Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2019

CIVIL TECHNOLOGY: WOODWORKING

MARKS: **200**

TIME: **3 hours**

ICVLTE3

This question paper consists of 14 pages, including 2 answer sheets.

REQUIREMENTS:

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

INSTRUCTIONS AND INFORMATION

1. This question paper consists of SIX QUESTIONS: THREE questions are generic and THREE questions are subject specific.
2. Answer ALL the questions.
3. Answer each question as a whole. Do NOT separate subsections of questions.
4. Start the answer to EACH question on a NEW page.
5. Do NOT write in the margins of the ANSWER BOOK.
6. You may use sketches to illustrate your answers.
7. Write ALL calculations and answers in the ANSWER BOOK or on the attached ANSWER SHEETS.
8. Use the mark allocation as a guide to the length of your answers.
9. 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.*
10. For the purpose of this question paper, the size of a brick should be taken as 220 mm x 110 mm x 75 mm.
11. Use your own discretion where dimensions and/or details have been omitted.
12. Answer QUESTION 3.2 and 4.1 on the attached ANSWER SHEETS, using drawing instruments where necessary.
13. Write your NAME on every ANSWER SHEET and hand them in with your ANSWER BOOK, whether you have answered the question or not.
14. Drawings in the question paper are NOT to scale due to electronic transfer.

QUESTION 1: SAFETY AND MATERIALS (GENERICS)

1.1 What is the meaning of the abbreviation *PPE*? (1)

1.2 Name TWO requirements for protective footgear that is worn on a building site. (2 x 1) (2)

1.3 General safety for small plant equipment is important. Briefly motivate why the following safety rules must be adhered to.

1.3.1 Pre-operational checks should be conducted on equipment. (1)

1.3.2 Petrol engines should only be used outside. (1)

1.3.3 Driving and rotating parts should be covered. (1)

1.3.4 Operators should receive training with regards to equipment. (1)

1.4 Answer the following questions with regard to the safe stacking of materials.

1.4.1 What should workers use to climb up and down the stack? (1)

1.4.2 Name TWO factors that should not be affected by a stack. (2 x 1) (2)

1.4.3 Determine the maximum height of a stack if the material has a width of 500 mm and a thickness of 250 mm. (2)

1.4.4 Why should a stack have no protruding parts? (1)

1.5 Name the TWO main elements of screed. (2 x 1) (2)

1.6 Name ONE example of a fine aggregate. (1)

1.7 Name ONE purpose of lime in a building mixture. (1)

1.8 Name TWO board products that are suitable for wall panelling. (2 x 1) (2)

1.9 Name TWO uses of stainless steel. (2 x 1) (2)

1.10 What element of ferrous metals makes it prone to corrosion? (1)

1.11 Define the term *alloy*. (3)

1.12 Name TWO uses of safety glass. (2 x 1) (2)

1.13 Name ONE use of a mastic sealant. (1)

1.14 Define the term *thermoplastic*. (2)

[30]

QUESTION 2: EQUIPMENT, TOOLS AND GRAPHICS (GENERICS)

