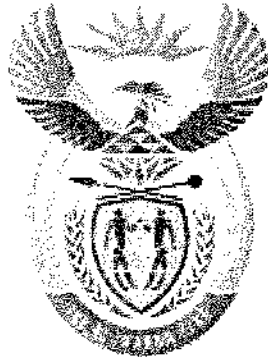# higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T70(E)(J23)T
AUGUST EXAMINATION

NATIONAL CERTIFICATE

BUILDING AND CIVIL TECHNOLOGY N3

(11010273)

23 July 2014 (Y-Paper)
13:00–16:00

Nonprogrammable calculators are allowed.

This question paper consists of 6 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 should be neatly and clearly labelled.

5.   Your understanding of the subject is what is important, NOT the reproduction of the study material.

6.   Start each question on a NEW page.

7.   Write neatly and legibly.

QUESTION 1

Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (1.1–1.10) in the ANSWER BOOK.

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

1.2 A health and safety committee holds a meeting once every three months.

1.3 The carpenter ensures that wall plates are soundly bedded.

1.4 The painter ensures that the specified coats of paint are applied

1.5 A written or verbal notice of an accident shall, as soon as possible, after such accident has happened, be given by or on behalf of the employee concerned, to the employer.

1.6 Communication is the process by means of which opinions are exchanged through a system of symbols.

1.7 One of the owner's functions is to consult with the clerk of works at the beginning of the contract and to supply him or her with all the relevant data about the proposed work, such as space, location, costs, the proposed use of the new building and time limits.

1.8 The contract manager is a member of the building team. His/her role is crucial to the success of any project.

1.9 The contractor represents a specific area or town and is involved in all building activities that fall within his/her jurisdiction.

1.10 The plumber ensures that ventilation pipes are properly secured or that vent valves are sealed back after testing a sewer line.

(10 × 1) **[10]**

QUESTION 2

2.1 A sloping rectangular site has been set out. As a site surveyor you are required to put profiles for excavation so as to level the site.

Explain how you would go about transferring your foundation levels onto the profiles based on the length of your traveller. (6)

2.2 Name FOUR types of foundations. (4)

[10]

QUESTION 3

3.1 Explain the term *cavity wall.* (2)

3.2 Damp-proofing is very important when building.

Name SIX types of damp-proof courses. (6)

3.3 Calculate how much water you would need in the following situation: (2)

200 kg of cement with a water: cement ratio of 0,5.

3.4 Discuss the terms *pointing* and *jointing.* (5)

[15]

QUESTION 4

4.1 Different grades of timber are used and the letters are painted on one end of the timber for identification.

Explain the meaning of the following grades:

4.1.1 CLG

4.1.2 HLG

4.1.3 SLG

4.1.4 ING

4.1.5 FK

(5 × 1) (5)

4.2 Briefly describe how the following connections are used:

4.2.1 Bolt joints (3)

4.2.2 Weld joint (2)

[10]

QUESTION 5

5.1   Briefly explain the following terms used in painting:

     5.1.1   Sandblasting

     5.1.2   Acid pickling

     5.1.3   Flame cleaning

                                      (3 x 1)   (3)

5.2   Many factors should be considered when selecting a floor finishing.

     Name and explain SIX factors to be considered.   (12)
                                                     [15]

QUESTION 6

6.1   What causes potholes on the road?   (1)

6.2   Name THREE types of kerbing.   (3)

6.3   A foundation that is 13 m long, 0,610 m wide and 0,305 m thick must be cast.

     Calculate the amount of concrete required and the cost of the concrete if the concrete cost is R450/m^3.   (4)

6.4   The number of bricks used in 1 m^2 of one-brick walling is 100.

     Calculate the square area if 9 000 bricks are used.   (2)
                                                      [10]

QUESTION 7

7.1   State FOUR advantages of a combination geyser.   (4)

7.2   Give the abbreviations of the following:

     7.2.1   Urinal

     7.2.2   Rainwater pipe

     7.2.3   Wash basin

     7.2.4   Flushing valve

     7.2.5   Inspection chamber

     7.2.6   Sprinkler system

                                          (6 x 1)   (6)
                                                       [10]

                                                           Please turn over

QUESTION 8

8.1 Explain the following terms used on roads:

      8.1.1   Base

      8.1.2   Haunch

      8.1.3   Base course

      8.1.4   Crown of the road

      8.1.5   Formation

                                  (2 x 5)   (10)

8.2 The choice of paving will depend mainly on how much the client wishes to spend, the client's personal preference, and the intended use to which the area will be put.

      Describe in detail the FIVE reasons for paving.   (10)
                                                                [20]

                                                           TOTAL: **100**