higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

APRIL EXAMINATION

BUILDING AND CIVIL TECHNOLOGY N3

2 APRIL 2013

This marking guideline consists of 9 pages.

QUESTION 1

1.1 1.1.1 True

1.1.2 True

1.1.3 True

1.1.4 False

1.1.5 False

1.1.6 False

1.1.7 True

1.1.8 True

1.1.9 True

1.1.10 True

(10 × 1) (10)

1.2
- Maintain good working conditions
- Treat all workers as individuals
- Encourage teamwork
- Develop harmony by consultation
- Develop co-operation by providing job security
- Develop loyalty by always being fair

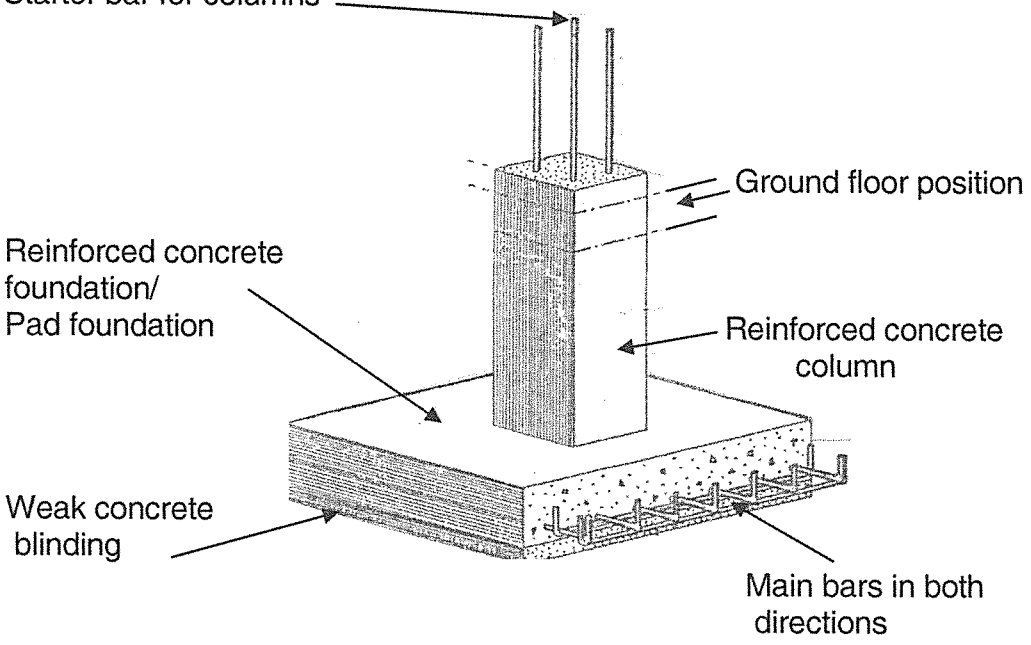
(Any 3 × 1) (3)

1.3
- To understand all contract documents
- Examine all materials once it has been delivered to the site
- Check the quality of workmanship as the job progresses
- Ensure that poor quality work is rectified
- keep records of all deviations that occur
- submit weekly reports to the architect
- include all sub-contractors work
- keep a daily diary and instruction book
- record all on site day to day happenings

(Any 3 × 1) (3)
[16]

