



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

BUILDING AND STRUCTURAL SURVEYING N5

26 JULY 2019

This marking guideline consists of 4 pages.

SECTION A**QUESTION 1**

- | | | | | |
|-----|-------|---|---------|-------------|
| 1.1 | 1.1.1 | Lowest level✓ in a pipeline✓ on which water will flow✓ | | |
| | 1.1.2 | Distance✓ between two✓ adjacent contour lines✓ | | |
| | 1.1.3 | Common site name✓ given to any instrument✓ that can be mounted on a tripod✓ | | |
| | 1.1.4 | Position of a point✓ from a point of zero origin✓✓ | | |
| | 1.1.5 | Process of measuring✓ distance horizontally✓ on the surface of the earth✓ | (5 × 3) | (15) |
| 1.2 | 1.2.1 | True | | |
| | 1.2.2 | False | | |
| | 1.2.3 | True | | |
| | 1.2.4 | True | | |
| | 1.2.5 | True | (5 × 2) | (10) |
| | | | | [25] |

QUESTION 2

- 2.1
- $$C1-C2 = \sqrt{[(-75263.37 - -75243.16)^2 + (3649\,934.32 - 3650\,011.00)^2]} \\ = \sqrt{[(-20.21)^2 + (-76.68)^2]} \\ = 79.300\text{ m}$$
- $$C1-C3 = \sqrt{[(-75316.13 - -75\,292.89)^2 + (3650\,016.79 - 3650\,010.66)^2]} \\ = \sqrt{[(-23.24)^2 + (6.13)^2]} \\ = 24.033\text{ m}$$
- $$C3-C4 = \sqrt{[(-75\,309.79 - -75\,292.89)^2 + (3\,649\,946.55 - 3\,650\,010.66)^2]} \\ = \sqrt{[(-16.900)^2 + (-64.11)^2]} \\ = 66.300\text{ m}$$
- $$C3 - C7 = \sqrt{[(-75\,316.13 - -75\,292.89)^2 + (3650\,016.79 - 3650\,010.66)^2]} \\ = \sqrt{[(-23.24)^2 + (6.13)^2]} \\ = 24.033\text{ m}$$
- $$C7 - C6 = \sqrt{[(-75\,333.84 - -75\,316.13)^2 + (3\,649\,966.33 - 3\,650\,016.79)^2]} \\ = \sqrt{[(-17.71)^2 + (-50.46)^2]} \\ = 53.477\text{ m}$$
- (25)
- 2.2
- Use the correct zero mark.
 - Measure to the centre of a peg or a ranging rod.
 - View the tape vertically on the graduations.
 - Clear obstacles on the chain line.
 - Minimise sag.
- (10)

- 2.3
- pegs
 - ranging rod
 - tape
 - plumbing
 - hammer
 - lime

(Any 5 × 1) (5)
[40]

QUESTION 3

3.1

BACK SIGHT	INTER. SIGHT	FORE-SIGHT	RISE	FALL	REDUCED LEVEL	REMARKS
1.17					30.32	Benchmark 30.23
	1.42			0.25✓	29.98✓	A
2.18		1.76		0.34	29.64✓	B
	2.28			0.1	29.54✓	C
0.81		0.93		1.35✓	28.19✓	D
1.43		3.00		2.184✓	26.006✓	E
1.46		1.35	0.08✓		26.086✓	F
	1.35		0.11		26.196✓	G
	1.40			0.05✓	26.146✓	H
		0.52	0.88✓		27.026✓	I
1.07 4.274 -3.204		4.274			30.23 27.026 3.204	

$3.204 - 3.204 = 0$ there is no error

(15)

- 3.2 At two points A and B erect perpendicular line BC,✓ at line BC erect another perpendicular line CD✓ to clear the obstacle. At CD erect a perpendicular line DE equal in length✓ to BC and at DE set off a right angle EF.✓ The direction EF is the extension of the survey line and distance $CD = BE$.✓

(5)
[20]

QUESTION 4

A –B 100.261 m at a slope of 3° 44'20"

Slope = 3,739°✓

$$AB = 100,261 \times \cos 3,739^\circ \checkmark$$

$$= 100.048 \text{ m} \checkmark$$

B – C 72,408 m a slope of 7° 45'✓

Slope = 7,75°✓

$$BC = 72,408 \text{ m} \times \cos 7,75^\circ \checkmark$$

$$= 71.747 \text{ m} \checkmark$$

C –D = 50 m at a slope of 1° 51'✓

Slope = 1.85°✓

$$CD = 50 \times \cos 1.85^\circ \checkmark$$

$$= 49,98 \text{ m} \checkmark$$

$$AD = 100,048 \text{ m} \checkmark + 71,747 \text{ m} \checkmark + 49,98 \text{ m} \checkmark$$

$$= 221,775 \text{ m} \checkmark$$

[15]

TOTAL: 100