2.1 Name the tools in FIGURE 2.1.1 to 2.1.4 and name ONE use of each. (4 x 2) (8)

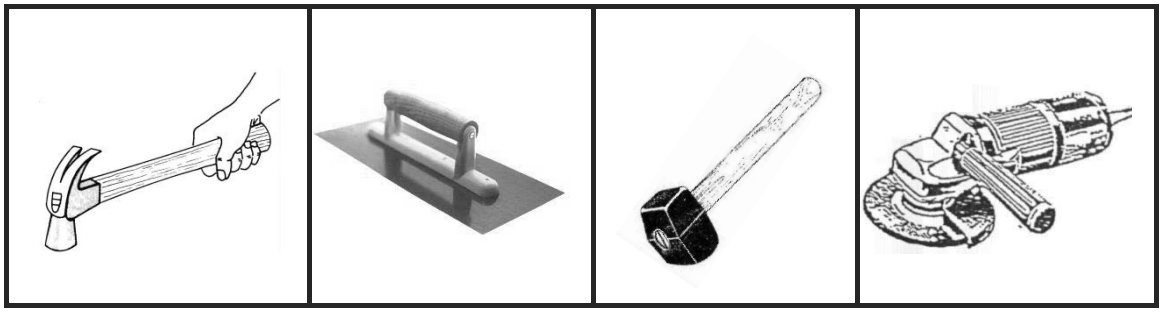


FIGURE 2.1.1 **FIGURE 2.1.2** **FIGURE 2.1.3** **FIGURE 2.1.4**

2.2 Which power tool will be used for the following work:

2.2.1 Sharpening of chisels (1)

2.2.2 To cut rebates in wood (1)

2.3 Identify the tool in FIGURE 2.3 and name TWO uses of it. (3 x 1) (3)

FIGURE 2.3

2.4 Name TWO maintenance measures which are applicable to straight edges. (2 x 1) (2)

2.5 Briefly motivate why universal pliers cannot be used for clamping plumbing pipes. (1)

2.6 Answer the following questions with regard to the elevation in FIGURE 2.6.

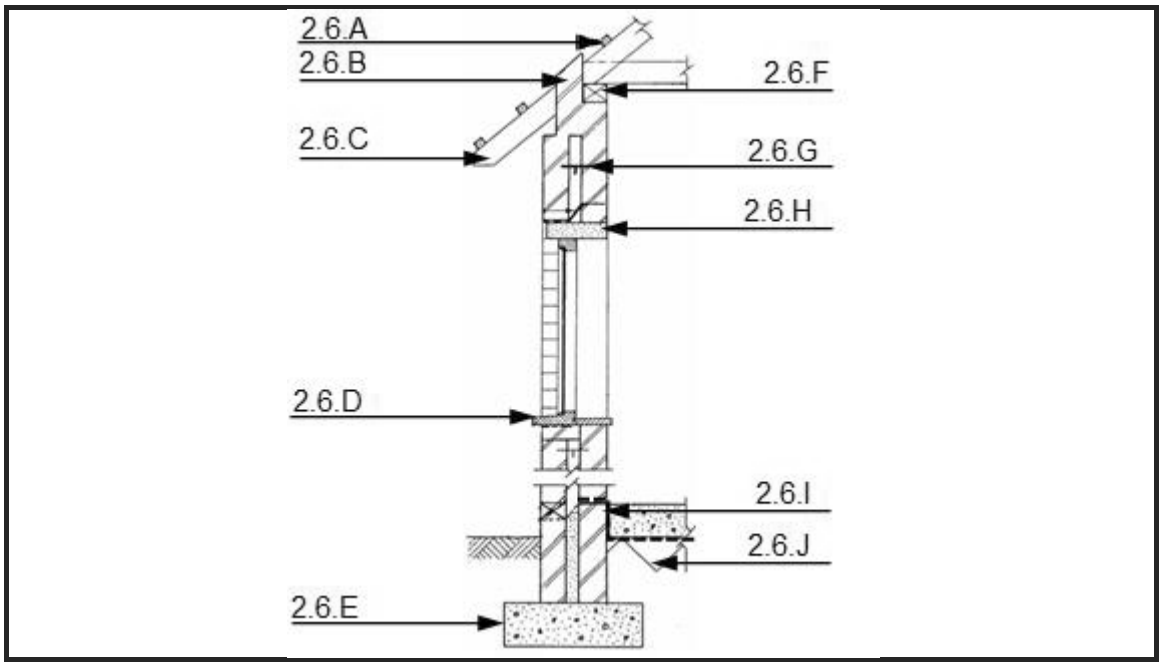


FIGURE 2.6

2.6.1 Name the type of elevation. (1)

2.6.2 Name the parts labelled 2.6.A to 2.6.J. (10)

2.6.3 What are the width and thickness dimensions of part 2.6.F? (2)

2.6.4 What is the purpose of part 2.6.G? (1)

2.7 Name FOUR particularities with regard to roof constructions which must be indicated in elevations. (4 x 1) (4)

2.8 Make neat sketches to illustrate the following symbols:

2.8.1 Plaster (2)

2.8.2 Undressed wood (2)

2.8.3 Invert level (2)

[40]

