higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T120**(E)**(A7)T

NATIONAL CERTIFICATE

BUILDING AND CIVIL TECHNOLOGY N3

(11010273)

7 August 2019 (X-Paper)
09:00–12:00

Calculators may be used.

This question paper consists of 7 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
BUILDING AND CIVIL TECHNOLOGY N3
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Write neatly and legibly.

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QUESTION 1

1.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

1.1.1 The carpenter sees to it that wall plates are soundly bedded.

1.1.2 The clerk of works is employed on large contracts as the architect's on-site representative.

1.1.3 Planning concerns management thinking about the future and deciding what to do.

1.1.4 The right of an employee to compensation applies if an accident is attributable to the serious and willful misconduct of the employee: full compensation shall be payable in terms of the relevant act.

1.1.5 The requirement for good communication is to ensure that a message is accompanied by an explanation.

1.1.6 The site supervisor is to ensure that a slow rate of progress is maintained to ensure quality.

1.1.7 The primary function of planning in the building industry is to use labour, machines, materials and methods efficiently and economically.

1.1.8 Once the owner is satisfied with the design, he/she signs a contract with the architect.

1.1.9 The contractor must honour the defects liability clauses contained in the contract.

1.1.10 The plumber sees to it that all debris is removed from gutters and valleys.

(10 × 1) (10)

1.2 State SIX qualities or abilities that a leader should have. (6)

[16]

QUESTION 2

2.1 Make a large, neat sketch of a vertical section through a cavity wall on a reinforced strip foundation.

Show the following detail:

- Cavity wall
- Strip foundation
- Cavity wall filled with at least 150 mm from damp-proof course
- Damp-poof course
- Reinforcement in foundation (8)

2.2 Briefly discuss stepped foundation. (3)

2.3 State FIVE safety precautions for scaffolding. (5)
[16]

QUESTION 3

3.1 State FOUR factors that influence the hardening and strengthening of a concrete mixture. (4)

3.2 State THREE disadvantages of using vermiculite concrete. (3)

3.3 No-fines concrete consists of a mixture of coarse aggregate, cement and water.

List SEVEN characteristics of no-fines concrete. (7)

3.4 Complete the following sentences by writing only the missing word or words next to the question number (3.4.1–3.4.2) in the ANSWER BOOK.

Cement should be stored on a (3.4.1) … floor in a (3.4.2) … building for three months. (2)
[16]

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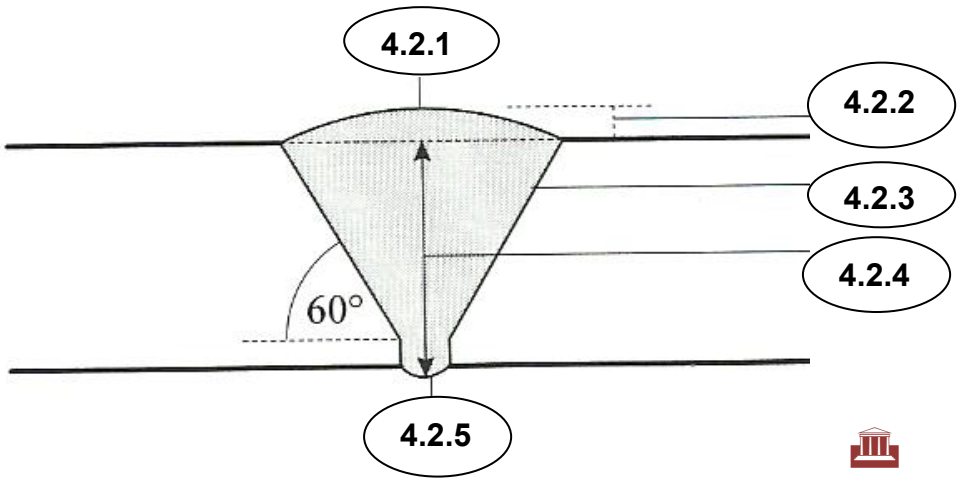
QUESTION 4

4.1 Standardisation of timber is a form of grading which indicates a certain quality.

State FIVE reasons why the standardisation of timber is important. (5)

4.2 Identify the marked parts of the single V-butt joint in the diagram below by writing the answer next to the question number in (4.2.1–4.2.5) in the ANSWER BOOK.



