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**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

CIVIL TECHNOLOGY: WOODWORKING

NOVEMBER 2025

MARKS: 200

TIME: 3 hours

This question paper consists of 16 pages and 7 answer sheets.



REQUIREMENTS:

1. Drawing instruments
2. A non-programmable calculator
3. ANSWER BOOK

INSTRUCTIONS AND INFORMATION

1. This question paper consists of SIX questions.
2. Answer ALL the questions.
3. Read ALL the questions carefully.
4. Answer each question as a whole. Do NOT separate subsections of questions.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Start the answer to EACH question on a NEW page.
7. Do NOT write in the margins of the ANSWER BOOK.
8. You may use sketches to illustrate your answers.
9. Write ALL calculations and answers in the ANSWER BOOK or on the attached ANSWER SHEETS.
10. Use the mark allocation as a guide to the length of your answers.
11. Make drawings and sketches in pencil, fully dimensioned and neatly finished off with descriptive titles and notes to conform to the *SANS/SABS Code of Practice for Building Drawings*.
12. For the purpose of this question paper, the size of a brick should be taken as 220 mm x 110 mm x 75 mm.
13. Use your own discretion where dimensions and/or details have been omitted.
14. Answer QUESTIONS 2, 3.3.1, 3.3.2, 4.7, 5.6, 6.6 and 6.7 on the attached ANSWER SHEETS using drawing instruments, where necessary.
15. Write your CENTRE NUMBER and EXAMINATION NUMBER on every ANSWER SHEET and hand them in with your ANSWER BOOK, whether you have used them or not.
16. Drawings in the question paper are NOT to scale due to electronic transfer.
17. Google Images was used as the source of all photographs and pictures.
18. Write neatly and legibly.



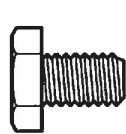
QUESTION 1: OHSA, MATERIALS, TOOLS, EQUIPMENT AND JOINING (GENERIC).

Start this question on a NEW page.

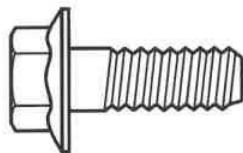
1.1 Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question numbers (1.1.1 to 1.1.10) in the ANSWER BOOK, e.g. 1.1.11 Plaster.

- 1.1.1 Every plank of a wooden scaffold platform must be at least (28 mm/38 mm) thick. (1)
- 1.1.2 Toe boards should be at least (150 mm/200 mm) high from the level of the scaffold platform. (1)
- 1.1.3 Steel scaffold standards with heavy platform loadings must not exceed (320 kg per m²/160 kg per m²). (1)
- 1.1.4 The framework of scaffolding must be constructed to have a safety factor of at least (two/three). (1)
- 1.1.5 Trestle scaffolds must not consist of more than (two/four) tiers. (1)
- 1.1.6 When using a builder's hoist (overhead/hand) protection must be provided to protect workers from falling objects. (1)
- 1.1.7 Ladders must not be extended above (two thirds/three quarters) of the extension length. (1)
- 1.1.8 A construction site must be cordoned off to prevent (unauthorised persons/building inspectors) from entering the site. (1)
- 1.1.9 Stairways that will not be a permanent part of the building must have landings of at least (760 x 560 mm/450 x 320 mm) for every 3,7 m vertical rise. (1)
- 1.1.10 The seller shall supply the user of any hazardous chemical substance with sufficient information to enable the user to take necessary measures regarding (safe stocktaking/health and safety). (1)

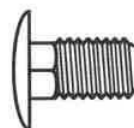
1.2 Which pictorial view below represents a bolt that will resist rotation?



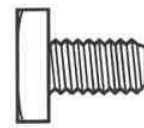
A



B



C



D

(1)



- 1.3 Bolts are purchased according to different specifications. Name any TWO of these specifications. (2)
- 1.4 Powder coating is a coating that is applied to metals.
- 1.4.1 Explain the process of powder coating by referring to the material that is used and the method of application. (2)
- 1.4.2 Name ONE advantage of powder coating in terms of applying it to a metal. (1)
- 1.5 What should NOT be used to clean a multidetector? (1)
- 1.6 Name TWO materials that can be detected in a brick wall using the multidetector. (2)
- 1.7 What accessory of the dumpy level will be used to position a telescope on a centre point when horizontal measurements are taken? (1)
- [20]

QUESTION 2: GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)

Start this question on a NEW page.

FIGURE A and FIGURE B on the next page show drawings that appear on a building plan. Analyse the drawings and complete the table on ANSWER SHEET 2.



NOTES:

Contractors must verify all dimensions and levels on site before commencing work.

Architects to be notified of any discrepancies immediately.

Guard rails on patio to be made of stainless steel.

Aluminium sliding door (2 400 x 2 000 mm)

Aluminium side panel with windows (600 x 2 000 mm)

Roof: Hipped roof

Lintels must be installed above every window.