QUESTION 2

2.1 Starter bar for columns



MARK ALLOCATION

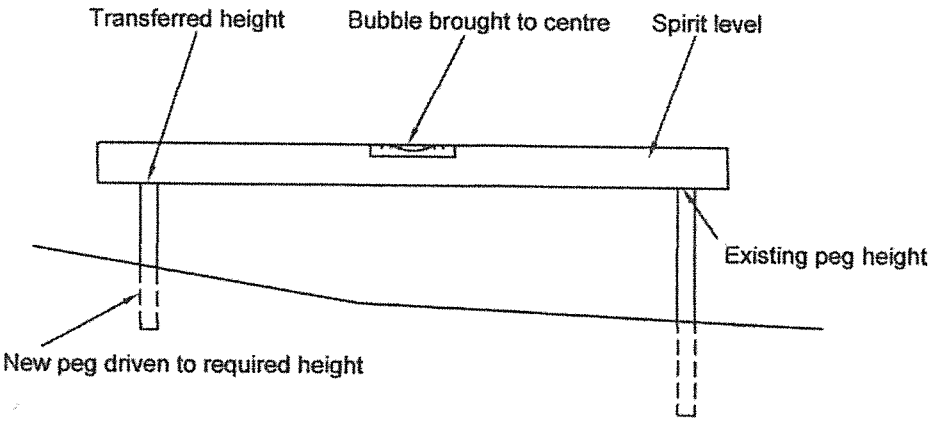
Labels	6 x ½ = 3
Sketch correct	= 3
Neatness	= 2
	8

TWO CROSS-SECTIONAL SKETCHES ARE ALSO ACCEPTABLE. (8)

2.2
- Mobile scaffolding
- Independent scaffolding
- Steel trestles
- Suspended scaffolding
- Framed scaffolding
- Bricklayer scaffolding
- Cantilever scaffolding
- Cuplock scaffolding
- Ringlock scaffolding
- Kwikstage scaffolding
- Birdcage scaffolding

(Any 4 × 1) (4)

2.3



Any suitable drawing accepted.

Mark Allocation:

Labels 5 x ½ = 2.5

Sketch = 1.5

4

(4)

[16]

QUESTION 3

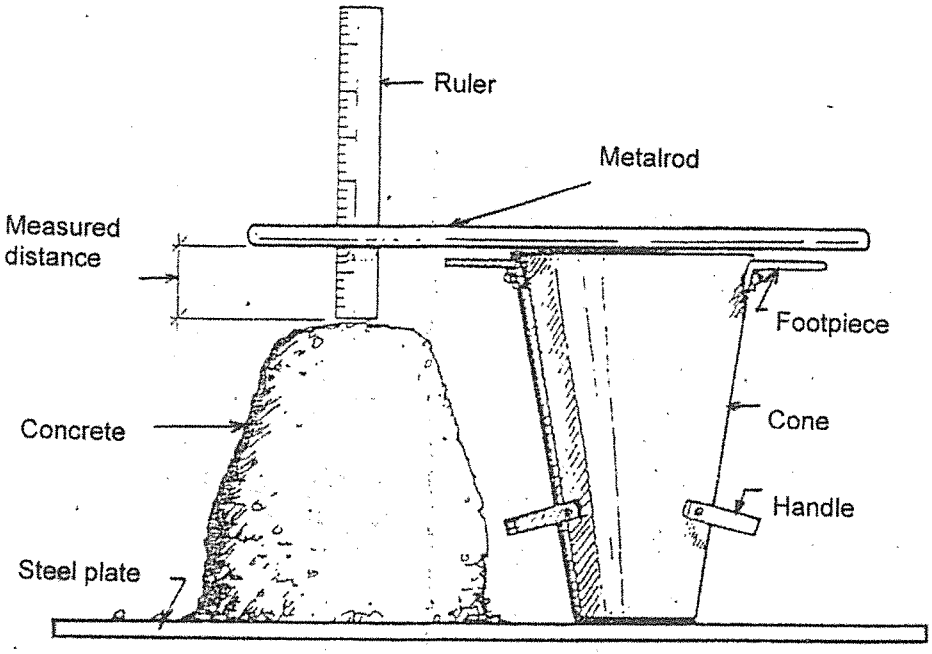
3.1
- Lead
- Copper
- Bitumen
- Mastic asphalt
- Polythene
- Slates
- Dense brick
- Material covered in asphalt

(Any 4 × 1) (4)

3.2
- No need for internal rendering
- enable the use of cheaper and alternative materials for the inner construction
- gives good thermal insulation, keeping the building warm in winter and cool in summer.
- able to withstand the driving rain in all situations penetrating to the inner wall surface