QUESTION 3: QUANTITIES, JOINING AND GRAPHICS (GENERIC)

3.1 Make neat sketches to illustrate the following symbols on a floor plan:

3.1.1 Grease trap (2)

3.1.2 DPC (Damp-proof course) (2)

3.1.3 Staircase (2)

3.2 FIGURE 3.2 below shows the floor plan of the foundation walls of a single room.

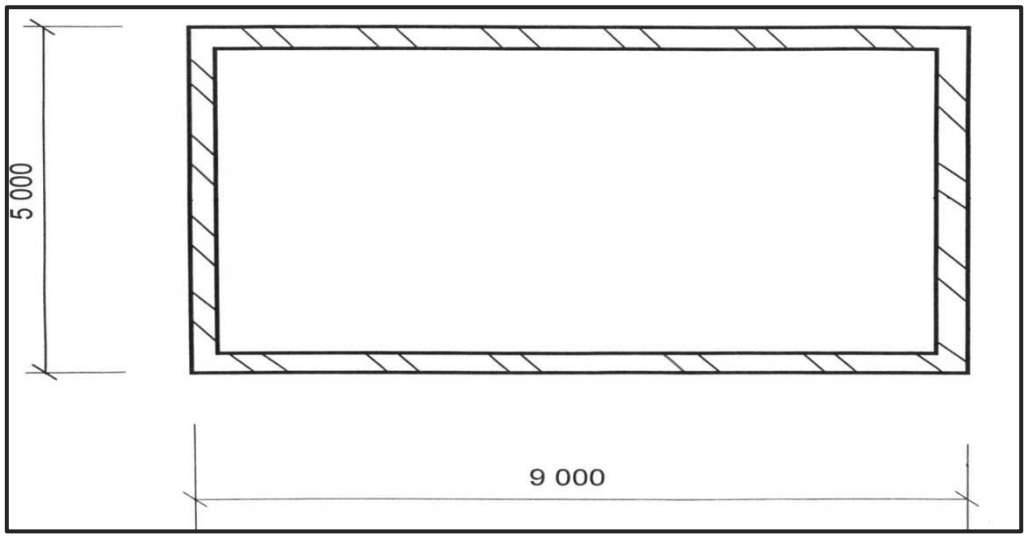


FIGURE 3.2

Use the following specifications:
- The floor slab is 85 mm thick
- Walls are 220 mm thick

Use ANSWER SHEET 1 and calculate the volume of concrete needed to cast the floor slab between the external walls. (12)

3.3 Name THREE properties of silicone. (3 x 1) (3)

3.4 Describe the application process of contact glue. (3)

3.5 Name ONE property of PVC-adhesive. (1)

3.6 Name THREE functions of glass. (3 x 1) (3)

3.7 Discus the difference between *polythene* and *polyvinyl chloride*. (2)

[30]

QUESTION 4: JOINING, WINDOWS, DOORS AND WALL PANELLING (SPECIFIC)

4.1 FIGURE 4.1 on ANSWER SHEET 2 shows the incomplete front view of a flat two-panel door with middle/lock rail.

4.1.1 Complete the drawing. (14)

4.1.2 Fill in the missing measurements. (3)

4.1.3 Identify at least THREE different parts of the door. (3)

4.2 Explain ONE use for each of the following:

4.2.1 Drip groove in a window (1)

4.2.2 Putty for the glass (1)

4.3 FIGURE 4.3 below shows a sectional view of a tongue and groove wall panel from the floor to the ceiling, fastened to a 110 mm thick wall. Study the picture and answer the questions that follow.