Architect's signature

Client's signature

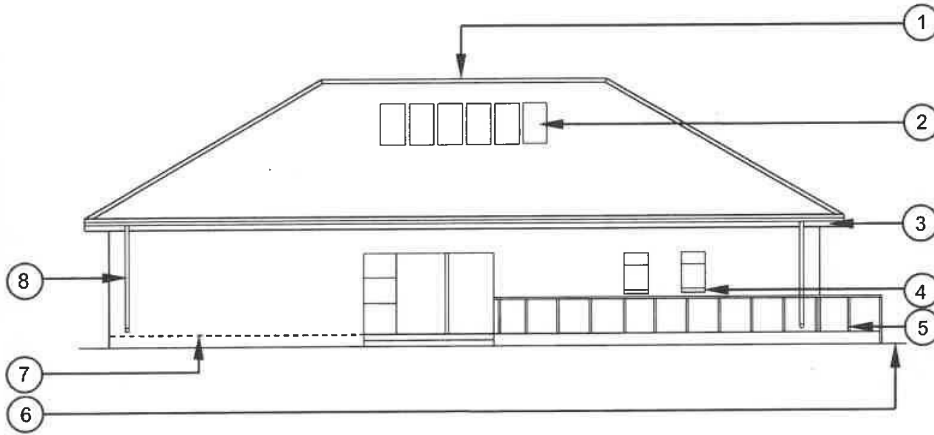


FIGURE A

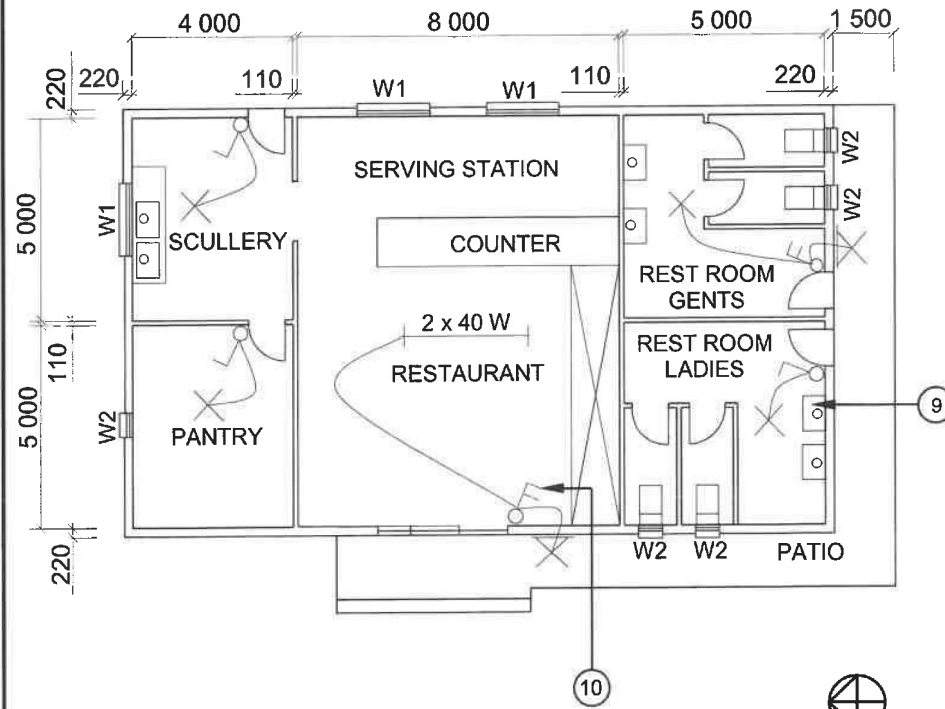


FIGURE B

REVISION 1	DATE: 24/05/2025	DRAWING OF ELECTRICAL FITTINGS
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PRINTED BY: BUZZ PRINTERS	DATE OF PRINT: 26/05/2025
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DRAWING TITLE:
ELEVATION AND FLOOR PLAN

PROJECT:
PROPOSED BUILDING OF MR JD JONES
ON PLOT 54, PROTEA STREET, CALEDON

PROJECT NO.: GR 866-464	DRAWING NO.: 334P2
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DATE: 20/04/2025	DRAWN: N CAR	CHECKED: C BENN
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ELEVATION	SCALE 1 : 100
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FLOOR PLAN	SCALE 1 : 100
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REFERENCE CODE
QP 5 – 2025

WINDOW SCHEDULE

[40]



QUESTION 3: CUPBOARDS, CASEMENTS, WALL-PANELLING AND QUANTITIES (SPECIFIC)

Start this question on a NEW page.

- 3.1 FIGURE 3.1 below shows a portion of the external elevation of a double casement with fanlights.

Identify parts **A** to **D**.

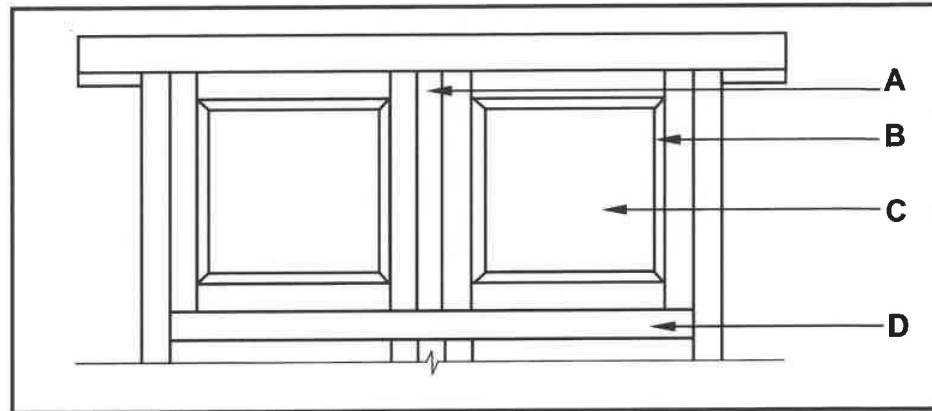


FIGURE 3.1

(4)

- 3.2 FIGURE 3.2 below shows an INCORRECT vertical section through part of a wall panel and the finish at the top.

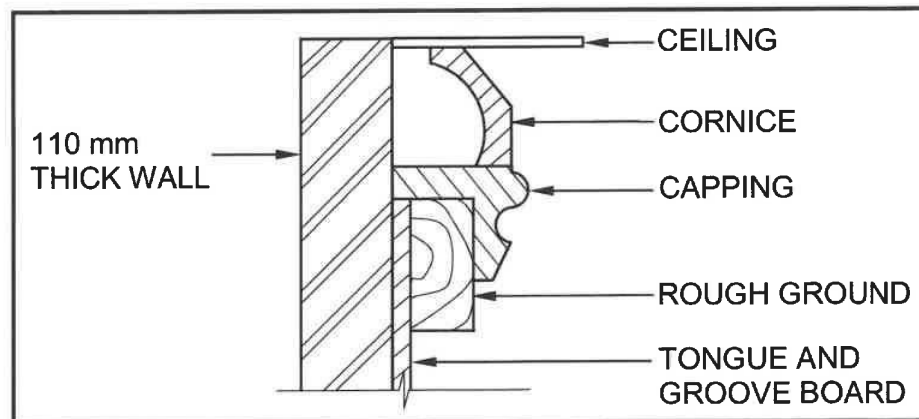


FIGURE 3.2

- 3.2.1 Analyse the drawing and identify THREE installation errors in FIGURE 3.2. (3)

- 3.2.2 Sketch, in the ANSWER BOOK, a vertical section through the bottom part of a completed wall panel installation. (2)

Show ONLY the skirting and the quadrant mould.

