higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

CONSTRUCTION PLANNING
NQF LEVEL 2

10 November 2022

This marking guideline consists of 5 pages.

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QUESTION 1: TERMINOLOGY AND COMPONENTS OF THE CONSTRUCTION INDUSTRY

1.1 1.1.1 An amount by which a measurement differs from that specified.
1.1.2 Maximum deviation allowed from specification.
1.1.3 A change to an approved building plan.
Note: alternative correct answers will be considered.
(3 × 1) (3)

1.2 1.2.1 Gable
1.2.2 Competent person
(2 × 1) (2)
[5]

QUESTION 2: MEASURING, SETTING OUT AND LEVELLING

2.1
- Use an accurately marked tape measure.
- Know exactly where the zero point on the tape is.
- Measure in a straight line.
- Ensure that the measurements are read correctly.
- Measure at least twice in opposite directions.
- Check and recheck.
- Ensure that the tape is not twisted.
- Measure in a level line.
- Do not use a broken tape.
- Do not use a repaired tape.
- Keep the zero exactly at the starting point.
- The tape should not wobble due to wind. (Any 5 × 1) (5)

2.2 2.2.1 Levelling
2.2.2 See
2.2.3 Vial
2.2.4 Liquid
2.2.5 Bubble
2.2.6 Middle
(6 × 1) (6)

2.3 2.3.1 Bench mark – is a point from which all other vertical measurements✓ on a construction site are made.✓ **OR** It is a fixed point with known height. (Any 2 × 1)

2.3.2 Levelling – means finding and marking the heights of various elements✓ of the building in relation to the bench mark.✓ **OR** the term levelling is used to cover all operations for fixing heights or relative differences in level. (Any 2 × 1)

2.3.3 A tripod is a 3 legged stand✓ to which an instrument is fixed.✓
(3 × 2) (6)

2.4
- Read the upper stadia staff reading.
- Read the lower stadia staff reading.
- Subtract the lower reading from the upper reading.
- Multiply the answer by 100.
- This gives the horizontal distance from the instrument to the staff position. (5)

2.5 A = 4 ✓ **OR** A = 3✓
B = 3 ✓ B = 4✓
C = 5 ✓ C = 5✓

(Any 3 × 1) (3)
[25]

QUESTION 3: FOUNDATIONS

3.1
- Transmit all loads from the building into the ground.
- Help to support the structure on top of them.
- Withstand any differential settlement.
- Prepare unsuitable ground for building on.
- Provide a level and hard surface on which the super structure can be built.
- It provides structural safety against undermining or scouring due to burrowing animals and flood water. (Any 3 × 1) (3)

3.2 3.2.1 Raft foundation
3.2.2 Underpinning
3.2.3 Strip foundation

(3 × 1) (3)

3.3 3.3.1 True
3.3.2 True
3.3.3 False

(3 × 1) (3)

3.4 Dynamic cone penetrometer (1)
[10]

QUESTION 4: BEHAVIOUR OF STRUCTURES

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

(6 × 1) (6)

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4.2
- Temperature
- Water
- Wind
- Collisions (4 × 1) (4)

4.3
- Semi-circle/half circle arch
- Segmental arch
- Parabolic arch
- Elliptical arch
- High arch
- Flat arch (Any 4 × 1) (4)

4.4 A strut is a member that connect the rafters with the tie beam. ✓ A strut carries a compressive force acting on it. ✓ (2)

4.5 Uniformly distributed loads are loads/point loads of the same magnitude ✓spread evenly over a certain area✓ of the member/beam. ✓ (3)

4.6
4.6.1 bridges **OR** roof truss
4.6.2 bridges **OR** roof truss
4.6.3 Axial
4.6.4 Length
4.6.5 tensile **OR** compressive
4.6.6 tensile **OR** compressive
(6 × 1) (6)
[25]

QUESTION 5: INTERNATIONAL SYSTEM (SI) UNITS OF MEASUREMENTS

5.1 The international System (SI) of Units standardised measurements is used so that people or nations around the world can communicate more efficiently✓ in one unified measuring unit.✓ (2)

5.2 2 hr,✓ 8 min,✓ 07 sec✓ (3)

5.3 144,5 kg (1)

5.4
5.4.1 Litre
5.4.2 Amps/Watts (Any 1 × 1)
5.4.3 Cubic meter
5.4.4 Megabyte or Gigabyte (Any 1 × 1)
(4 × 1) (4)
[10]

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QUESTION 6: AREAS AND VOLUMES

6.1 Area of wall = 2(6,2 m + 4 m)✓ × 2,7 m✓
= 55,08 m²✓
Number of rolls needed = $\frac{55,08✓}{3,5}$ = 15,74 or 16 rolls✓ (5)

6.2 Area of floor = 5,5 m × 6,2 m = 34,1 m²✓

Area of tile = 0,35 m × 0,35 m✓ = 0,123 m²✓

Number of tiles needed = $\frac{34,1}{0,123}$ ✓= 277,23 = 278 tiles✓ (5)
[10]

QUESTION 7: TECHNICAL DRAWINGS

7.1 The drawing to be revised should be filed and it should be indicated that it is being replaced with the file number which was decided upon.✓ Attach a new file number and revision letter✓ to the new revised drawing.✓ Make the change to the original drawing and indicate revision.✓ The project manager, engineer or architect must initial each page of the new revision.✓ (5)

7.2
- Visible lines
- Leader or Projection lines
- Hidden lines
- Cross hatching
- Centre lines
- Break lines
- Dimension lines
- Cutting plane lines
- Extension lines
- Viewing plane lines (Any 5 × 1) (5)

7.3 7.3.1 Built-in cupboard
7.3.2 Rain-water pipe
7.3.3 Toilet or wash closet
7.3.4 Not to scale
7.3.5 Inspection chamber
(5 × 1) (5)
[15]

TOTAL: 100

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