder should be in the ratio of 1 out to 4 up (approx. 75°)
- Top of ladder should be lashed to scaffold.
- Stakes should be driven to ground and ladder lashed to those stakes.

(Any 2 × 1) (2)

1.2 The digging of ground to form trenches, holes and pits below ground level. (2)

1.3
- Shoring should be erected to prevent trench walls from collapsing.
- Danger tape should be installed around the trenches.
- Warning light should be on at night.
- Hoarding must be erected.
- Fencing should be erected to prevent people from falling in. (5 × 1) (5)

[9]

QUESTION 2

2.1

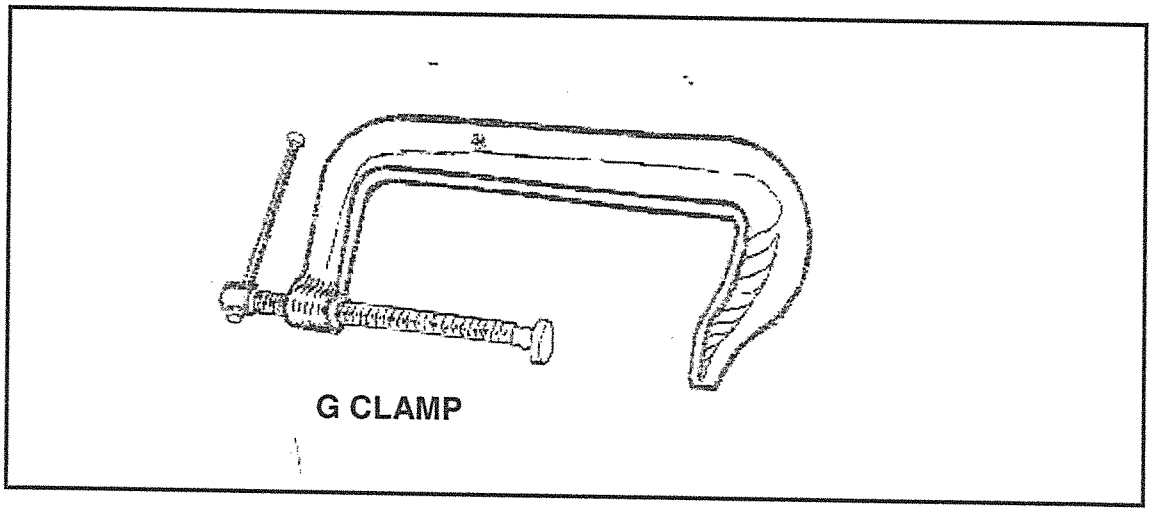

FIGURE 1 (3)

2.2
- Bench vice
- Hinged pipe vice
- Chain vice

(3)

2.3
- Brick iron stake
- Hatchet stake
- Crease iron stake
- Dome stake

(4 × 1) (4)

[10]

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QUESTION 3

- To lower melting point of one or more of the constituent metals.
- To change the colour.
- To form a harder and tougher substance.
- To inform the resistance to atmospheric condition.
- To improve decrial resistance.
- To improve cast ability.

(Any 5 × 2) **[10]**

QUESTION 4

4.1 4.1.1 It is done with a welding torch which includes oxygen and acetylene and using solder containing copper and zinc. (2)

4.1.2 Is the process of fusing metal together using electrodes of electrical current? (2)

4.2 4.2.1 C
4.2.2 D
4.2.3 E
4.2.4 A
4.2.5 B

(5 × 1) (5)
[9]

QUESTION 5

5.1 5.1.1 Wells – The water often in close contacts with cess pit and as a result the water is often contaminated.

5.1.2 Rivers – Rivers are liable to pollution by drainage from manured fields.

5.1.3 Fountains – Its purity largely depends upon the distance it has travelled underground.

(3 × 2) (6)

5.2 The flow of water from the mains forces the jumper onto the seating when the spindle is turned to open the tap and therefore restricting water to come out. (6)
[12]

