higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1700**(E)**(M30)T

APRIL EXAMINATION

NATIONAL CERTIFICATE

WOODWORKERS THEORY N1

(11022171)

30 March 2016 (X-Paper)
09:00–12:00

This question paper consists of 5 pages and 2 diagram sheets.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
WOODWORKERS THEORY N1
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Read ALL the questions carefully.
3. Number the answers correctly according to the numbering system used in this question paper.
4. Drawings must be large, neat and in good proportion.
5. All drawings must be fully labelled.
6. Write neatly and legibly.

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QUESTION 1: INTRODUCTION TO THE BUILDING INDUSTRY AND PRODUCTIVITY

1.1 Briefly explain the concept *productivity*. (2)

1.2 Give the formula for measuring productivity. (3)

1.3 An increase in productivity is the direct result of improved technological or human contributions, or both.

Name and briefly describe any FIVE technological factors that will result in higher productivity. (10)
[15]

QUESTION 2: SAFETY AND HOUSEKEEPING

2.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (2.1.1–2.1.5) in the ANSWER BOOK.

2.1.1 Ladders can be used vertically.

2.1.2 Ladders can be joined to have the correct length.

2.1.3 A ladder must be placed in such a manner that its feet are a quarter of its own length away from the object against which it is resting.

2.1.4 A person is allowed to carry material when climbing up a ladder.

2.1.5 Ladders must stand on a firm base.

(5 × 1) (5)

2.2 There are various ways of protecting workers from hazards caused by electricity.

State FOUR basic precautions to observe when protecting workers from electrical hazards. (4)

2.3 Name THREE types of personal protective equipment that must be worn by workers on a building site and indicate why each must be worn. (3 × 2) (6)
[15]

QUESTION 3: TIMBER, TIMBER PRODUCTS, METAL AND GLASS

3.1 Draw THREE methods for the conversion of a tree trunk. (9)

3.2 Name TWO methods for the seasoning of timber. (2)

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3.3 What preservative is normally used in the full cell method of preservation? (1)

3.4 State THREE advantages of the empty cells method. (3)

3.5 After a tree is felled and transported to the saw mills, it is converted into boards or planks for commercial use.

State FIVE reasons why different conversion methods are being used. (5)
[20]

QUESTION 4: TOOLS AND MACHINES

4.1 FIGURE 1 on DIAGRAM SHEET1 (attached) shows a jigsaw that is used in the industry.

Identify and name the FIVE parts of the jigsaw. Write only the answer next to the number (4.1.1–4.1.5) in the ANSWER BOOK. (5)

4.2 A square, marking gauge, ruler and sliding bevel are tools used by a carpenter when doing finishing work.

What do the tools mentioned above have in common? (1)

4.3 FIGURE 2 on DIAGRAM SHEET1 (attached) shows a profile of the teeth of a particular kind of saw used in carpentry.

4.3.1 What is the name of this saw?

4.3.2 For what purpose is this saw used?

4.3.3 How many teeth per 25 mm does this kind of saw have?

(3 × 1) (3)

4.4 Explain the term *pneumatic tools*. (1)

4.5 State FIVE general guidelines and safety precautions for the use of pneumatic tools. (5)
[15]

QUESTION 5: FIXATIVES, GLUE AND FITTINGS

5.1 Name THREE advantages of polyurethane adhesive. (3)

5.2 Name THREE disadvantage of polyurethane adhesive. (3)

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5.3 Name ONE use for each of the following nails:

5.3.1 Clout nail

5.3.2 Wire nail

5.3.3 Floor nail

(3 × 1) (3)

5.4 Give TWO examples of where you would use an expansion bolt. (2)

5.5 State FOUR properties of a lamello biscuit. (4)
[15]

QUESTION 6: JOINTS

6.1 FIGURE 3 on DIAGRAM SHEET 2 (attached) shows five joints commonly used in woodwork.

Identify and name these FIVE joints. Write only the answer next to the number (6.1.1–6.1.5) in the ANSWER BOOK. **[10]**

QUESTION 7: BUILDING RELATED CALCULATIONS

A client asked you to manufacture two bedroom cupboards of 1,5 m in length from solid stinkwood.

7.1 To manufacture one bedroom cupboard takes 0,4 m^3 of wood at R6 000,00 per m^3.

What will the cost of the wood be to manufacture TWO bedroom cupboards? (4)

7.2 The wages of the artisan is R120,00 per hour and it takes 3 hours and 30 minutes to manufacture one bedroom cupboard.

