higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ELECTRICAL SYSTEMS AND CONSTRUCTION
NQF LEVEL 2

XX February 2020

This marking guideline consists of 6 pages.

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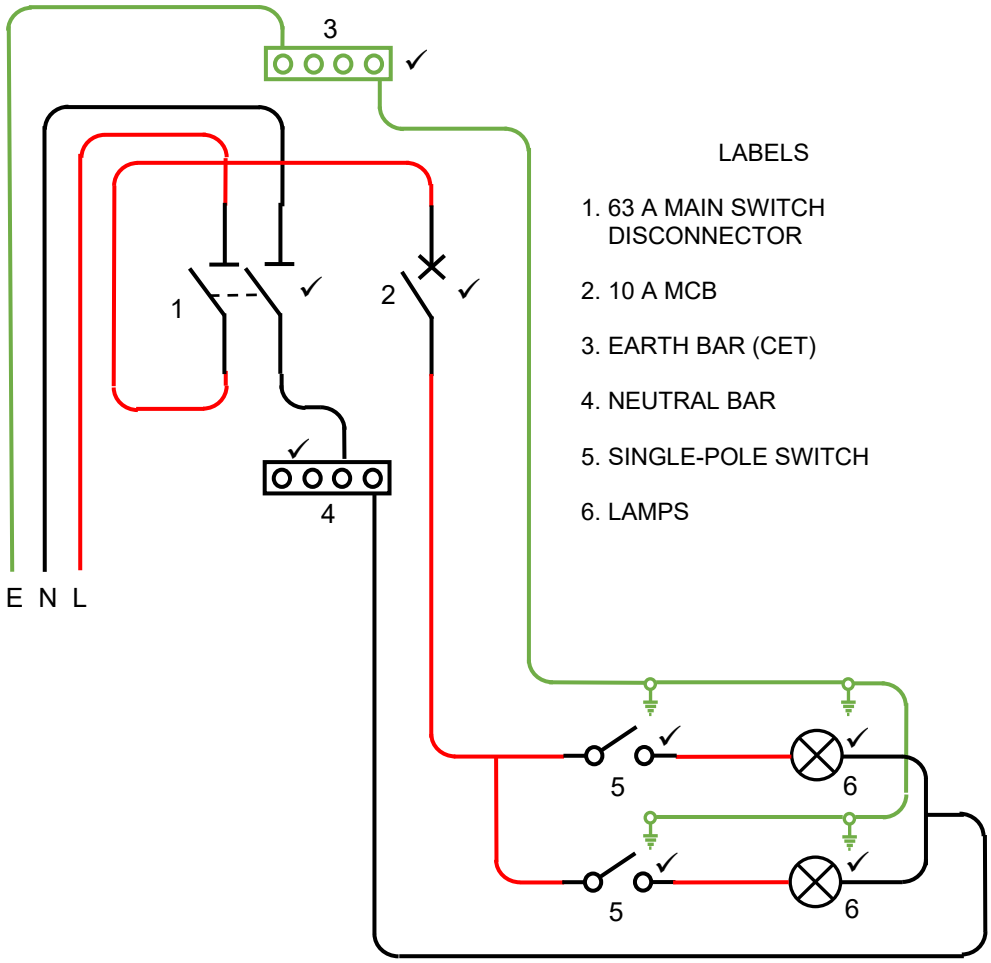
QUESTION 1

1.1

1.1.1	False
1.1.2	True
1.1.3	True
1.1.4	False
1.1.5	True
1.1.6	True
1.1.7	False
1.1.8	True
1.1.9	False
1.1.10	False

(10 × 1) (10)

1.2



LABELS

1. 63 A MAIN SWITCH DISCONNECTOR
2. 10 A MCB
3. EARTH BAR (CET)
4. NEUTRAL BAR
5. SINGLE-POLE SWITCH
6. LAMPS

(2 for labels + 8 for connections) (10)

1.3

1.3.1	0,33 Ω
1.3.2	1,1 Ω
1.3.3	0,55 Ω

(3 × 1) (3)

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1.4
- Hot- and cold-water pipes of a geyser
- Antennas/Satellite dish
- Roofs, gutters, downpipes
- Metal sinks/baths
- All exposed metallic parts of an installation (Any 2 × 1) (2)

[25]

QUESTION 2

2.1
2.1.1 Strip connector/Connector block
2.1.2 Ferrule
2.1.3 Lug
2.1.4 Screw connector

(4 × 1) (4)

2.2 **Strip connector/Connector block**
- Side cutters
- Combination pliers
- Wire strippers
- Flat screw drivers (Any TWO)