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QUESTION 6

6.1

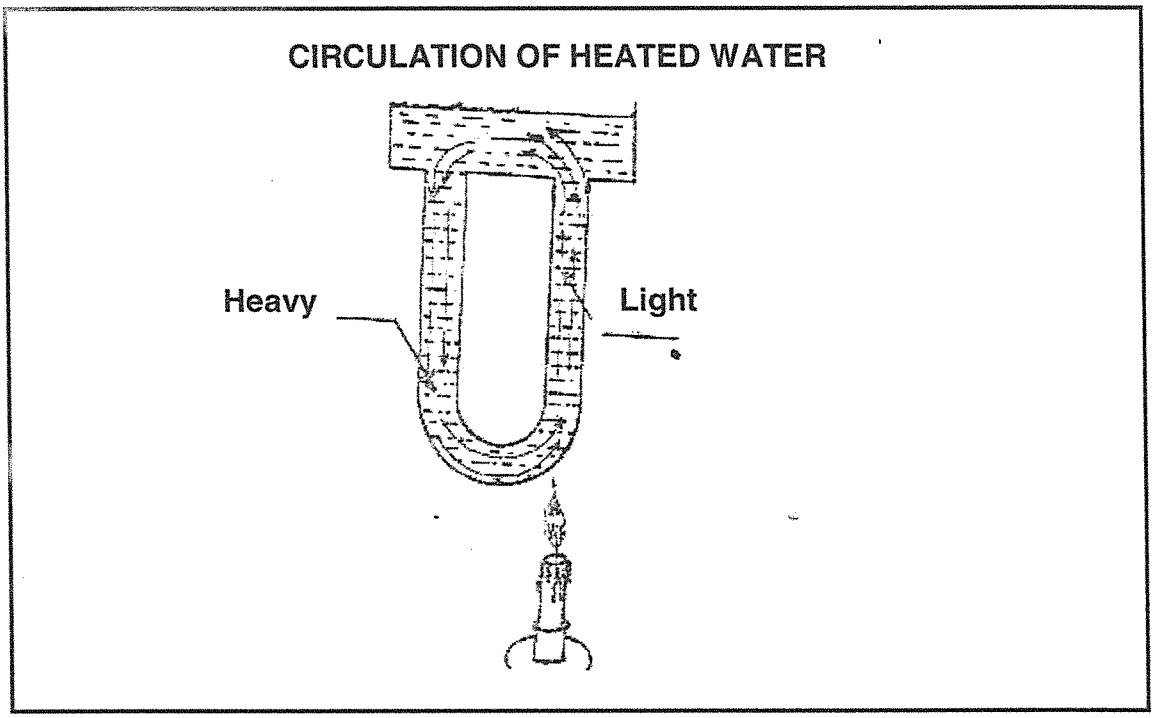

FIGURE 2 (4)

6.2 Primary return is the pipe that supply cold water from the cylinder to the boiler

Primary flow is the pipe that delivers heated water from the boiler to the cylinder.

(2 × 2) (4)

6.3
- They are due to air bubbles in the run of piping, blocking the flow of water.
- By hot water line that has been laid with no gradual rise or fall. (2 × 2) (4)

[12]

QUESTION 7

7.1 One pipe system – it is where all the soil water fixtures and waste water fixtures discharge into a single stack and connected directly to drain.

Two pipe systems – it is when all the waste water fixtures discharge separately into a common stack that discharge into a gully and all soil fixtures discharges directly into a drain.

(2 × 2) (4)

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7.2

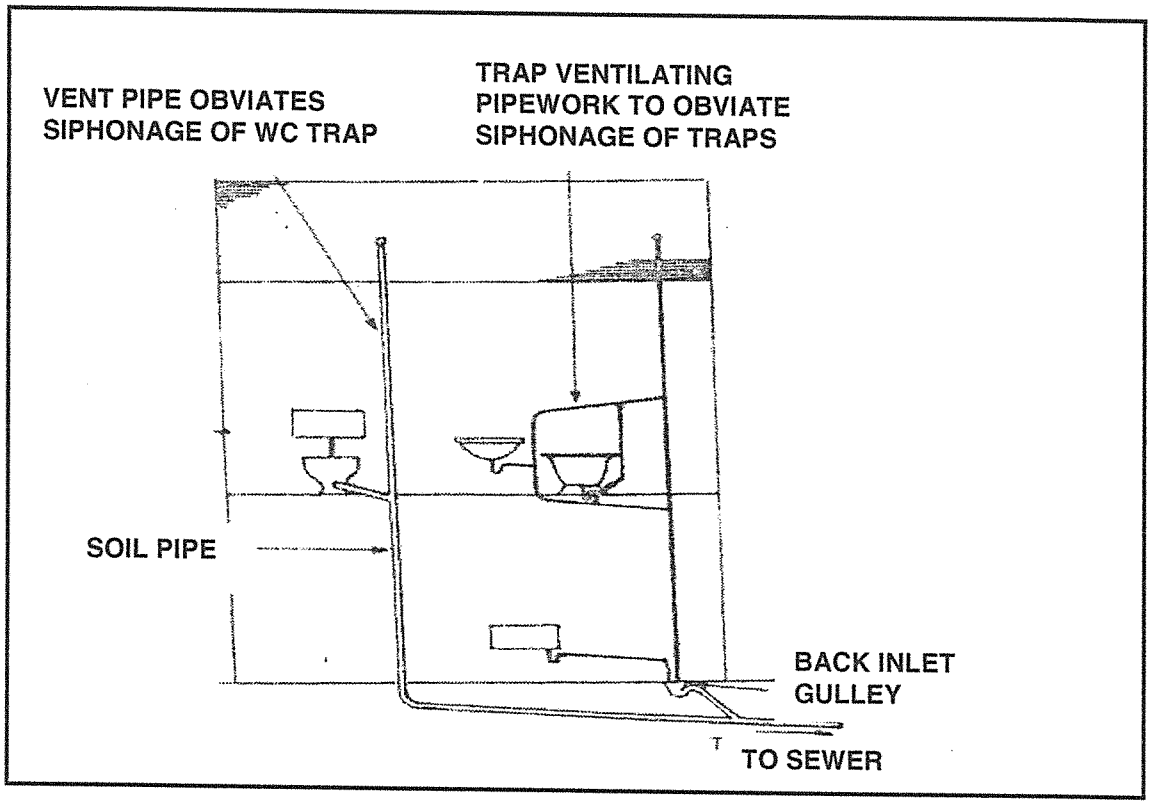

FIGURE 3 (10)

