higher education & training

Department:
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REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

CARPENTRY AND ROOFWORK
NQF LEVEL 4

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This question paper consists of 8 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
CARPENTRY AND ROOFWORK
NQF LEVEL 4
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 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1.1–1.1.3) in the ANSWER BOOK.

1.1.1 The main reason for placing the geyser support deck above two passage walls is ...

A to create more headroom and workspace inside the roof.
B to minimize heat loss and water wastage while the user waits for hot water at the tap.
C to provide a gradient for any excess water to flow from the drip tray.
D to reduce the load on the roof trusses. (1)

1.1.2 The use of chipboard in the construction of a geyser platform is …

A recommended because chipboard is cheap.
B not recommended because chipboard is not water resistant.
C recommended because chipboard can be cut to any required width.
D not recommended because chipboard is not fire resistant (1)

1.1.3 The minimum number of bottom chords required to support a 250-litre geyser safely, without putting extra stress on the roof truss, is ...

A 1
B 2
C 3
D 4 (1)

1.2 Name THREE factors that should be considered before the installation and placement of a geyser support deck. (3)

1.3 When would an engineer be required to approve and sign off the design of a geyser support deck? (2 × ½) (1)

1.4 FIGURE 1 below shows a hot water geyser resting on a support deck, built across Howe trusses in a gable roof construction.

Study the diagram carefully and identify the incorrect method of installation and give the correct method or procedures that should have been followed to avoid the critical errors made in the installation of the support deck shown in FIGURE 1.

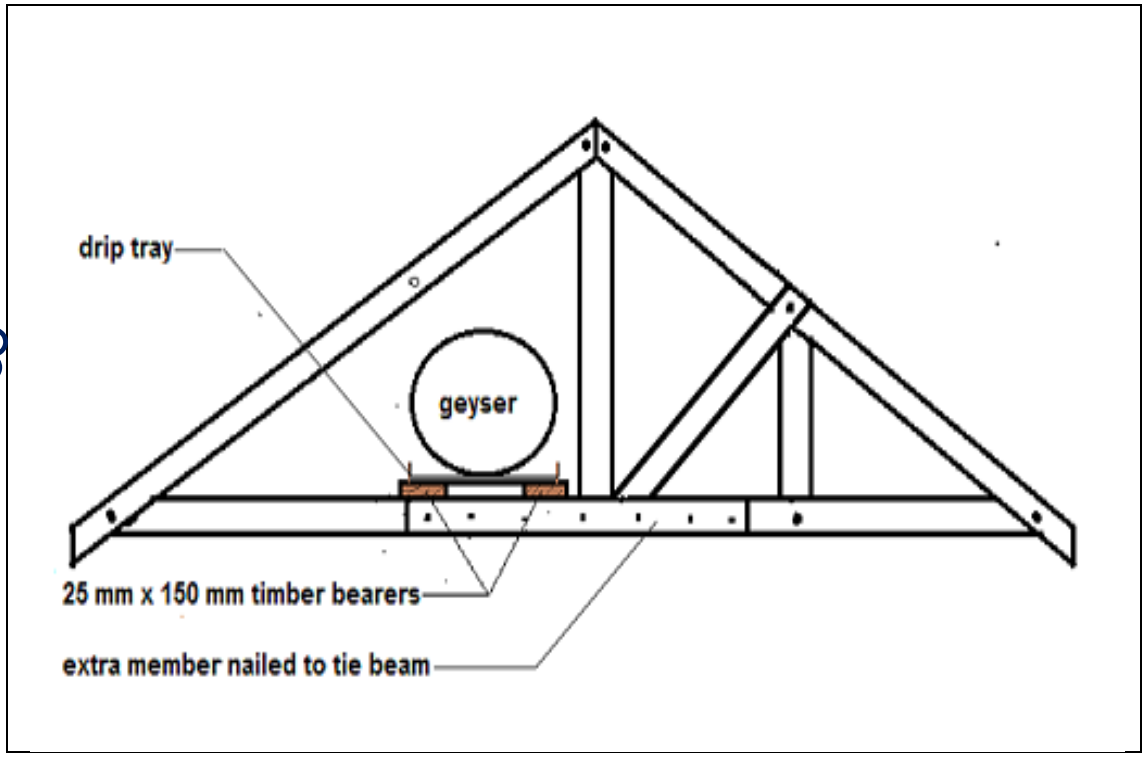

FIGURE 1

(8)
[15]

