



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

BUILDING AND STRUCTURAL SURVEYING N5

28 MARCH 2019

This marking guideline consists of 4 pages.

QUESTION 1

| | | | | |
|-----|-------|-------|---------|-------------|
| 1.1 | 1.1.1 | C | | |
| | 1.1.2 | A | | |
| | 1.1.3 | E | | |
| | 1.1.4 | D | | |
| | 1.1.5 | B | | |
| | | | (5 × 1) | (5) |
| 1.2 | 1.2.1 | True | | |
| | 1.2.2 | False | | |
| | 1.2.3 | True | | |
| | 1.2.4 | False | | |
| | 1.2.5 | True | | |
| | | | (5 × 1) | (5) |
| 1.3 | 1.3.1 | B | | |
| | 1.3.2 | D | | |
| | 1.3.3 | A | | |
| | 1.3.4 | A | | |
| | 1.3.5 | D | | |
| | | | (5 × 2) | (10) |
| | | | | [20] |

QUESTION 2

| | | | |
|-----|---|---------|-------------|
| 2.1 | Used mainly to excavate a uniform bottom of a trench | | |
| 2.2 | Used to measure angles of a sloping side/ground | | |
| 2.3 | Used together with a levelling instrument to measure vertical distances | | |
| 2.4 | Mainly used to mount instruments | | |
| 2.5 | Used to conduct angular measurement either vertical or horizontal in degrees, minutes and seconds | | |
| | | (5 × 2) | [10] |

QUESTION 3

- 3.1 $\text{Tan}\theta = 0,2/20\checkmark$
 $= \text{tan}^{-1} 0,01\checkmark$
- $\text{Tan}0,573 = H/100\checkmark$
 $H = 1,0001\checkmark$
 Slope = 1% \checkmark (5)
- 3.2
- Tape must be held horizontally.
 - Tape must be held on its correct zero mark.
 - The correct/sufficient tension must be applied to the tape.
 - Tape must be held on the correct peg.
 - View tape vertically over the peg.
 - Measure to the centre of a ranging rod. (Any 5 × 1) (5)
- 3.3
- The gradient of landscapes can be estimated.
 - The volumes of excavations or fill can be estimated.
 - The ability to see directly between two points can be established by interpolating along a line across contours. (Any 2 × 2) (4)
- 3.4 Step chaining is conducted on a building site using the following instruments: tapes, plumb bob, pegs and ranging rods. \checkmark From a peg on the ground the tape is stretched out horizontally \checkmark – the tape, being comfortably held at waist height. A peg \checkmark is punched in the ground by using a plumb bob \checkmark suspended from the horizontal distance being measured. The same operation is repeated until the total distance is measured. \checkmark (5)
- 3.5
- Attach the level securely to the tripod. \checkmark
 - The tripod feet must be firmly into the ground. \checkmark
 - Simultaneously turn adjacent foot screws in opposite directions \checkmark to adjust the circular bubble to its centre. \checkmark
 - Turn the level telescope 90° \checkmark using the third foot screw to adjust the bubble to its centre. \checkmark (6)
- [25]**

QUESTION 4

- 4.1 Off-sets must be taken from the road reserve \checkmark to the boundary of the site that is required \checkmark and a base line parallel to the road must be drawn. \checkmark These offsets are taken from stipulated chainages on the site plan. \checkmark The remaining boundaries of the site are measured perpendicularly to the baseline and the required site shape is then set out from the baseline. \checkmark (5 × 2) (10)
- 4.2 Three men \checkmark are required to run in front of the grader, one with a boning rod \checkmark and the other two holding the fish line on the pegs \checkmark with the required levels of the particular road layer. \checkmark The man with the boning rod makes hand signals to the grader operator showing how deep he/she must cut or fill and also whether the required level has been reached. \checkmark (5)
- [15]**