7.3
- Evaporation: the warmer and drier the air becomes, the greater will be the rate of evaporation.
- Capillary rapid destruction of seal due to particles of dish cloth being deposited over the weir of the trap.
- Wind unstable atmospheric conditions in the vent pipe. (3 × 2) (6)

[20]

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QUESTION 8

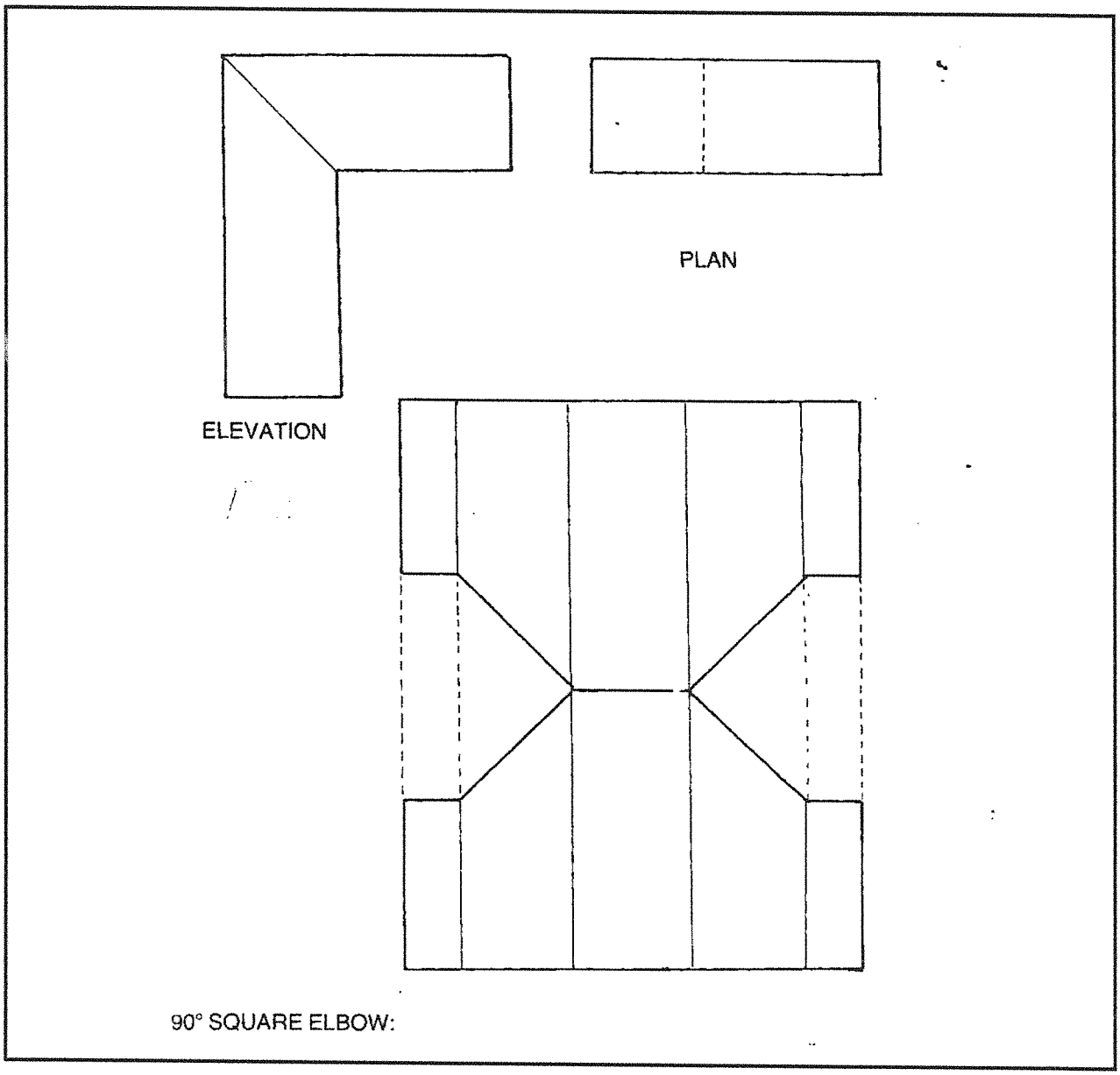

FIGURE 4 **[12]**

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QUESTION 9

$v = h \times \pi r^2$
$= 1,8 \times 3,142 \times 0,3^2$
$= 1,8 \times 3,142 \times 0,09$
$= 1,8 \times 0,283$
$= 0,509\ m^3$

: 1 litre = 1 000 g or 1 kg
: 1 m^3 = 1 000 kg

Therefore : mass of water = 0,509 x 1 000
= 509.kg

[6]

TOTAL: 100

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