Ferrule
- Crimping pliers
- Side cutters
- Combination pliers
- Wire strippers (Any TWO)

Lug
- Crimping pliers
- Side cutters
- Combination pliers
- Wire strippers (Any TWO)

Screw connector
- Side cutters
- Combination pliers
- Wire strippers (Any TWO)

(4 × 2) (8)

2.3
2.3.1 E
2.3.2 G
2.3.3 A
2.3.4 D
2.3.5 C

(5 × 1) (5)

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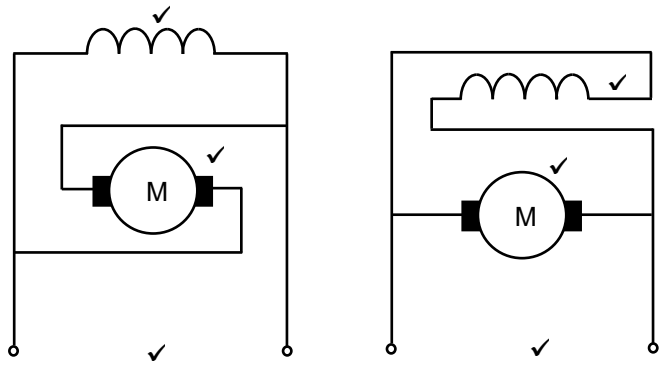
2.4
- Learning more effectively from each other
- Developing skill
- Developing interpersonal skills
- Work done more quickly
- Sense of achievement
- More effective than individually working on complex projects (Any 3 × 1) (3)

[20]

QUESTION 3

3.1
- Lap winding
- Wave winding (2)

3.2



(3 + 3) (6)

3.3
- Screen-protected
- Drip-proof
- Flame-proof
- Pipe-ventilated
- Totally enclosed (Any 3 × 1) (3)

3.4
3.4.1 Insulation-resistance tester (1)
3.4.2 Twice the supply voltage (1)
3.4.3 No – The reading must not be less than 1 MΩ. (2)

[15]

QUESTION 4

4.1
- Mechanical operation
- Continuity test
- Insulation-resistance test
- Contact-resistance test (Any 3 × 1) (3)

4.2
4.2.1 Acceptable
4.2.2 Unacceptable
4.2.3 Acceptable
4.2.4 Unacceptable
4.2.5 Unacceptable

(5 × 1) (5)

4.3
- Ensuring there are no open circuits, short circuits and overload conditions
- Quality assurance
- Periodic safety checks
- Fault-finding
- Ensuring testing values are within specified limits
- Ensuring connections are in accordance with the manufacturer's recommendations (Any 4 × 1) (4)

4.4
- Voltage test
- Continuity test
- Insulation-resistance test (3)

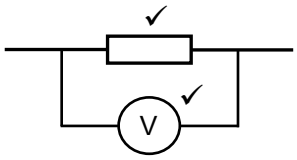
[15]

QUESTION 5

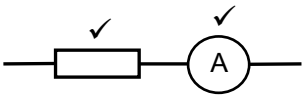
5.1 Determining the amount of electrical energy used✓ over a certain period of time✓ (2)

5.2
- Energy meters should be mounted vertically only.
- Connections must be made according to the manufacturer's instructions.
- Meters should be installed at a height where it is convenient to read.
- Protective covers should be provided for the meters or it should be mounted in a lockable enclosure.
- Do not mount the meters in or near a fire-risk area. (Any 2 × 1) (2)

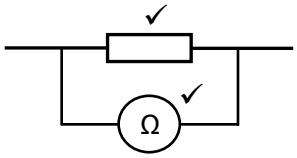
5.3 5.3.1



5.3.2



5.3.3



(3 × 2) (6)

5.4
- Steel ruler
- Tape measure
- Punch
- Scriber
- Hammer
- Jigsaw
- File
- Wire stripper
- Combination pliers
- Side cutters
- Screwdriver

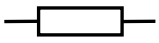
(Any 5 × 1) (5)
[15]

QUESTION 6

6.1
6.1.1 doubled
6.1.2 increase
6.1.3 0,5 V
6.1.4 electricity
6.1.5 series

(5 × 1) (5)

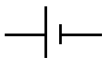
6.2
6.2.1



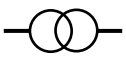
or



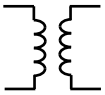
6.2.2



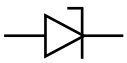
6.2.3



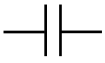
or



6.2.4



6.2.5



(5 × 1) (5)
[10]

TOTAL: 100

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