(Any 4 × 1) (4)

3.3

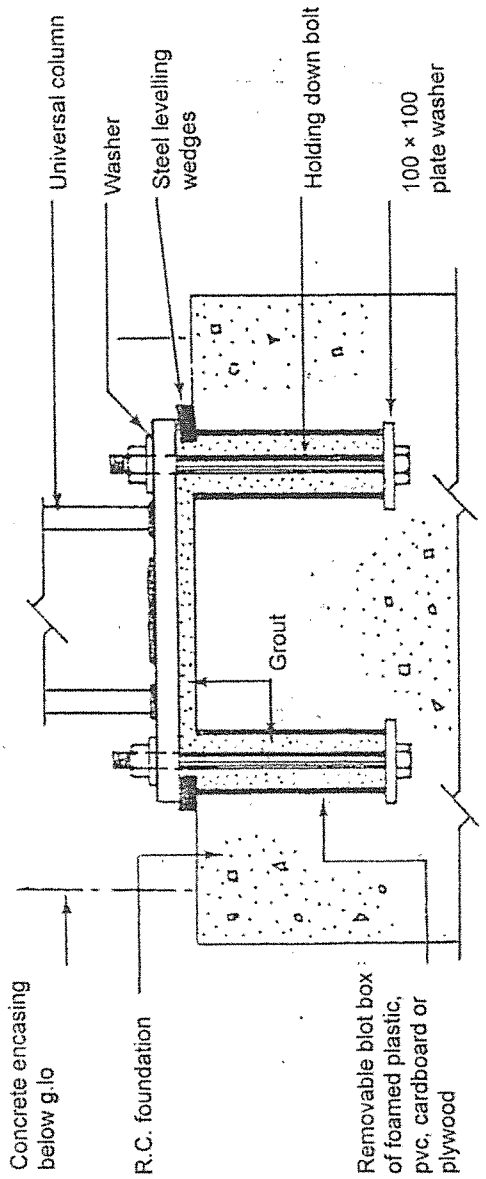


MARK ALLOCATION
Correct sketch = 1
Neatness = 1
8 labels = 8 x ½ = 4
6 (6)

3.4 Mass of water = Ratio × cement
= 0,6 × 800 √ (1)
= 480 kg
= 480 litres √ (1)
[16]

QUESTION 4

4.1



ANY OTHER BASE WITH SUITABLE HOLDING DOWN BOLTS ARE ACCEPTED

MARK ALLOCATION
Sketch correct = 4
Any relevant 6 labels = 6 x $^1/_2$ = 3
Neatness = 1
8 (8)

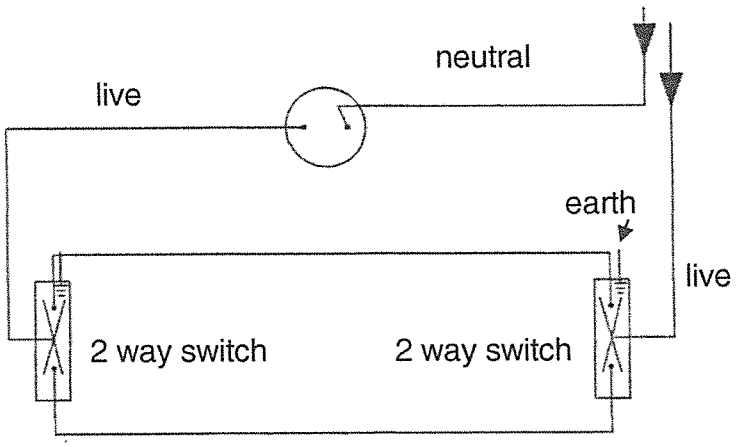
4.2 4.2.1 Soil pipe (1)
4.2.2 Shower (1)
4.2.3 Stormwater channel (1)
4.2.4 Rodding eye (1)
4.2.5 Rainwater pipe (1)

4.3
- It requires no expansion pipes in the system.
- It does not rely on a supply tank for its feed.
- It is cheaper because it requires less labour and fewer materials for its installation and function.
- It is compact. Because it requires very little space, it can be installed in a confined space.

