higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

DRAWING OFFICE PROCEDURES AND TECHNIQUES

(First paper)

NQF LEVEL 4

(12050724)

17 November 2022 (X-paper)
09:00–12:00

This question paper consists of 6 pages.

455Q1N2217

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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. Start each section on a new page.
5. Use only a black or a blue pen.
6. Produce freehand drawings, sketches and diagrams neatly, reasonably large, in proportion, fully labelled and in pencil.
7. Rule off across the page on completion of each question.
8. Clearly cross out all work that you do not want to be marked.
9. Write neatly and legibly.

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QUESTION 1: PLANNING AND SCHEDULING WORKFLOW

1.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.1.1–1.1.5) in the ANSWER BOOK.

1.1.1 Managing a clients' expectations is critical for the success of your business and can be more important than the National Building Regulation Act of 1977.

1.1.2 Soft copies of the project plan and drawings are duplicated during the project, by creating copies on computers or by resaving certain files.

1.1.3 Hard copies of the project drawings are made with computer plotters or photo copiers.

1.1.4 A project has distinctive attributes that distinguish it from ongoing work or business operations. Projects are not temporary in nature.

1.1.5 Project planning by the project manager is important to identify desired goals, reduce risks, avoid missed deadlines, and ultimately deliver the agreed product, service or result.

(5 × 1) (5)

1.2 The drawing office has its own systems in place which have been developed over a period of time.

List SIX such systems used in the drawing office. (6)

1.3 Various project drawings are stored in a drawing office for reference.

List any FIVE reasons for storing soft copies of project drawings in a drawing office. (5)

1.4 Name THREE business processes related to the drawing office. (3)

1.5 Define the term, *work plan,* as related to a drawing office. (3)

1.6 Define the term, *workflow,* as related to a drawing office. (3)

[25]

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QUESTION 2: DRAWING OFFICE PROJECT ESTIMATING AND PLANNING

2.1 Choose a word from COLUMN B that relates to the phase and matches the description in COLUMN A. Write the letter (A–E) next to the question number (2.1.1–2.1.5) in the ANSWER BOOK.

	COLUMN A	COLUMN B
2.1.1	Consult with various professional consultants involved in projects, for example, town and regional planners, engineers and landscape architects.	**A.** Inception phase
2.1.2	Propose a preliminary project programme.	**B.** Concept phase
2.1.3	Set out tenders, adjudicate the tenders to get a suitable contractor, appoint contractor on behalf of the client according to a chosen building contract.	**C.** Design phase
2.1.4	Distinguish client's available budget and time frame.	**D.** Documentation phase
2.1.5	The architect assists the client to obtain the occupation certificate.	**E.** Construction phase

(5 × 1) (5)

2.2 Define the term, *fixed costs*. (2)

2.3 List any THREE examples of variable costs in a project. (3)

2.4 Define the following work element during a building project assigned by the drawing office:

- Time spent liaising with client. (2)

2.5 Complete the following table regarding resource requirements of a project, regarding the Type of cost and its relationship to Resources, Description and Related Documentation. Write the answer next to the question number (2.5.1–2.5.4) in the ANSWER BOOK.

Resource	Description	Type of cost	Related Documentation
Running costs	(2.5.1) …	Fixed cost: overhead expenses	(2.5.2) …
(2.5.3) …	People doing the job	Fixed or Variable	(2.5.4) …

(4 × 2) (8)

[20]

QUESTION 3: PROJECT MANAGEMENT IN A DRAWING OFFICE ENVIRONMENT

3.1 Project management plays an important role in a modern-day drawing office. In order to understand the concept of project management, it is important to understand each element separately, that project management consists of. Define the following:

3.1.1 Measurable deliverables.

3.1.2 Milestones.

3.1.3 Timeframes.

3.1.4 Activity.

3.1.5 Project Time management.

3.1.6 Resources.

(6 × 2) (12)

3.2 List FIVE functions of project management. (5)

3.3 Name THREE resources that are required for a project. (3)

3.4 Indicate whether the following statement is TRUE of FALSE by writing only 'True' or 'False' next to the question number (3.4) in the ANSWER BOOK.

Project managers who lack necessary experience to carry out the project within a defined timeframe, budget and be able to negotiate reasonable and achievable deadlines and milestones across key stakeholders, teams, and management, are normally successful. (2)

3.5 Define and explain the responsibilities and role of a project sponsor. (2)

3.6 Explain the next step after the project manager has prepared the budget for a project. (2)

3.7 Name two important rules to consider for an effective procurement process for a project. (4)

3.8 Explain the purpose of a project plan. (2)

3.9 Name and briefly explain one of the many factors that contribute to the success of a project. (2)

3.10 Name any ONE human resource in a project team. (1)

[35]

QUESTION 4: 3D MODELLING

4.1	Explain the concept of a *3D drawing*.	(5)
4.2	Use a freehand drawing, to explain the cartesian coordinate system.	(5)
4.3	Name the main components that make up a 3D workspace.	(5)
4.4	3D drawing is one of the most commonly used techniques by architects, civil construction professionals and graphic designers. What is the purpose of a 3D drawing?	(5)
		[20]

TOTAL: 100

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