- 3.3 FIGURE 3.3 below shows the front view of a free-standing cupboard without doors.

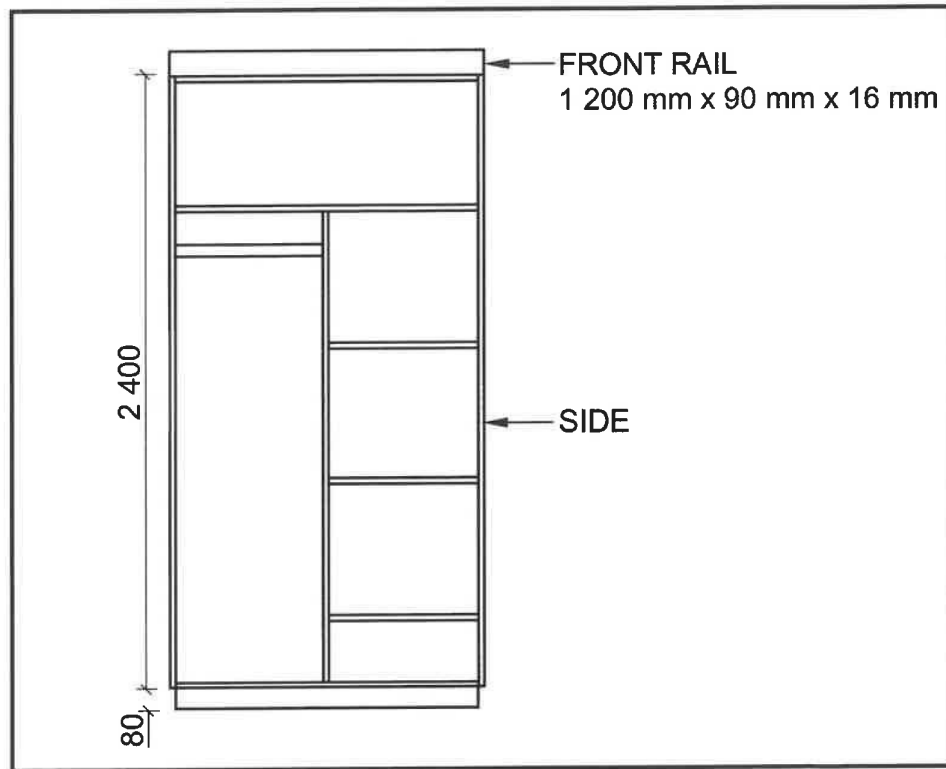


FIGURE 3.3

- 3.3.1 Use ANSWER SHEET 3.3.1 and complete the cutting list of the timber needed for the cupboard.

Use the following specifications:

- The intermediate side is positioned in the middle of the cupboard.
- 16 mm melamine board is used to build the cupboard.
- The back of the cupboard is made of 16 mm melamine board.
- The depth of the cupboard is 580 mm.

(7)

- 3.3.2 Use ANSWER SHEET 3.3.2 to project and draw, from the given front view, a sectional view on cutting plane **A-A**. The starting point is the depth of the base, as indicated.

Use the following specifications:

- 16 mm melamine board is used to build the cupboard.
- The back of the cupboard is made of 16 mm melamine board.

(14)
[30]

QUESTION 4: ROOFS, CEILINGS, TOOLS, EQUIPMENT AND MATERIALS (SPECIFIC)

Start this question on a NEW page.

4.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (4.1.1 to 4.1.5) in the ANSWER BOOK, e.g. 4.1.6 D.

4.1.1 Mechanically graded timber provides a reliable and ... method of grading timber.

- A easy
- B predictable
- C inconsistent
- D consistent

(1)

4.1.2 The number next to the SABS symbol on graded timber indicates the ...

- A strength.
- B grading method.
- C stiffness.
- D None of the above-mentioned

(1)

4.1.3 ... can be applied with a lint-free cloth or a shoe brush.

- A Lacquer
- B Varnish
- C Linseed oil
- D Paint

(1)

4.1.4 ... tends to develop white spots where water is spilled.

- A Wax
- B Lacquer
- C Varnish
- D Sanding sealer

(1)

4.1.5 Preservation of timber has the advantage of enhancing the ...

- A appearance.
- B lifespan.
- C durability.
- D All the above-mentioned

(1)



