higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATERIALS
NQF LEVEL 2

16 November 2023

This marking guideline consists of 6 pages.

Copyright reserved

QUESTION 1

1.1 Thermal resistance is the term used to describe how well a material can resist heat.

1.2 Heterogeneous behaviour is the opposite of anisotropic. The properties of an anisotropic material change depending on the direction in which they are measured.

1.3 Impact resistance describes a material's ability to resist impact, such as a hammer blow.

1.4 Porosity is a measurement of the void spaces in a material, and is measured as a percentage between 0 and 100%.

1.5 Malleability is the property of metal that it can be hammered or rolled into thin sheets without cracking.

(5 × 2) **[10]**

QUESTION 2

2.1 2.1.1 True
2.1.2 False
2.1.3 True

(3 × 1) (3)

2.2
- Core – is the innermost part of the earth
- Mantle – is the part between the core and the crust
- Crust – is the outer skin of the earth (Any 2 × 2) (4)

2.3 Soil is formed by the weathering of rocks through the main weathering agents of water, wind, ice, chemicals and graving.✓ As water washes rock particles down a river, particles will bump into larger, stationery rocks and, in the process, attrition will take place.✓ Particles dislodged from the rocks will become sand particles.✓ (3)

[10]

QUESTION 3

3.1
- Clay
- Gravel
- Silt
- Sand
- Loam (Any 4 × 1) (4)

3.2
- Wattle and daub
- Cob
- Mud and cow dung
- Pole
- Rock or stone (Any 4 × 1) (4)

3.3
- Expansive soil
- Collapsible soil
- Dolomite
- Clay soil (Any 2 × 1) (2)

[10]

QUESTION 4

4.1
- When using mortar, use a mortar mix that contains materials that allows for expansion.
- Build walls that are not too long.
- Moisten the bricks before laying.
- If a long wall is required, build control joints in preparation for any expansion that may occur. (Any 3 × 1) (3)

4.2
- Stiff-mud process
- Soft-mud process
- Dry-press process (3)

4.3 Brickwork deterioration is the result of physical breakdown of bricks✓ like spalling or crumbling or could be an aesthetic issue where the surface develops blemishes✓ or lose its original appearance.✓ (3)

4.4
4.4.1 English bond
4.4.2 Stretcher bond/running bond
4.4.3 Flemish bond
(3 × 1) (3)

4.5
- You apply VanGo (a product used to remove stains) and wait until the stains have disappear before washing it off.
- Apply oxide to the stains bricks without wetting them. Once the oxide is applied, the bricks should be neutralised with a neutralising agent. (2)

Copyright reserved

4.6 A cavity-wall consist of two masonry walls separated by a small hollow space.

OR

A cavity wall formed from two thicknesses of brickwork or block work with a space between them. (1)

[15]

QUESTION 5

5.1

5.1.1	L
5.1.2	J
5.1.3	K
5.1.4	I
5.1.5	A
5.1.6	H
5.1.7	E
5.1.8	G
5.1.9	B
5.1.10	D

(10 × 1) (10)

5.2
- High strength
- Durability
- Appearance (Any 2 × 1) (2)

5.3 Tensile strength is the ability of a material to resist tensile force✓✓ and compressive strength is its ability to endure any force that tries to squeeze or press down the material.✓✓ (4)

5.4
- Kneading
- Static
- Dynamic or impact
- Vibratory compaction
- Compacting by hand
- Compacting by machine (Any 3 × 1) (3)

5.5
- The bags and containers that contains admixtures must be marked clearly to avoid confusing the different admixtures.
- Do not refrigerate admixtures.
- Bags of powdered admixtures must be stored in a cool and dry place.
- Liquid admixtures need to be stirred before they are used.
- Clean the dispenser before and after mixing.
- Clean the dispenser when changing to a different admixture. (Any 4 × 1) (4)

5.6 To increase the strength✓ or bearing capacity of concrete to bear tension.✓ (2)

[25]

QUESTION 6

6.1
- Water
- Sand
- Cement (3)

6.2
- Find a clean, level area and compact it until firm.
- Batch the aggregate according to the correct ratio.
- Mix well with cement until the mixture is greyish in colour.
- Form a hollow in the mix and add the correct amount of water.
- Mix well to form workable mortar. (5)

6.3
- To fill the gaps and cracks between the bricks
- To bond masonry units together
- To join bricks and blocks together (Any 3 × 1) (3)

[10]

QUESTION 7

7.1 Curing compounds are materials added to plaster✓ which is specifically formulated to cure, seal and chemically harden plaster.✓ (2)

7.2
- If one keeps the amount of plaster that is consumed small, one ends up reducing the amount of plaster that is lost when it is applied to the substrate.
- To use the plaster when it is still fresh. (2)

7.3 Plastic shrinkage cracks in plaster occurs when too much water is lost✓ from the plaster in the few hours after it has been applied.
Recommend precautions to combat cracks:
These cracks can be filled easily with appropriate filler and painted over.✓ (3)

7.4
- Hacking
- Spatterdash coat
- Mechanically fixed mesh. (Any 3 × 1) (3)

[10]

QUESTION 8

8.1
8.1.1 Unbonded screed
8.1.2 Level out
8.1.3 Stick/Adhere
8.1.4 Scabbler
8.1.5 BRE screed tester
8.1.6 Damp proof membrane

(6 × 1) (6)

8.2
- Screed is a mixture of cement, fine sand and water for providing smooth floor surface.✓ Screed is applied for light duty traffic floors such as residential or commercial buildings.✓
- Topping is a concrete mixture designed to be have strength and consists of cement , sand, water and small stones.✓ A topping layer provides a heavy surface on top of a base used for industrial building.✓ (4)

[10]

TOTAL: 100

Copyright reserved