What will the labour cost be to manufacture TWO bedroom cupboards? (3)

7.3 What is the final price of the two bedroom cupboards if a profit of 30% is to be added to the labour and the wood? (3)
[10]

TOTAL: [100]

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DIAGRAM SHEET 1



FIGURE 1

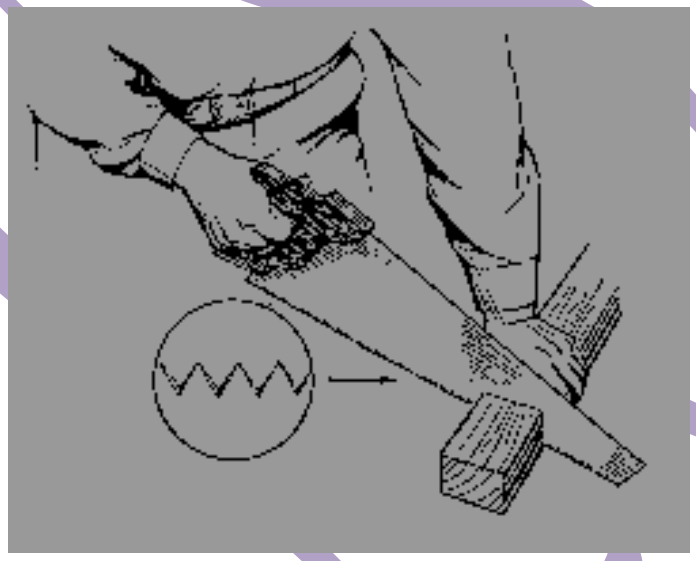


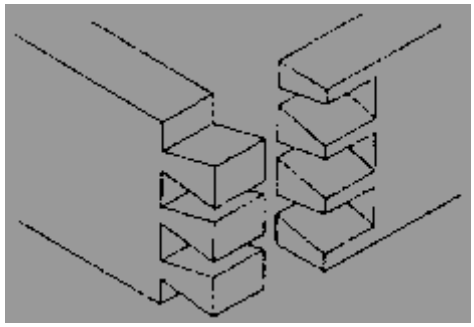
FIGURE 2

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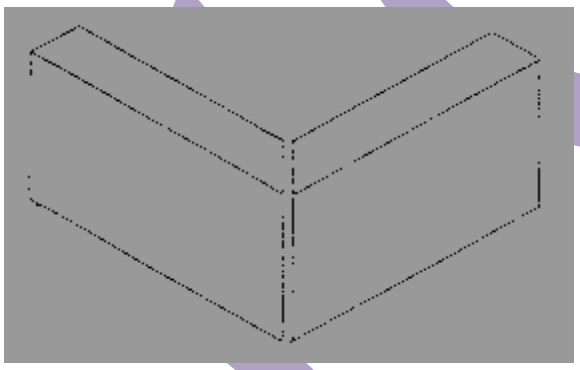
DIAGRAM SHEET 2



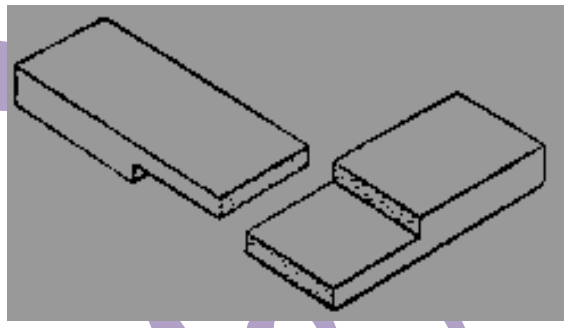
6.1.1



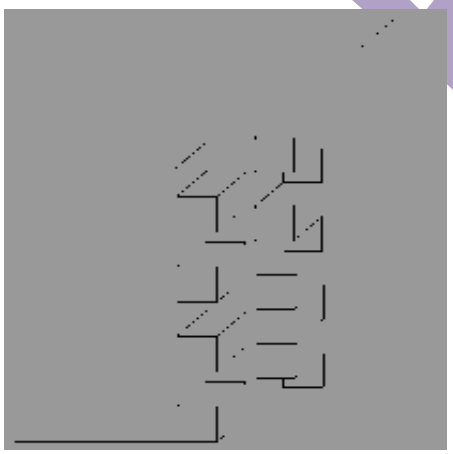
6.1.2



6.1.3



6.1.4



6.1.5

FIGURE 3

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