QUESTION 2

2.1 Explain how a ceiling will improve:

2.1.1 the stability of a prefabricated building. (1)

2.1.2 the thermal comfort in a home. (1)

2.1.3 the cleanliness of a room. (1)

2.2 How does the truss spacing of a roof influence the size of the brandering used for supporting a ceiling? (2)

2.3 Compare a *gypsum ceiling* with a *tongue and groove ceiling* regarding the factors given in Questions 2.3.1 to 2.3.4.

2.3.1 Labour intensity (2)

2.3.2 The carpenter's expertise (2)

2.3.3 The support framework for the ceilings (2)

2.3.4 The type of fasteners used when fixing the ceiling boards (i.e. gypsum and knotty pine) (2)

2.4 Describe the step-by-step method for levelling brandering for a gypsum ceiling (10)

2.5 What is the correct way to transport and store gypsum ceiling boards to prevent damage to the boards? (2)

2.6 Describe a coped joint and state when a carpenter would make one in ceiling installation. (2)

2.7 Explain a method of constructing the bottom support frame on which the trapdoor lid rests. (2)

2.8 State the importance of not leaving any gaps when laying fibreglass insulation in a ceiling. (1)
[30]

QUESTION 3

3.1 Discuss the advantages of using laminated timber beams instead of natural timber in suspended floor construction. (3)

3.2 Timber defects compromise the strength and quality of construction timber. Name any TWO timber defects to be avoided when selecting floorboards for a suspended floor. (2)

3.3 State why it is not permissible to drill holes for conduits (pipes, cables etc.) in the upper or lower third of a floor joist. (2)

3.4 FIGURE 2 on the next page shows a detailed drawing of a suspended timber floor that is supported on the left side with a masonry wall.

Describe the drawing in detail, with specific reference to the functions and minimum requirements/standards and measurements of the different components, from the foundation up to the brickwork above the floor.

Note: Do not describe the construction process.

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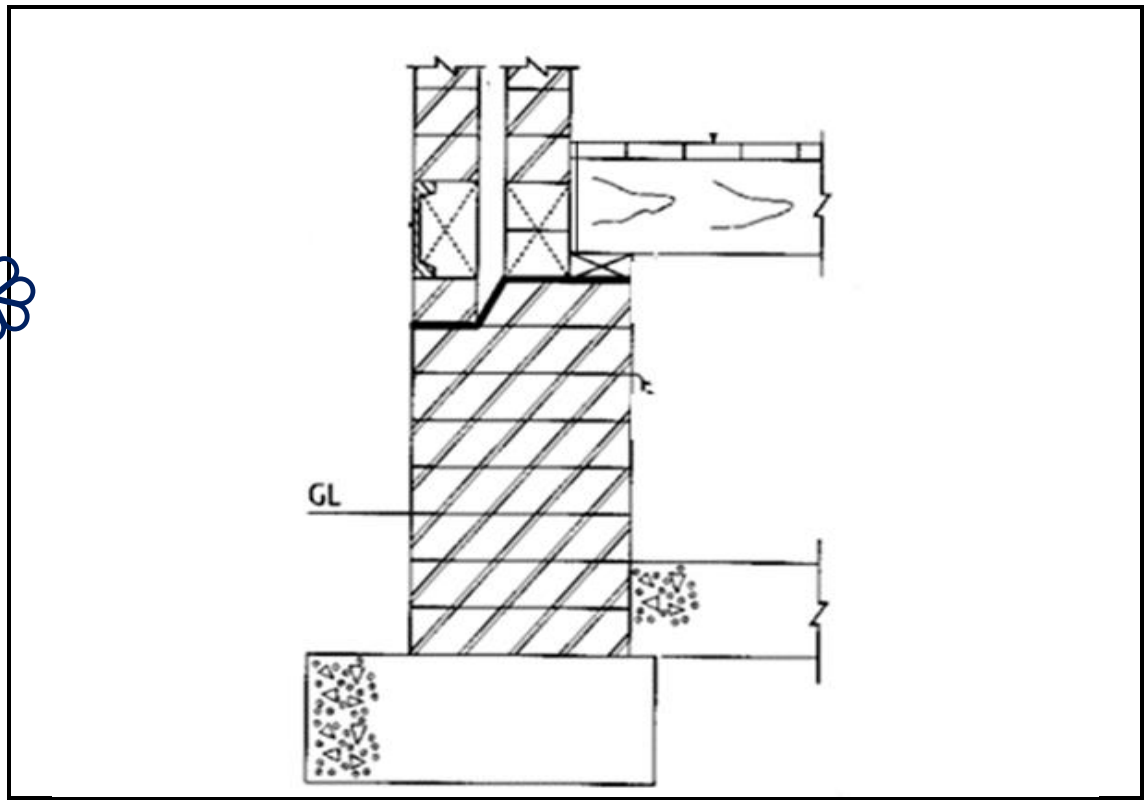