(5)

4.3 Give abbreviations for each of the following:

4.3.1 Grease trap

4.3.2 Waste pipe

4.3.3 Ventilation pipe

4.3.4 Inspection chamber

4.3.5 Sink

4.3.6 Soil pipe

(6 × 1) (6)

[16]

QUESTION 5

5.1 Name FIVE electrical diagrams regarding plug and switchgear. (5)

5.2 Make a neat sketch of a panelling that consists of horizontal strips joined together with groove joints. The strips are about 18 mm thick by 100 mm wide. (8)

5.3 Name THREE types of paint. (3)
[16]

QUESTION 6

6.1 Calculate the following:

6.1.1 Square area of 11 500 bricks if bricks in 1 m^2 of a one-brick wall = 100

6.1.2 Labour cost if the cost is R275 m^2

(2 × 2) (4)

6.2 A brick wall has an area of 180 m^2.

6.2.1 Calculate the amount of bricks required.

6.2.2 Calculate the amount of sand required.

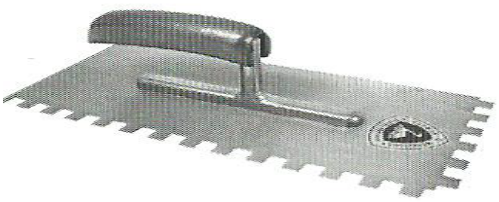
NOTE: Bricks in 1 m^2 of one-brick walling = 100
1 000 kg = 1 ton

(2 × 2) (4)

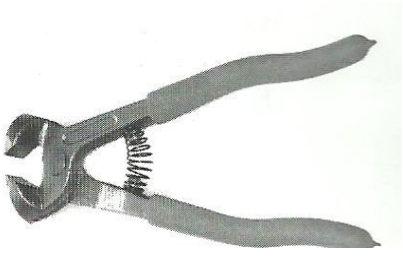
6.3 Calculate the amount of concrete required and the cost of the concrete to cast a foundation 25 mm long by 600 mm wide by 250 mm thick. The cost of the concrete is R475 m^3. (4)

6.4 Identify the different tiling tools below by writing the answer next to the question number (6.4.1–6.4.5) in the ANSWER BOOK.

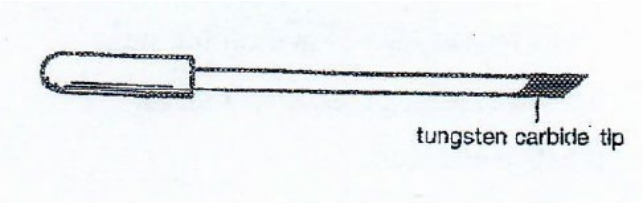
6.4.1



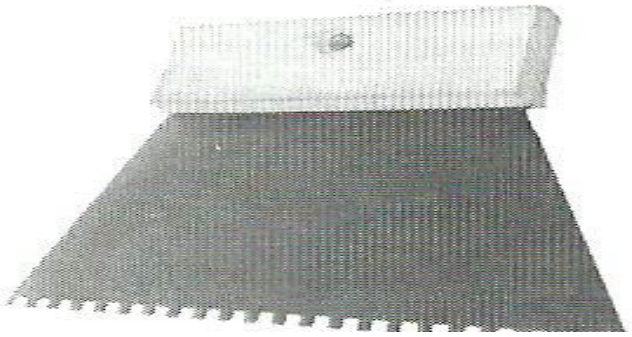
6.4.2



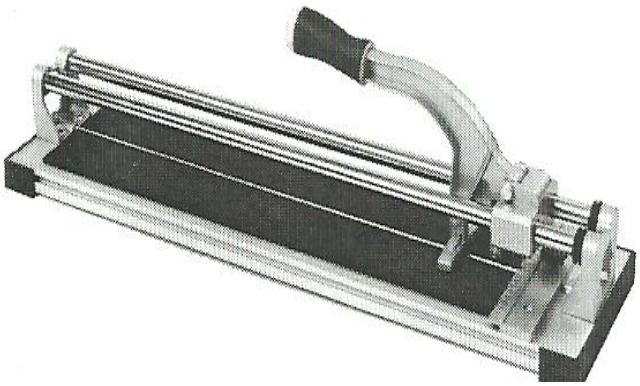
6.4.3



6.4.4



6.4.5



(5 × 1) (5)

6.5 State THREE rules to follow when paving has to be done. (3)
[20]

TOTAL: 100

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