4.2 FIGURE 4.2 below shows different woodworking machines.

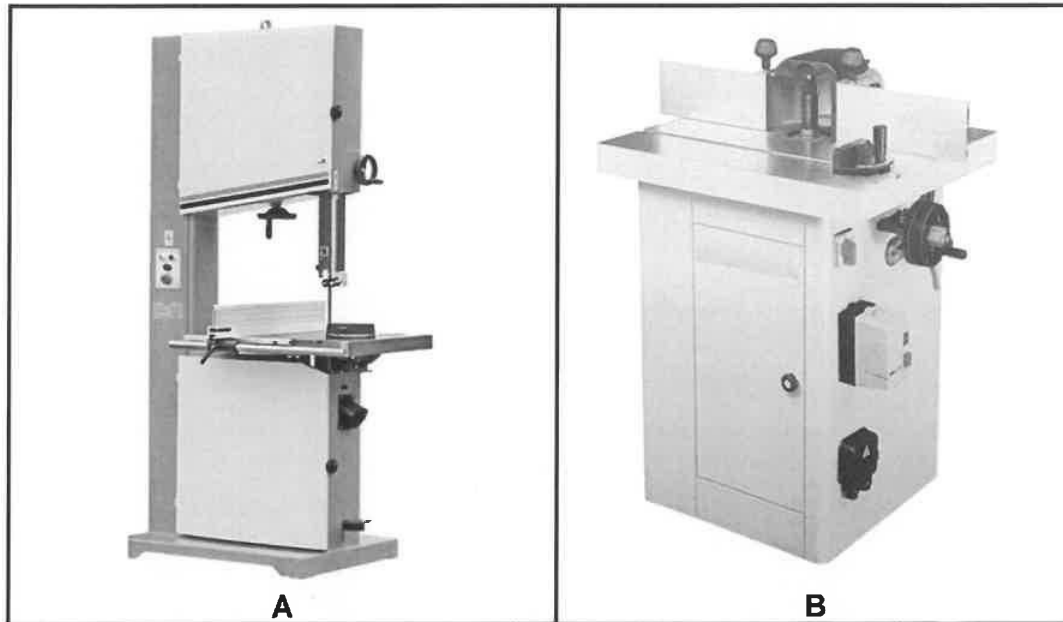


FIGURE 4.2

- 4.2.1 Identify machines **A** and **B**. (2)
- 4.2.2 Predict what will happen if the tension of the blade on machine **A** is too loose while cuts are made on a piece of timber. (2)
- 4.2.3 What would you use to remove waste material from the working surface while operating machine **A**? (1)
- 4.2.4 Describe how you will ensure that there is no rust build-up on the working surface of machine **B** after using it. (2)
- 4.3 Give ONE word/term for each of the following descriptions. Write only the word/term next to the question numbers (4.3.1 to 4.3.5) in the ANSWER BOOK.
- 4.3.1 Prevents concrete tiles from being lifted by strong winds (1)
- 4.3.2 An underlay for thatched roofs (1)
- 4.3.3 Pitched roofs with a slope on all sides (1)
- 4.3.4 Prevents birds from nesting in the roof space (1)
- 4.3.5 The internal angle created where two sloping sections of the roof meet (1)

- 4.4 FIGURE 4.4 below illustrates two roof members that are joined together by means of part **A**.

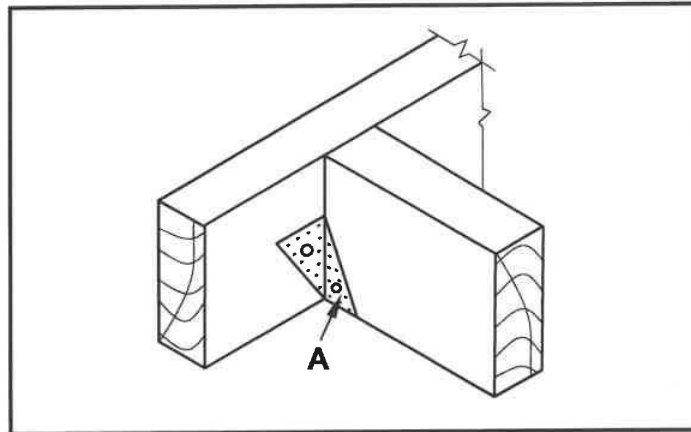


FIGURE 4.4

- 4.4.1 Identify joining fixture **A**. (1)
- 4.4.2 What fixing method can be used to fix part **A** to the timber roof members? (1)
- 4.5 Name TWO uses of a hurricane clip. (2)
- 4.6 FIGURE 4.6 below shows a trapdoor. (2)

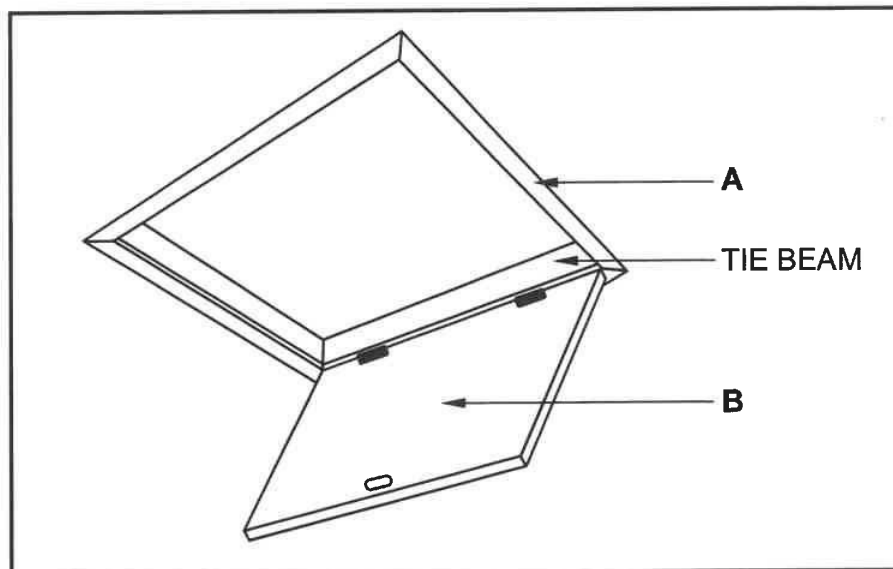


FIGURE 4.6

- 4.6.1 Identify parts **A** and **B**. (2)
- 4.6.2 Name the type of trapdoor. (1)
- 4.6.3 What is the purpose of a trapdoor in a house? (2)

4.7 Use ANSWER SHEET 4.7 and draw, to scale 1 : 20, a king post roof truss and wall plates. Start your drawing on the wall that is provided.

Use the following specifications:

- Total internal span is 3 000 mm.
- The roof overhang is 250 mm.
- The pitch of the roof is 30°.
- All the timber used for this construction is 114 x 38 mm.

(14)
[40]



QUESTION 5: CENTERING, FORMWORK, SHORING AND GRAPHICS AS MEANS OF COMMUNICATION (SPECIFIC)

Start this question on a NEW page.

