higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

CONSTRUCTION PLANNING
NQF LEVEL 2

21 November 2023

This marking guideline consists of 6 pages.

Copyright reserved

QUESTION 1

1.1 1.1.1
- Foundations
- Slabs (Any ONE)

1.1.2
- Roofs
- Doors
- Windows
- Floors (Any ONE)

1.1.3
- Concrete
- Rails (Any ONE)

(3 × 1) (3)

1.2 1.2.1
- Stone
- Timber

1.2.2
- Steel
- Aluminium

(Any other relevant answer 2 × 1) (2)
[5]

QUESTION 2

2.1 Advantages:
- Will not stretch like synthetic tapes
- Are accurate, light and strong
- Last longer (Any 2 × 1) (2)

Disadvantages:
- May give inaccurate measurement readings due to temperature change
- Danger that it can touch a live electric wire
- Measurement reading can be wrong if the end hook is missing or broken
- Develop rust, as they are prone to moisture (Any 2 × 1) (2)

2.2 2.2.1 Elevation
2.2.2 Benchmark
2.2.3 Datum level
2.2.4 Stadia lines
2.2.5 Tacheometric survey

(5 × 1) (5)

2.3 2.3.1 Measuring and marking out✓ the position of walls and foundations of a building in relation to a plot✓

2.3.2 A levelling equipment✓ that acts like a combination of a spirit level, plumb bob and laser beam✓

Copyright reserved

2.3.3 Recording of the level✓ of a point in relation to a datum level✓ (3 × 2) (6)

2.4
- Keep the optical instrument in a dry, cool and dust-free place.
- Always keep the lens cap and clean lenses correctly.
- Avoid bumping and dropping the instrument.
- Regularly check the accuracy of the instrument.
- Ensure regular servicing.
- Do not overtighten the adjusting screws.
- Do not leave an instrument unattended. (Any 5 × 1) (5)

2.5
- The meniscus of the water in the tube can be difficult to read accurately.
- The meniscus can change shape, leading to incorrect readings.
- Large bubbles in the tube can make it difficult to take correct readings. (Any 2 × 1) (2)

2.6
- Look through the instrument until the first pole is visible.
- While the second pole is being moved, look through the instrument and locate it.
- Ask the person to move the second pole until both poles can be seen on one line in the instrument. (3)

[25]

QUESTION 3

3.1
- To study rainfall and water flow
- To evaluate the effect of slope, kind of vegetation and rocks
- To test the strength of the ground
- To decide on the correct type of foundation (4)

3.2
- To ensure high density of the soil
- Increases the shear strength and decreases compressibility
- Reduces the space, therefore water flow through the soil will be less (3)

3.3
- Nature and quality of soil
- Bearing capacity of soil
- Load to be applied onto soil
- Height of water table (Any 3 × 1) (3)

[10]

Copyright reserved

QUESTION 4

4.1 4.1.1 B
4.1.2 B
4.1.3 B
4.1.4 C
4.1.5 C
4.1.6 C

(6 × 1) (6)

4.2 4.2.1 C
4.2.2 E
4.2.3 A
4.2.4 F
4.2.5 B

(5 × 1) (5)

4.3 4.3.1
- Simply supported beam
- Overhanging beam

4.3.2
- Compressive load – length decreases
- Tensile load – length increases

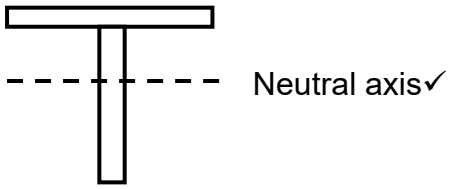
(2 × 1) (2)

4.4 A rectangular frame can easily collapse on applying a horizontal force,✓ while a triangular frame cannot be easily collapsed with the same force. (2)

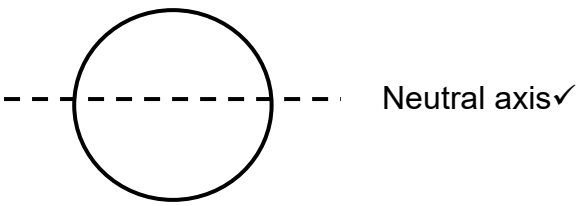
4.5 It ensures that extra safety to the structure is provided so that it does not collapse. (1)

4.6 By reducing the effective length of the column (1)

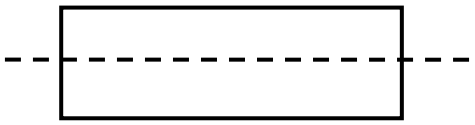
4.7 4.7.1



4.7.2



4.7.3



(3 × 2) (6)

[25]

QUESTION 5

5.1
- In imperial system: inches or feet
- In SI units: metre (2)

5.2 2 hours
51 minutes
07 seconds (3)

5.3 144,5 kg (1)

5.4 5.4.1 Litre
5.4.2 Amps/Watts
5.4.3 Cubic metre or m^3
5.4.4 Megabyte or gigabyte

(4 × 1) (4)
[10]

QUESTION 6

6.1 ⅓∏r²h✓

⅓ × ∏ × 3² × 2✓

18,85 m³✓ (3)

6.2 Area of one brick = 0,390 × 0,190 = 0,0741 m²✓
Number of bricks = 120/0,0741✓ = 1 619,4 = 1 620 bricks✓ (3)

6.3 Area of wall = (15 + 15 + 10 + 10) × 5 + 2(½ × 5 × 3) = 265 m²✓
Deductions = (3 × 2) + (10 × 2 × 1,5) = 180 m²✓
Paint area = 265 – 180 = 85 m²✓
Litres of paint needed = 70/2 = 42,5 or 43 litres✓ (4)
[10]

QUESTION 7

7.1
- Scale
- Symbols
- View
- Dimensions (4)

7.2
7.2.1 Stairs
7.2.2 Hardcore
7.2.3 Datum
7.2.4 Manhole
7.2.5 North point

(5 × 1) (1)

7.3
7.3.1 Urinal
7.3.2 Stainless steel
7.3.3 Inspection chamber
7.3.4 Drawing
7.3.5 Column
7.3.6 Storm-water drain

(6 × 1) (6)
[15]

TOTAL: 100

Copyright reserved