higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

CONSTRUCTION PLANNING
NQF LEVEL 3

(12010253)

8 December 2020 (Y-paper)
13:00–17:00

This question paper consists of 7 pages and 2 diagram sheets.

407Q1N2008

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TIME: 4 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. The drawings, sketches and diagrams must be done in pencil.
5. The sketches and/or diagrams must be neat, reasonably large, in proportion and fully labelled.
6. Rule off across the page after each completed question.
7. All work you do not want to be marked must be clearly crossed out.
8. All the abbreviations and symbols must comply with the latest national Building Regulations and all relevant SANS (SABS) codes.
9. QUESTION 2.1, 2.2 and 2.3 must be answered on the drawing paper. All other answers must be done in the ANSWER BOOK.
10. Use only a black or blue pen.
11. Write neatly and legibly.

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QUESTION 1: COMMUNICATION IN THE CONSTRUCTION INDUSTRY

1.1 Choose a description from COLUMN B that matches a word in COLUMN A. Write only the letter (A–G) next to the question number (1.1.1–1.1.6) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1.1	Medium	A	the information that the sender wishes to communicate
1.1.2	Barrier	B	the person who starts a conversation or asks a question
1.1.3	Feedback	C	the means by which information is transmitted between the speaker and the audience
1.1.4	Sender	D	any factor that interferes with the message or prevents it from being received
1.1.5	Message	E	the person to whom a message is directed
1.1.6	Receiver	F	sequence of actions
		G	the reaction from the receiver when he/she understands the message

(6 × 1) (6)

1.2 Differentiate between the following barriers to communication:

1.2.1 Physical barriers

1.2.2 Psychological barriers

(2 × 2) (4)

[10]

QUESTION 2: TECHNICAL DRAWINGS

2.1 The damp-proof course (DPC) is an important element in construction that prevents the penetration and ingress of water into a building. In a cavity wall the stepped damp-proof course is required to prevent rising damp at ground level, it is also to catch and shed, to the outside, any water that might penetrate the outer brick leaf and run down inside the cavity.

Draw to scale 1:10 a vertical cross-sectional view through the cavity wall concrete strip foundation, clearly showing the following construction details:

SPECIFICATIONS:

Wall:	Double leaf 270 mm cavity wall Note: The brick wall must be nine courses high from the top of the concrete foundation. Show at least three courses of brickwork above the concrete floor slab and three courses below the natural ground level.
Ground level:	Not less than two courses below the DPC.
Concrete floor slab:	75 mm thick
Foundation:	700 mm x 230 mm strip foundation
Earth fill:	100 mm thick
Plaster:	15 mm internally only
Floor screed:	20 mm on top of concrete floor
Wall tie:	Show at least one wire tie
DPC:	Sheet membrane

DO NOT insert any labels and dimensions. (11)

2.2 FIGURE 1, DIAGRAM SHEET 1 (attached) shows the top part of a vertical section through a steel window frame opening in double leaf brickwork.

Draw a neat freehand sketch that is twice the size of the given figure in good proportion. DO NOT insert any dimensions. (7)

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2.3 FIGURE 2, DIAGRAM SHEET 2 (attached) shows the front, side and top views of a shaped block drawn in first-angle orthographic projection.

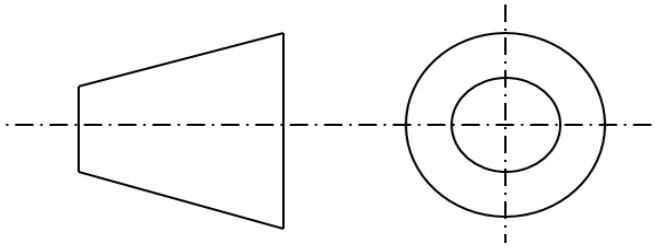
Draw an isometric diagram of the given views to scale 1:1 using drawing instruments.

- DO NOT copy the given views.
- DO NOT show any hidden detail.
- DO NOT add any dimensions.