- 5.1 Study FIGURE 5.1 below. Match the word/term in the list below with the labels (A–H) in FIGURE 5.1. Write only the correct word/term next to the label (A–H) in the ANSWER BOOK, e.g. L – Plywood.

brace/strut; bevelled riser; side; bearer/joist; fish plate; clamp;
wall string; head tree; kicker/fixing plate; shutter board; prop;
wedge; soffit board; cleats

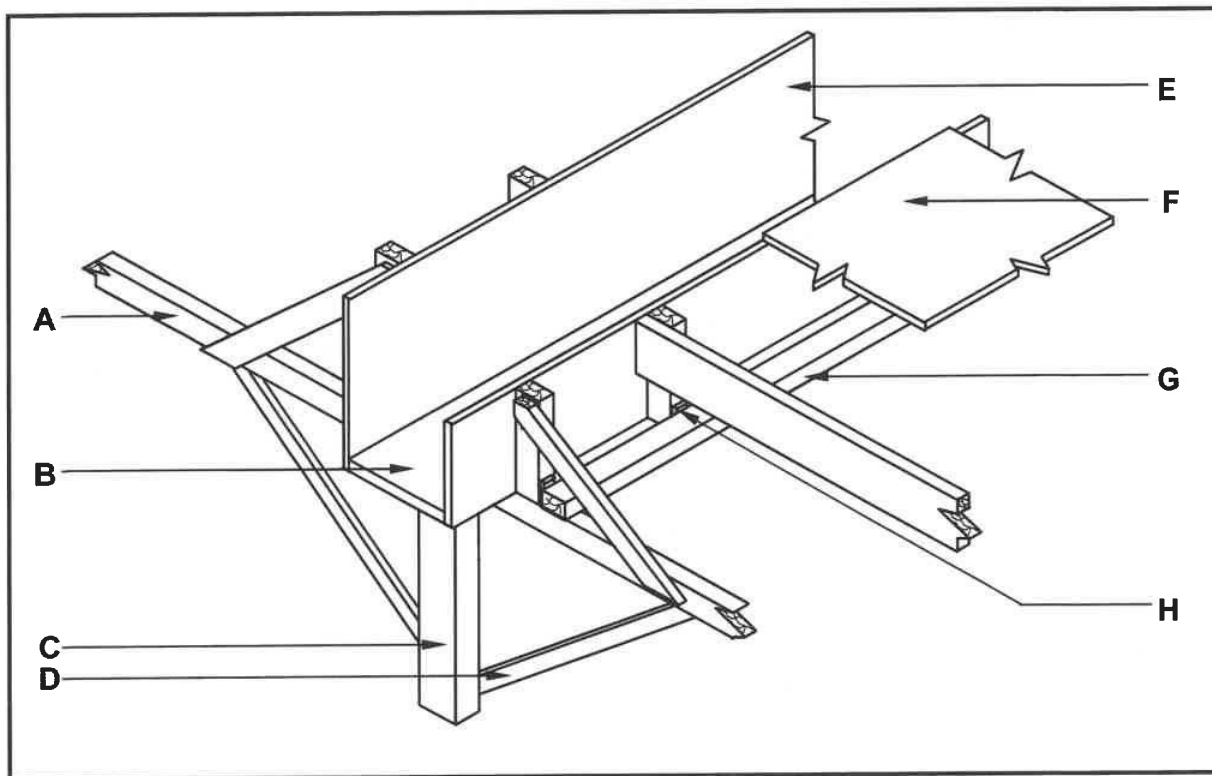


FIGURE 5.1

(8)

- 5.2 Explain why a square column should be braced by inclined props.

(2)

- 5.3 FIGURE 5.3 below shows a sectional view through a part of a double-flying shore. Label parts A to E.

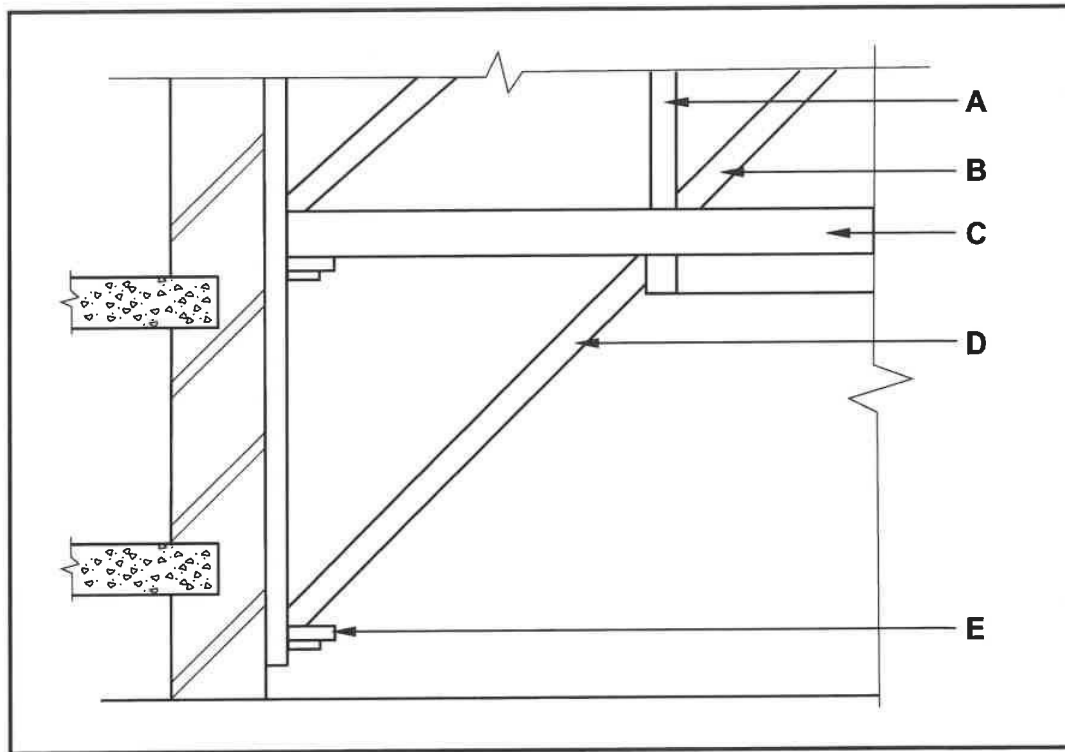


FIGURE 5.3

(5)

- 5.4 Name TWO materials that are used to cover the openings on top of the laggings on the centering of a semicircular arch. (2)
- 5.5 Differentiate, by means of TWO line diagrams, between a *collar-tie roof truss* and a *couple roof truss*. Draw only the trusses with overhangs in the ANSWER BOOK. (7)
- 5.6 ANSWER SHEET 5.6 shows an incomplete front view of the centering of a segmental arch.