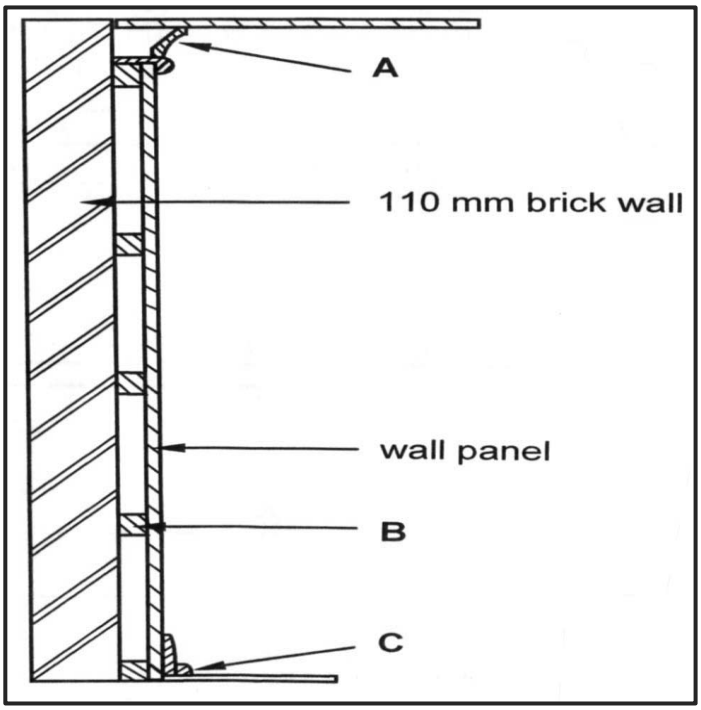


FIGURE 4.3

4.3.1 Identify the parts **A** to **C**. (3)

4.3.2 Give THREE reasons for panelling a wall. (3)

4.4 Recommend any TWO wooden board products that can be used as sides for formwork. (2)

[30]

QUESTION 5: CENTRING, FORMWORK, SHORING SUSPENDED FLOORS AND IRONMONGERY (SPECIFIC)

5.1 FIGURE 5.1 below shows a pictorial view of closed laggings. Study the picture and answer the questions that follow.

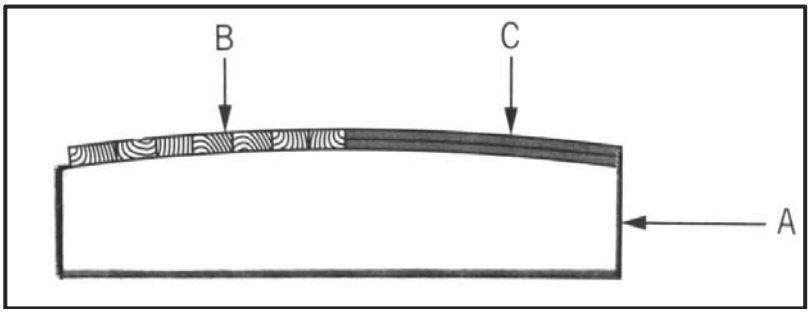


FIGURE 5.1

5.1.1 Identify parts **A** to **C**. (3)

5.1.2 Explain ONE use of **B** if it is used in a closed position, as shown in FIGURE 5.1. (1)

5.2 FIGURE 5.2 below shows the top view of the yokes and laggings for a round column. Study the picture and answer the questions that follow.

