higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

BUILDING AND STRUCTURAL SURVEYING N5

15 November 2022

This marking guideline consists of 5 pages.

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SECTION A

QUESTION 1

1.1 True
1.2 True
1.3 True
1.4 True
1.5 False
1.6 False
1.7 True
1.8 False
1.9 True
1.10 True

(10 × 1) **[10]**

QUESTION 2

2.1 F
2.2 D
2.3 G
2.4 I
2.5 A
2.6 B
2.7 C
2.8 H
2.9 K
2.10 J

(10 × 2) **[20]**

QUESTION 3

3.1 Rotate
3.2 Tighten
3.3 Rotate
3.4 Cross hair
3.5 215° 37’ 20”
3.6 Loosen

(6 × 2) **[12]**

TOTAL SECTION A: 42

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SECTION B

QUESTION 4

4.1 4.1.1

- The observer at rod A directs the assistant holding rod C in line between A and D.✓
- Rod C is moved from positions C_1 and C_2.✓ The observer at rod B directs the assistant holding rod D in line between B and C.✓
- Rod D is moved from positions D_1 and D_2.✓
- The process will continue until ranging rods A, B, C and D are in line with each other.✓ (5)

4.1.2

- From point C, set CE perpendicular to AC✓ and measure distance CE.✓
- From point D, set off DF perpendicular to DB✓ and measure distance DF equal to CE.✓
- By measuring EF, we find distance CD. ✓ (5)

4.3

- Three people are required: a follower, a leader and an observer.✓
- The follower keeps the end of the tape at A✓ and lines up with the leader, who keeps the other end of the tape at a suitable distance at B.✓
- The observer lines the tape horizontally and once horizontal, drops a plumb bob✓ from B to B_1 on the ground.✓
- The observer will note the measurement in his/her book.✓
- The follower then moves the tape end to B✓ and lines up with the leader who, from the observed horizontal tape, drops a plumb bob✓ from C to C_1 on the ground.✓
- The process is repeated until the required distance is obtained.✓ (11)

[21]

QUESTION 5

5.1 Difference in height AB = 211,200 m – 209,499 m
= 1,701 m✓
Horizontal distance AB = 3 860 m – 3 800 m
= 60 m✓

Pipe length AB = $\sqrt{[(1,701)^2 + (60)^2]}$ ✓
= 60,024 m✓

Difference in height BC = 211,200 m – 211,200 m
= 0 m✓
Horizontal distance = 3 923 m – 3 860 m
= 63 m✓

Pipe length BC = $\sqrt{[(63)^2 + (0)^2]}$ ✓
= 63 m✓
Difference in height CD = 211,020 m – 208 m✓
= 3,02 m✓
Horizontal distance CD = 3 936 m – 3 923 m✓
= 13,600 m✓

Pipe length CD = $\sqrt{[(13,6)^2}$ ✓+ $(3,02)^2]$ ✓
= 13,931 m✓ (15)

5.2 Difference in height AB = 211,200 m – 209,499 m
= 1,701 m✓
Horizontal distance AB = 3 860 m – 3 800 m
= 60 m✓
Difference in height BC = 211,200 m – 211,200 m
= 0 m✓
Horizontal distance = 3 923 m – 3 860 m
= 63 m✓

Slope 1,701/1,701:60/1,701✓
1:35,273✓
1/35,273 × 100✓
2,84%✓
Difference in height BC = 211,200 m – 211,200 m
= 0 m✓
The pipeline is horizontal = no slope✓ (10)

EXAMINATION NUMBER: | | | | | | | | | | | | |

5.3 ADDENDUM A

POINT	BACK SIGHT	INTERMEDIATE SIGHT	FORESIGHT	RISE	FALL	REDUCED LEVEL	REMARKS
A	2,310					1 306,90	**BM** 1 306,90
B	2,054		3,532		1,222✓	1 305,678✓	
C	2,694		3,502		1,448✓	1 304,230✓	
D		3,654			0,96✓	1 303,270✓	
E	3,536		3,452	0,202✓		1 303,472✓	
F			2,554	0,982✓		1 304,454✓	

10,594 13,04 1,184 3,63 1 306,90
13,04 3,63 2,446
2,446 2,446

∑=1,184 ∑= 3,630
-3,630 + 1,184 = -2,446✓
1 306,90 – 1 304,454 = 2,446✓ (12)
[37]

TOTAL SECTION B: 58
GRAND TOTAL: 100

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