Use ANSWER SHEET 5.6 to draw the following:

- Tie
- Struts
- Diagonal brace (ONE)
- Horizontal brace (ONE)

(6)
[30]

QUESTION 6: SUSPENDED FLOORS, STAIRCASES, IRONMONGERY, DOORS AND JOINING (SPECIFIC)

Start this question on a NEW page.

- 6.1 Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–H) next to the question numbers (6.1.1 to 6.1.6) in the ANSWER BOOK, e.g. 6.1.7 J.

COLUMN A		COLUMN B	
6.1.1	Rimlock	A	the hole into which the key is inserted to operate the lock
6.1.2	Straight cupboard lock	B	a drawer lock that is used in a horizontal position
6.1.3	Night latch	C	locks that are screwed directly onto the internal surface of the doors and drawers of a cupboard
6.1.4	Cut cupboard lock	D	the back plate is screwed onto a door jamb
6.1.5	Mortise lock	E	they are fitted into a recess on the internal surface of the cupboard door
6.1.6	Till lock	F	automatically locks when the door is closed
		G	ideally used as temporary locks for doors, gates and sheds because they are not very secure
		H	recessed into the stile of an entrance door

(6 x 1) (6)

- 6.2 In the construction industry different joining methods are used to join timber and/or various materials together.

Name the components used to join the following:

- 6.2.1 Ceiling boards to brandering (1)
- 6.2.2 Door to frame (1)
- 6.3 Describe TWO methods to fix a wall plate to a wall. (2)



6.4 FIGURE 6.4 shows the bottom half of the front view of a three-panel door with a lock rail and raised and fielded panels. Section line **A-A** is also indicated on the drawing.

In the ANSWER BOOK, sketch, in good proportion, the horizontal sectional view as seen from **A-A**.

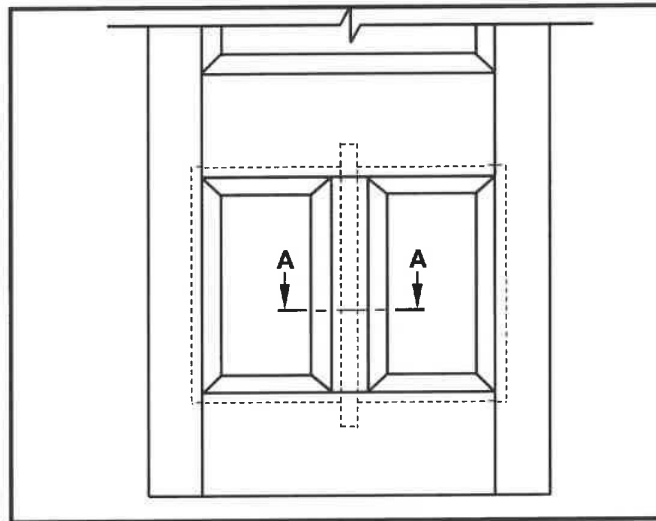


FIGURE 6.4

(8)

6.5 FIGURE 6.5 below is an illustration of a staircase with INCORRECT labels. Rearrange and give the correct labels for **A** to **F**.

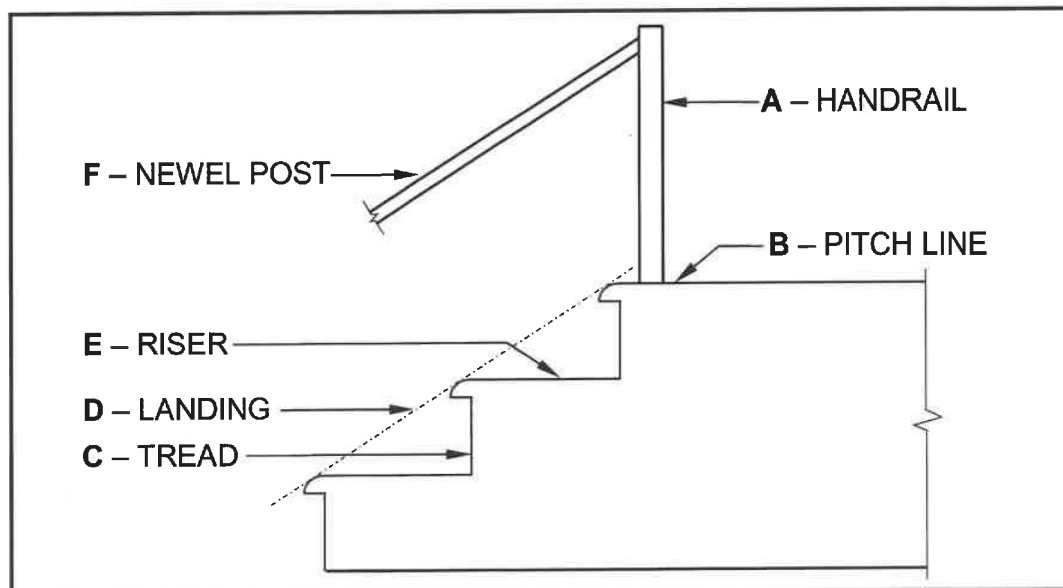


FIGURE 6.5

(6)

6.6 Use ANSWER SHEET 6.6 and draw, in good proportion, a neat isometric view of part of the rail with a double barefaced tenon with a shoulder on both sides. Use the starting point as indicated.