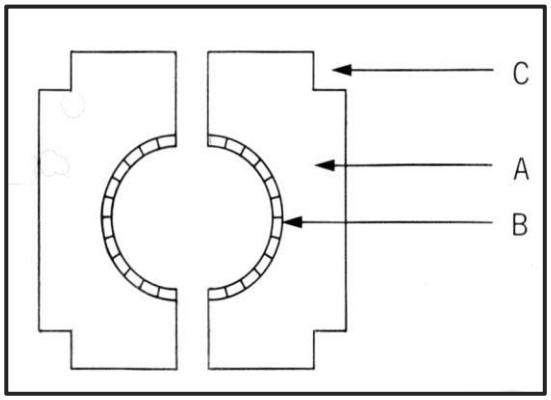


FIGURE 5.2

5.2.1 Explain, in your own words, how to achieve a smooth finish for the column. (2)

5.2.2 Identify the parts marked **A, B** and **C**. (3)

5.2.3 Explain the difference between *formwork* and *striking*. (4)

5.3 FIGURE 5.3 is an example of shoring. Study the drawing and answer the questions that follow.

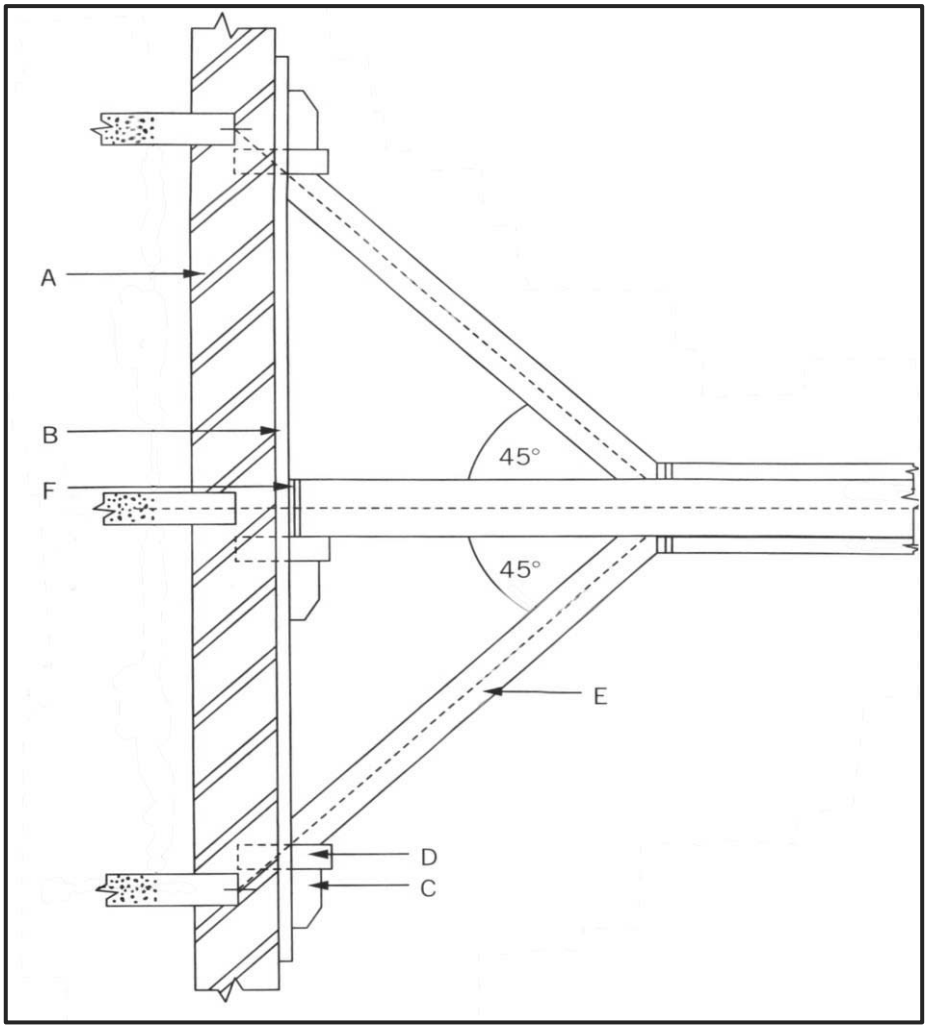


FIGURE 5.3

5.3.1 Identify the shoring. (1)

5.3.2 Name the function of **E**. (2)

5.3.3 Identify the parts **A, B, C, D** and **F**. (5)

5.3.4 In your own words, describe the difference between a *raking shore* and a *single flying shore*. (4)

5.4 FIGURE 5.4 below shows a hinge. Study the drawing and answer the questions that follow.

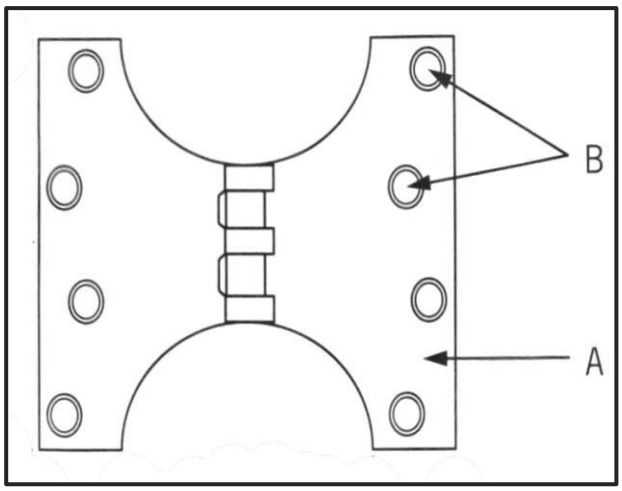


FIGURE 5.4

5.4.1 Give the name of the hinge. (1)

5.4.2 Identify parts **A** and **B**. (2)

5.4.3 Explain the purpose of the type of hinge in FIGURE 5.4. (2)
[30]

QUESTION 6: SUSPENDED FLOORS, CEILINGS AND STAIRCASES (SPECIFIC)

