



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T120(E)(A9)T

NATIONAL CERTIFICATE

BUILDING AND CIVIL TECHNOLOGY N3

(11010273)

9 April 2019 (X-Paper)

09:00–12:00

This question paper consists of 7 pages.

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. Sketches must be neat and clearly labelled.
 5. Write neatly and legibly.
-

QUESTION 1

- 1.1 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–J) next to question number (1.1.1–1.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1.1	Designer and manager of the project	A	comply
1.1.2	Check that glass has been properly back-puttied	B	site supervisor
1.1.3	Indirectly employs everybody who works in or for the project	C	architect
1.1.4	Has numerous duties, including keeping an eye on the people involved in the projects	D	clerk of works
1.1.5	Examine all materials once they have been delivered to the site	E	owner
1.1.6	Ensure the flow of information	F	communication
1.1.7	Process which allows management to think about the future and decide what to do	G	pension scheme
1.1.8	Duty of employee in the workplace regarding health and safety matters	H	glazer
1.1.9	Condition of service that may be contained in a letter of appointment	I	dismissal
1.1.10	When employer terminates a contract of employment	J	planning

(10 × 1) (10)

- 1.2 List SIX factors that positively influence motivation on site.



(6)
[16]

QUESTION 2

- 2.1 State FIVE steps to be followed before any underpinning may be carried out. (5)
- 2.2 Make a neat sketch to determine pipe levels using a U-tube method. (6)
- 2.3 List FIVE of the most commonly used scaffolding fittings made of steel or aluminium alloy approved by the SABS. (5)
- [16]**

QUESTION 3

- 3.1 Concrete form the basis of our construction and building methods and a sound knowledge of it is essential for the building practitioner.
- 3.1.1 State FOUR rules that one should consider when working with concrete.
- 3.1.2 Briefly explain a proper way of storing cement. (2 × 4) (8)
- 3.2 Calculate the total amount of water required for a mix which contains 600 kg of cement and has a water: cement ratio of 0,60. (3)
- 3.3 Slump tests are useful on sites where quick tests are needed.
- Draw a neat freehand sketch of a slump test and label any TWO parts. (5)
- [16]**

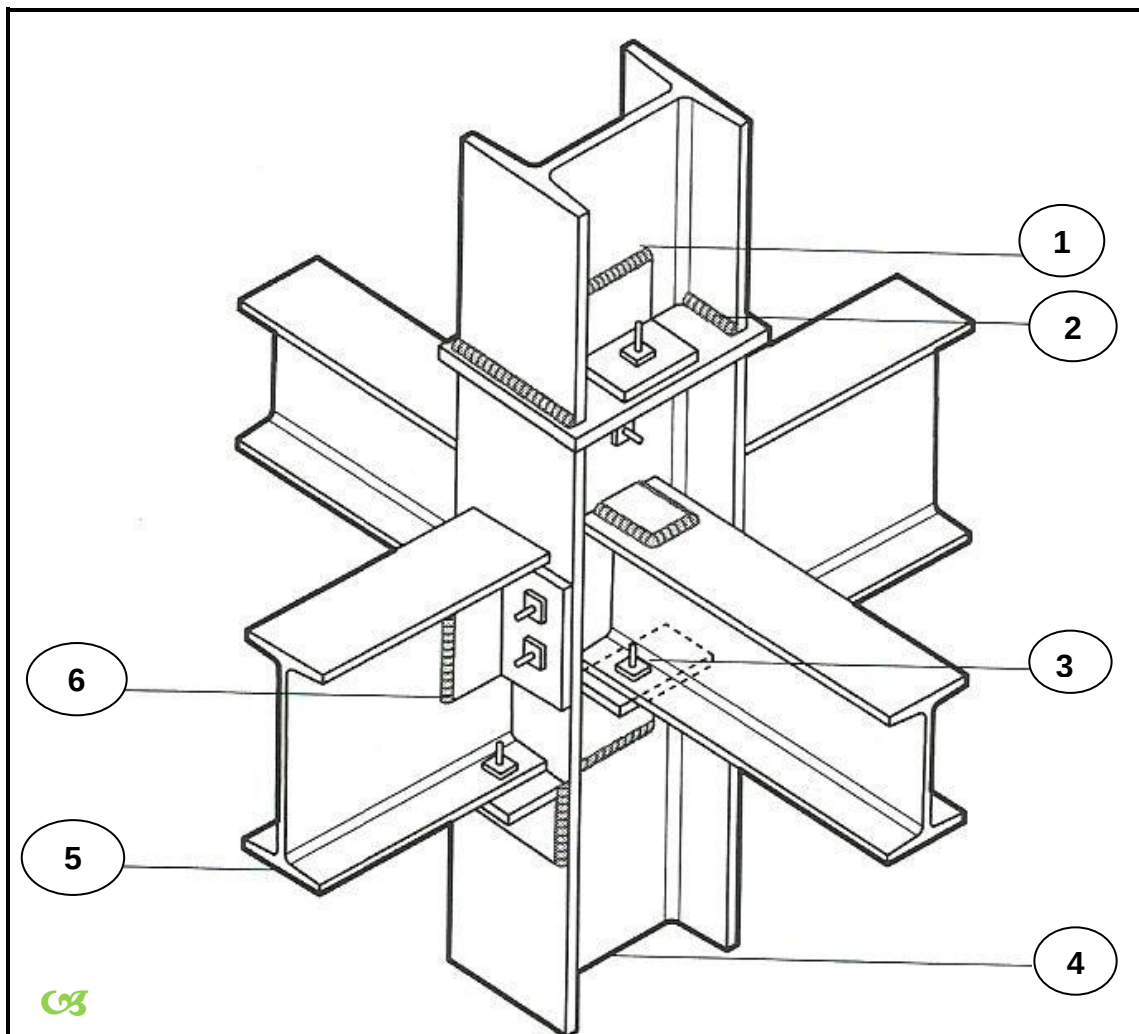
QUESTION 4

- 4.1 Identify each of the following abbreviations used in plumbing:
- 4.1.1 BT
- 4.1.2 GT
- 4.1.3 CI
- 4.1.4 FI
- 4.1.5 CE
- 5.1.6 AO
- (6 × 1) (6)

4.2 Below is a diagram of a column and beam connection.



Complete the diagram by naming the numbered parts. Write only the answer next to the question number (1–6) in the ANSWER BOOK.



(6)

4.3 State FOUR advantages of a pressure valve geyser.



(4)
[16]

QUESTION 5

5.1 Below are symbols of electrical components used for indoor installations.

Write only the name of each symbol next to the question number (5.1.1–5.1.4) in the ANSWER BOOK.

5.1.1



5.1.2



5.1.3



5.1.4



(4 × 1)

(4)

5.2 Name and explain SIX factors which should be considered and weighed up when selecting floor finishing.



(12)
[16]

QUESTION 6

6.1 Plastering surface depends on the kind of material used.

State FIVE reasons for plastering walls.



(5)

6.2 A one-brick wall has a length of 16 m and a height of 3 m. The wall has a door opening of 2 m high and 1,8 m wide and a window of 1,5 m wide and 1,5 m high. Labour cost is R300 per m².

NOTE: $\frac{1}{2}$ brick walling = 50 bricks m²



1 m³ of sand = 100 kg (1 ton)

Calculate the following:

6.2.1 The area of the wall (9)

6.2.2 The number of bricks required (2)

6.2.3 The amount of sand required (2)

6.2.4 The labour cost (2)

[20]

TOTAL: 100