(11)

- 6.7 FIGURE 6.7 shows part of the top view of a ground-level suspended timber floor with section line **A-A**.

Use ANSWER SHEET 6.7 and complete the drawing of the vertical section on **A-A** in good proportion. Show ALL omitted members including the floor boards.

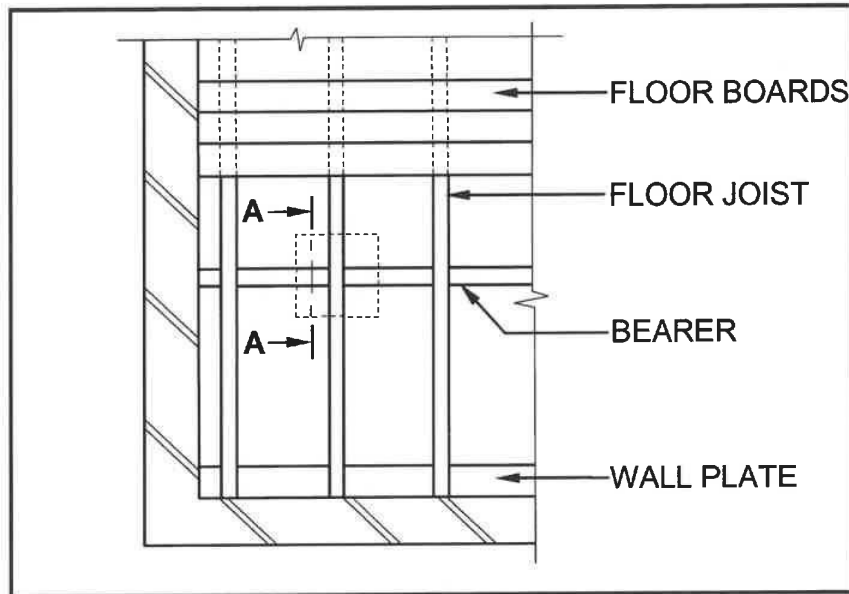


FIGURE 6.7

(5)
[40]

TOTAL: 200

CENTRE NUMBER: EXAMINATION NUMBER: **ANSWER SHEET 2**

NO.	QUESTIONS	ANSWERS	MARKS
1.	What elevation is indicated by FIGURE A?		1
2.	Deduce, from the notes column, what type of roof is indicated by number 1.		1
3.	What energy-generating components are installed on the roof, as indicated by number 2?		1
4.	Identify number 3.		1
5.	Identify number 4.		1
6.	What material is recommended to be used to manufacture number 5?		1
7.	Identify number 6.		1
8.	Write down the abbreviation for number 7.		1
9.	Identify the end shape used to manufacture number 8.		1
10.	How many built-in cupboards are there in the building?		1
11.	What electrical installation has been omitted in the building?		1
12.	What type of material can be used to manufacture the fascia board in FIGURE A?		1
13.	How should the opening direction of the sliding door be indicated on the floor plan?		1
14.	Name ONE material that can be used to manufacture number 9.		1
15.	Deduce, from the notes column, what must be installed above every window.		1



CENTRE NUMBER: EXAMINATION NUMBER:

16.	How many external doors are visible on the southern side of the building?		1
17.	How many water closets are installed in the building?		1
18.	Identify number 10.		1
19.	Deduce the thickness of the internal walls from FIGURE B.		1
20.	State the reference code of the proposed building.		1
21.	How many 1 200 x 600 mm windows are there in the building?		1
22.	Deduce, from the notes column, the dimensions of the aluminium side panel with windows.		2
23.	Draw the symbol for a grease trap.		3
24.	Draw the symbol for undisturbed earth.		3
25.	What sanitary fitting is installed in the scullery?		1
26.	Calculate the area of the scullery to be covered with floor tiles. The sink unit must be installed on top of the tiles. Give your answer in m ² .		3
27.	Calculate the total length of the wall on the northern side of the building. Show ALL calculations. The length must be indicated in metres.		7
		TOTAL:	40



CENTRE NUMBER: EXAMINATION NUMBER:

ANSWER SHEET 3.3.1

MEMBER	QUANTITY	UNIT	LENGTH	WIDTH	THICKNESS
Front rail	1	mm	_____	_____	16
Shelving	_____	mm	580	_____	16
Shelf of top unit	1	mm	1 168	580	16
Intermediate side	1	mm	1 950	_____	16
Sides	2	mm	_____	580	16
Kick plate	1	mm	1 168	_____	16