6.1 Name THREE factors that determine the size of the floor joist for a suspended timber floor. (3)

6.2 Explain the difference between *floorboards* and *floor joists*. (4)

6.3 FIGURE 6.3 below shows a particular method of joining suspended floors. Study the drawing and answer the questions that follow.

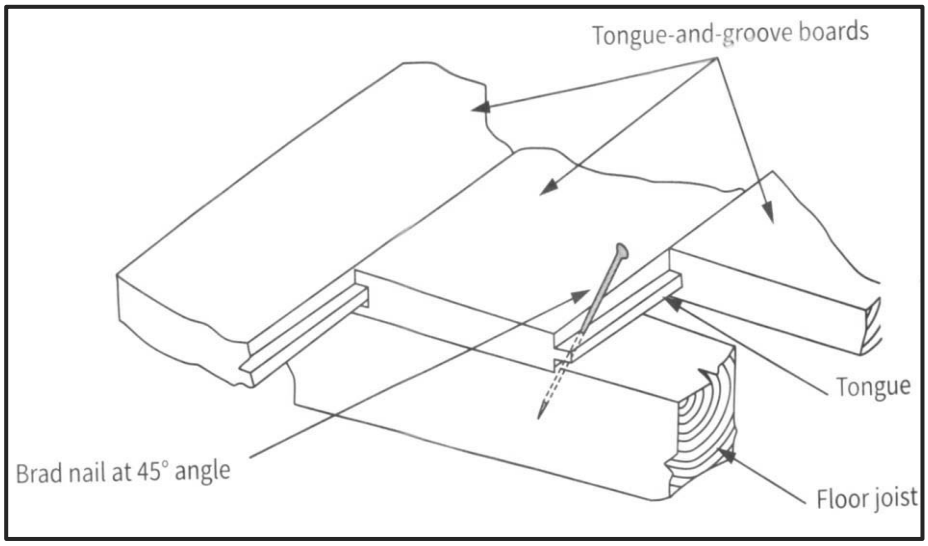


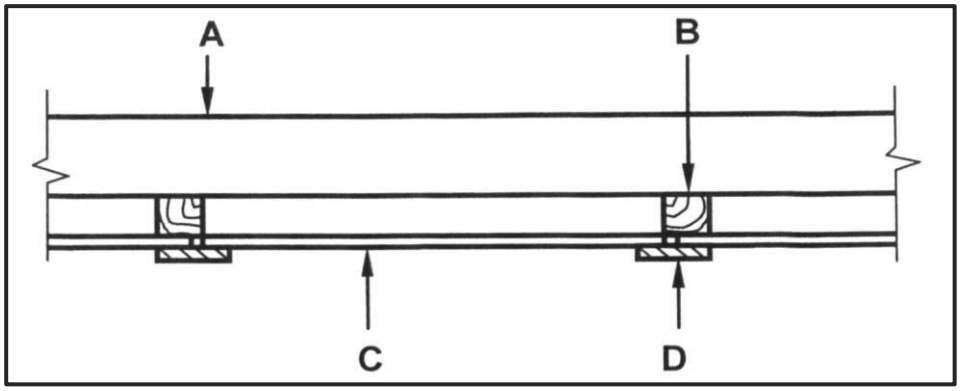
FIGURE 6.3

6.3.1 Identify the method in FIGURE 6.3. (1)

6.3.2 Explain this specific method of joining suspended floors. (4)

6.4 6.4.1 FIGURE 6.4.1 below shows a sectional view of a conventional trap door. Study the sketch and give ONE word for each of the letters (**A**–**D**) by choosing a word from the list below. Write only the word next to the letter (A–D) in the ANSWER BOOK, e.g. E – Rafter.