FIGURE 2 (13)
[20]

QUESTION 4

4.1 Hollow core flush doors are commonly used in residential homes.

4.1.1 Where in a home would one find this type of door? (1)

4.1.2 What materials are used in the construction of this type of door? (1)

4.1.3 Why would one not fit a weather strip to this door? (1)

4.2 What is the main difference between an *outside doorframe* and an *inside doorframe*? (1)

4.3 Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question numbers (4.3.1–4.3.5) in the ANSWER BOOK.

4.3.1 The vertical part of a doorframe is called the (head/jamb/sill). (1)

4.3.2 The hinges on a hollow core door must be fitted (on the opposite side/on the same side) as the lock block. (1)

4.3.3 The top hinge on a door must be fitted (200 mm/100 mm/150 mm) from the top of the door. (1)

4.3.4 A bevel cut on the edge of the door will prevent the door from (swelling/jamming/cracking). (1)

4.3.5 A mallet and a (25 mm/12 mm/16 mm) chisel are the best tools for removing waste timber when fitting a butt hinge. (1)

4.4 Explain the purpose of each of the following tools specifically used for the installation of doors, by writing the answers next to the question number (4.4.1 - 4.4.3) in the ANSWER BOOK.

4.4.1 A 12 mm flat bit (1)

4.4.2 A marking gauge (1)

4.4.3 A try plane (1)

4.5 Write down the step-by-step instructions for changing the bevel on the latch bolt of a mortise lock. (5)

4. 6 List THREE quality control checks, to determine whether a door was correctly installed. (3)
[20]

QUESTION 5

5.1 The doors, handles and counter tops are the most expensive components of prefabricated cupboards. What precautions are taken by the contractor to ensure that they are not damaged before installation? (2)

5.2 Give a brief description of a kickboard used with floor-standing cupboards and the purpose thereof. (3)

5.3 Choose an item from column B that matches a description in column A. Write only the letter (A–E) next to question number (5.3.1–5.3.5) in the ANSWER BOOK.

	COLUMN A		COLUMN B
5.3.1	A bevelled fixing rail	A	concealed hinge
5.3.2	Used for fixing cleats to brick or concrete walls	B	profile gauge
		C	ogee
5.3.3	Copies and transfers the shape of an object	D	mitred cleat
5.3.4	Easy to fit and adjust	E	nail anchor
5.3.5	A decorative profile on skirting boards		

(5 × 1) (5)

5.4 Give TWO reasons for the shallow groove cut into the back of skirting boards. (2)

5.5 State how quadrant moulding would improve the appearance of skirting fitted on an uneven floor. (1)

5.6 Explain why it would be necessary for a carpenter to construct a template from thin timber strips before fitting open shelves in a wall recess. (2)

[15]

TOTAL: 100

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