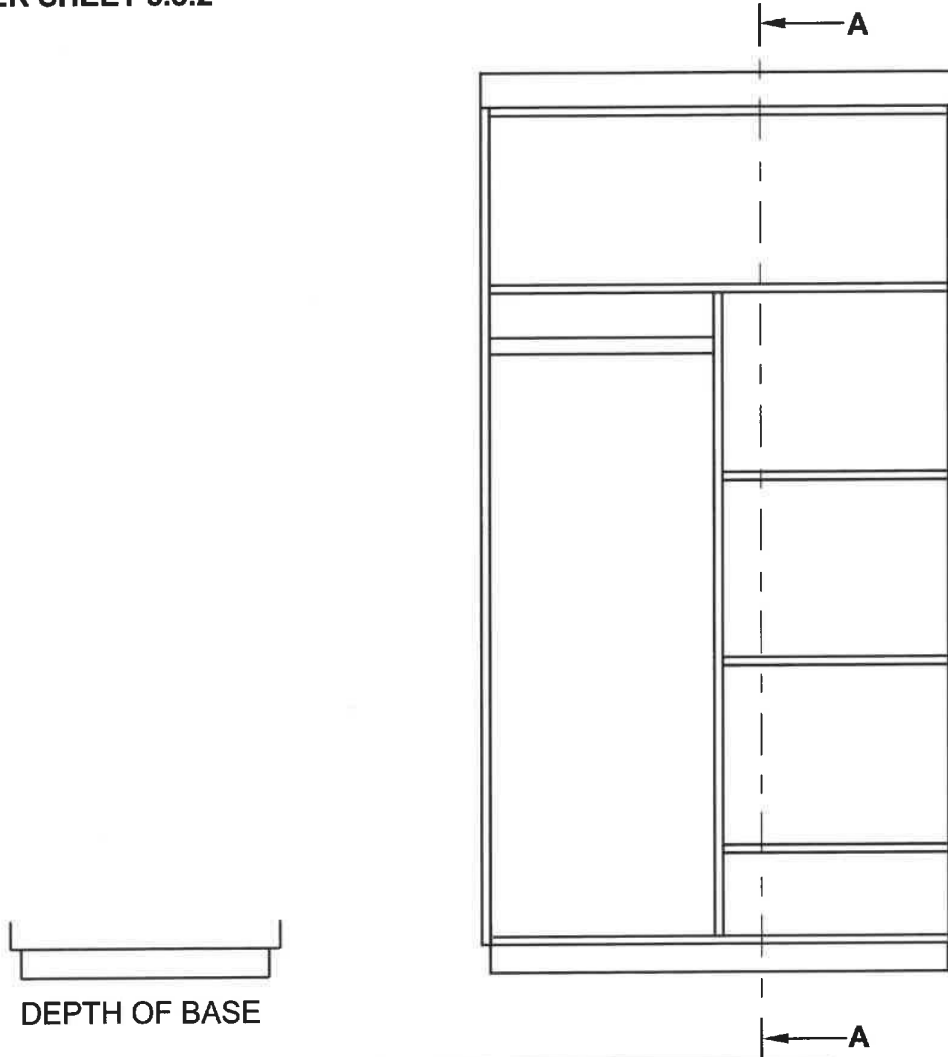
(7 x 1) (7)



CENTRE NUMBER:

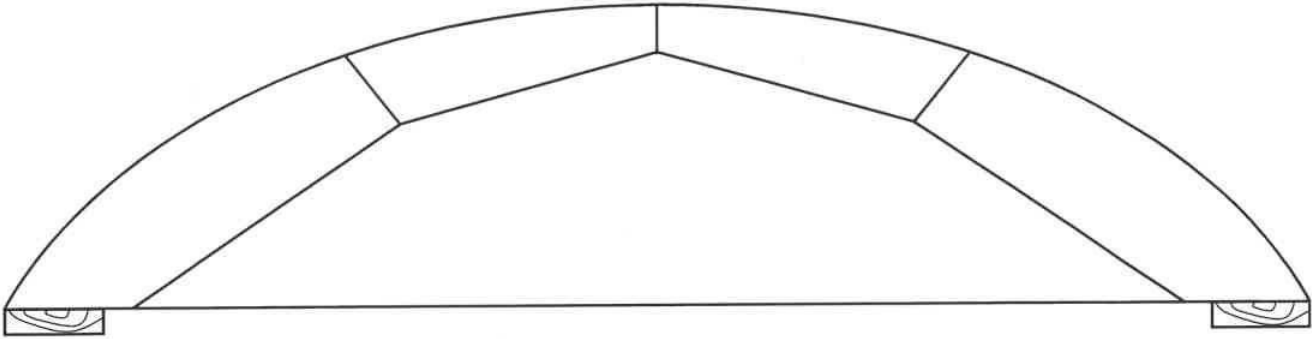
EXAMINATION NUMBER:

ANSWER SHEET 3.3.2



ASSESSMENT CRITERIA		
NO.	MARK	CANDIDATE'S MARK
1	1	
2	1	
3	1	
4	1	
5	1	
6	4	
7	1	
8	1	
9	2	
10	1	
TOTAL	14	



CENTRE NUMBER: **EXAMINATION NUMBER:** **ANSWER SHEET 5.6**

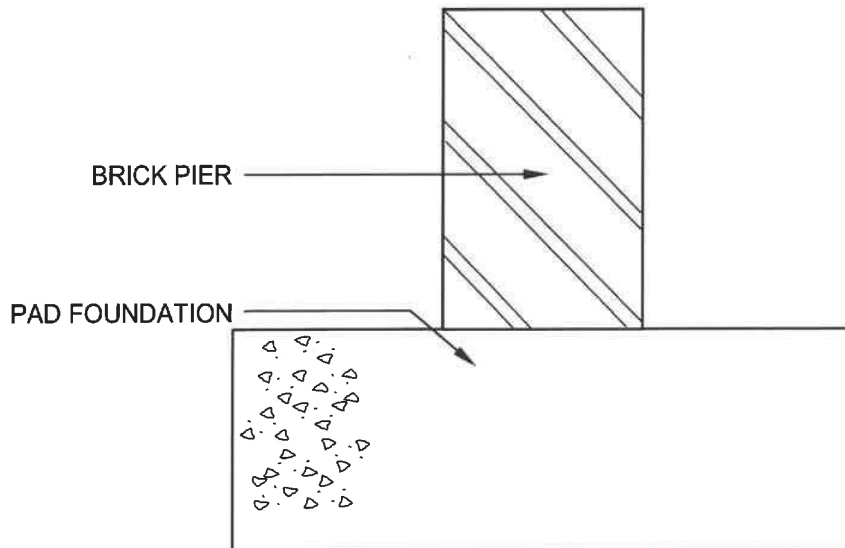
ASSESSMENT CRITERIA		
NO.	MARK	CANDIDATE'S MARK
1	1	
2	3	
3	1	
4	1	
TOTAL:	6	



CENTRE NUMBER:

EXAMINATION NUMBER:

ANSWER SHEET 6.7



ASSESSMENT CRITERIA		
NO.	MARK	CANDIDATE'S MARK
1	1	
2	1	
3	1	
4	1	
5	1	
TOTAL:	5	