tie beam; strut; trapdoor; coverstrip; rafter; brandering; ceiling board



(4)

FIGURE 6.4.1

6.4.2 What is the function of **B**? (1)

6.4.3 Where will you use the gypsum crown mouldings (cornices)? (2)

6.4.4 Explain the difference between *insulation ceiling* board and *fibre-cement ceiling board.* (4)

6.5 There are certain requirements when fixing ceiling boards to the brandering.

Explain these requirements in detail. (4)

6.6 Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–F) next to the question number (6.6.1–6.6.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
6.6.1	Going	A	The inclined parts used in timber staircases to support the steps
6.6.2	Baluster	B	Used to measure the height between two floors and to mark the position of the risers
6.6.3	String / stringer	C	The vertical post that holds up the handrail
6.6.4	Margin	D	A template, made out of plywood or other board products, used to set out a staircase
6.6.5	Pitch board	E	The distance between the top of the string and the pitch line
		F	The distance measured from the face of a rise to the face of the next riser

(5)

6.7 Give the definition of the following:

6.7.1 *Riser* (1)

6.7.2 *Rise* (1)

6.7.3 *Landing* (1)

6.8 Explain the function of an apron as part of a stairwell. (3)

6.9 Why should the distance between balusters not exceed 100 mm? (2)

[40]

TOTAL: 200

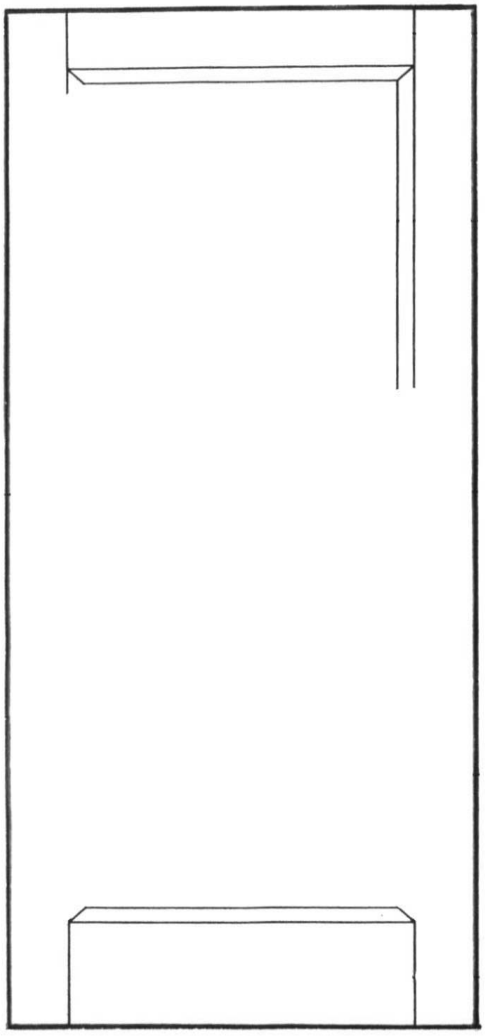
ANSWER SHEET 1	CIVIL TECHNOLOGY WOODWORKING	NAME: _____

3.2 Calculate the volume of concrete needed to cast the floor slab between the external walls. (12)

A	B	C	D
			Internal measurements of long walls (3)
			=_____ - _____ - _____
			=
			Internal measurements of short walls (3)
			= _____ - _____ - _____
			=
			Volume of concrete needed (6)
			Length of floor slab =
			Width of floor slab =
			Thickness of floor slab =
			(12)

ANSWER SHEET 2	CIVIL TECHNOLOGY WOODWORKING	NAME: _____

4.1 Incomplete front elevation of a two panel door with middle / lock rail. **(20)**



ASSESMENT CRITERIA	MARKS	CANDIDATE'S MARKS
Top rail	2	
Top flat panel	2	
Middle/Lock rail	3	
Quadrant/Quarter-round	2	
Bottom flat panel	2	
Bottom rail	1	
Measurements	3	
Scale	2	
Parts x 3	3	
TOTAL:	**20**	