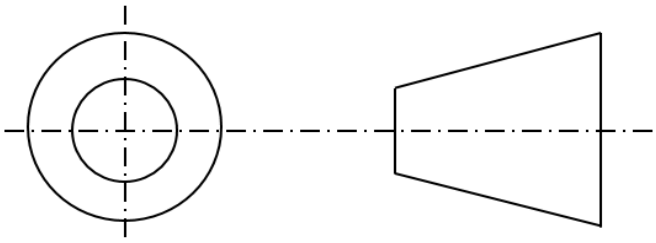
NOTE: Point A represents the leading edge of the drawing. (10)

2.4 Name the following symbols used in orthographic projections by writing only the answer next to the question number (2.4.1–2.4.2) in the ANSWER BOOK.

2.4.1



2.4.2



(1 × 2) (2)
[30]

QUESTION 3: THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

3.1 Write the full name of each of the following regulatory bodies and state THREE roles of each of them in the construction industry.

3.1.1 MBA

3.1.2 CIDB

3.1.3 SACQSP

(3 × 4) (12)

3.2 The architect plans and designs the building according to the brief he/she is given.

3.2.1 Who employs the architect? (1)

3.2.2 What is the main reason for the architect to give advice on the most suitable design? (2)

3.2.3 When would the architect stop the construction work? (1)

3.2.4 Where does the architect submit the plans for approval or changes? (1)

3.2.5 With whom does the architect coordinate his/her work? (1)

3.3 Give FOUR functions of each of the following trade organisations in the construction industry:

3.3.1 Clay Brick Association

3.3.2 South African Institute of Steel Construction

3.3.3 Institute for Timber Construction

(3 × 4) (12)
[30]

QUESTION 4: CONSTRUCTION LEGISLATION

4.1 Explain the following terms:

4.1.1 Rational design

4.1.2 Local authority

(2 × 2) (4)

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4.2 Complete each of the following sentences by choosing a word from the list below. Write only the answer next to the question number (4.2.1–4.2.5) in the ANSWER BOOK.

regulates; warranty; designed; life span; cornerstone; buildings; standardised

The National Building Regulations and Building Standards Act 103 of 1977 is the 4.2.1 (…) of building management in South Africa. It was created to provide a simple and 4.2.2 (…) system of building control that 4.2.3 (…) all building work throughout the country. The focus of this Act is to ensure that 4.2.4 (…) are 4.2.5 (…) and built to specific standards so that people can live and work in a safe and healthy environment. (5)

4.3 The contractor's obligation is to ensure that work carried out must comply with local authority by-laws which are regulated by the National Building Regulations.

List the general rules that is applied by local authorities before the contractor can start the work. (3)

4.4 Give a short explanation to differentiate between *certificate of non-compliance* and *demolition order.* (2 × 2) (4)

4.5 The Code of Hammurabi and the Great Fire of London are two historical events that have a direct bearing on the development of centralised control of today's building environment.

4.5.1 Who started the Great fire? (1)

4.5.2 How did the Great fire start? (1)

4.5.3 Briefly discuss FOUR ways that aided the Great fire to spread so quickly? (4)

4.5.4 For how long did the Great fire burn? (1)

4.5.5 What is the Code of Hammurabi? (2)

4.5.6 How many laws in the Code of Hammurabi address the subject of construction? (1)

4.6 The Department of Public Works advertises a tender in the printed media and invites all competent contractors to bid for a contract. Thereafter the evaluation panel, appointed by the department, evaluates all the applications received.

Give the criteria that the evaluation panel uses to select a suitable contractor. (4)

[30]