(Any 3 × 1) (3)
[16]

QUESTION 5

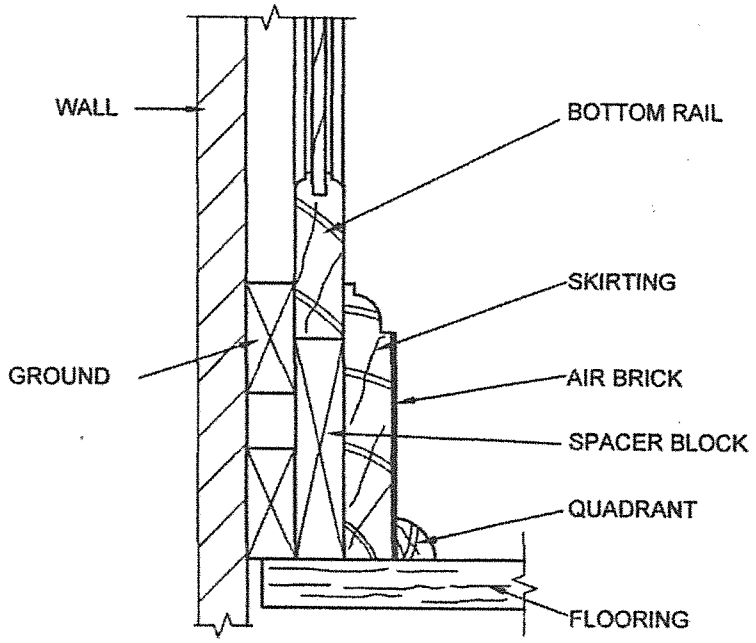
5.1



MARK ALLOCATION
Labels 6 x $^1/_2$ = 3
Sketch = 1
4

(4)

5.2



MARK ALLOCATION
Labels 8 x ½ = 4
Sketch correct = 3
Neatness = 1
8 (8)

5.3 5.3.1 Defects due to efflorescence may range from the appearance of a white powder on the surface of the brickwall, which may lead to a complete failure of the plaster application. (2)

5.3.2 This defect is often caused by poor ungraded sand, over-trowelling, especially with a steel trowel, or too rapid drying out by direct sunlight. (2)
[16]

QUESTION 6

6.1
- Paving enhances the appearance of the property or area.
- Paving is used in driveways or at entrances that are subject to heavy traffic.
- Paving is used in areas where a hard-wearing surface with low maintenance is required.
- Paving is used to make paths for people to walk in a garden.
- Paving of roads.
- Paving is used where the natural soil of the site is unsuitable for other purposes (such as gardening). (6)

6.2 Edging – This is to prevent the paving from moving and disintegrating. (1)

6.3
- Localised disintegration
- Limitations of road construction
- Natural causes eg. rain, heat
- Stress due to traffic
- Damage from weather related conditions
- surface not well compacted
- tar on road surface of poor quality
- very heavy traffic, e.g. trucks, using the road meant for light vehicles

(Any 1 × 1) (1)

6.4 Volume = L × b × d
= 15 × 0, 6 × 0, 25 (1)
= 2, 25 m^3 (1)

6.5 6.5.1 Area = 15 × 2,8 (1)
= 42 m^2 (1)

Amount of bricks = (42 × 50) × 2 (1)
= 4 200 bricks (1)

6.5.2 Amount of sand = (4 200 ÷ 1 000) x 0, 8 m^3 (1)
= 3,36 m^3 (4m^3) (1)

6.5.3 Amount of cement = 4, 2 × 5 (1)
= 21 bags of cement (1)

6.5.4 Cost of labour = 42 × 250 (1)
= R10 500 (1)
[20]

TOTAL: 100