TOTAL: 100

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DIAGRAM SHEET 1

QUESTION 2.2

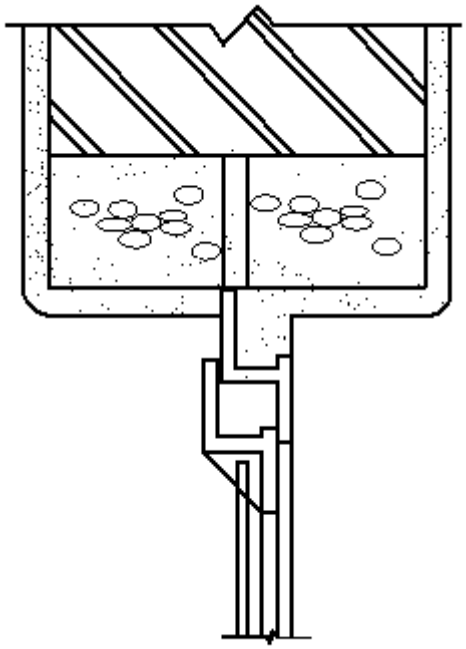

FIGURE 1

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DIAGRAM SHEET 2

QUESTION 2.3

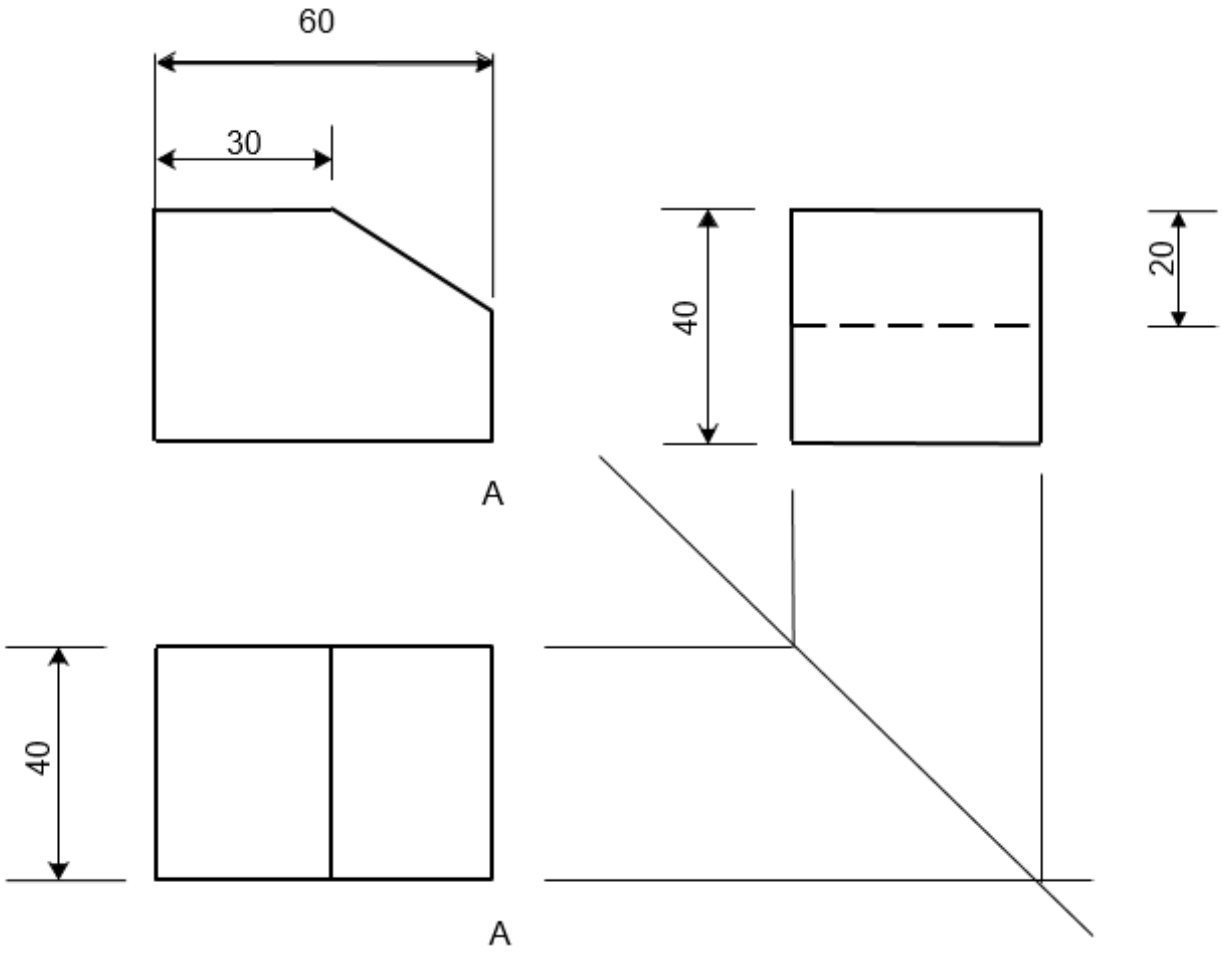

FIGURE 2

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