higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1610(E)(M24)T
APRIL EXAMINATION

NATIONAL CERTIFICATE

WOODWORKERS' THEORY N1

(11022171)

24 March 2014 (Y-Paper)
13:00–16:00

Calculators may be used.

This question paper consists of 5 pages and 3 diagram sheets.

ENGINEERING

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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 according to the numbering system used in this question paper.
4. Drawings must be large, neat and in good proportion.
5. All the 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 The construction of a building requires various types of tradespeople. Each designated trade requires the skill of a qualified artisan.

Name the designated artisan who will be responsible for the following activities on a building site:

1.1.1 Building a garden wall with clay bricks.

1.1.2 Installing melamine bedroom cupboards.

1.1.3 Painting the interior of a house.

1.1.4 Laying PVC pipes for a sewerage line.

1.1.5 Erecting formwork to a lift shaft.

(5 x 1) (5)

1.2 Explain the concept *productivity.* (3)

1.3 Write down the formula for measuring productivity. (2)

1.4 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (1.4.1–1.4.5) in the ANSWER BOOK.

1.4.1 Civil contractors are responsible for constructing roads and bridges.

1.4.2 Productivity on a building site is the foreman's responsibility.

1.4.3 Shopfitters work with clay tiles.

1.4.4 Carpenters are responsible for the fixing of gutters to a roof.

1.4.5 Wooden mouldings of a house are made by a wood machinist.

(5 x 1) (5)

[15]

QUESTION 2: SAFETY AND HOUSEKEEPING

2.1 Describe briefly the basic philosophy of *good housekeeping.* (3)

2.2 Name THREE types of personal protective equipment that must be worn by workers on a building site. Also state the reason why each of them must be worn. (6)

2.3 What is the main objective of The Compensation for Occupational Injuries and Diseases Act? (3)

2.4 State THREE safety requirements to be considered when erecting scaffolding. (3)

[15]

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QUESTION 3: TIMBER, TIMBER PRODUCTS, METAL AND GLASS

3.1 What causes case hardening? (2)

3.2 Why must wood be preserved? (2)

3.3 Name the TWO groups into which wood is divided. (2)

3.4 Name THREE advantages of natural seasoning. (3)

3.5 What is the most important characteristic of marine ply. (1)

3.6 Make a neat cross-sectional drawing through a tree trunk to indicate the different parts clearly. (10)
[20]

QUESTION 4: TOOLS AND MACHINES

4.1 DIAGRAM SHEET 1, FIGURE 1 (attached) shows a picture of a crosscut hand saw. Identify the parts of the handsaw by writing down the name of each part next to the question number (4.1.1–4.1.5) in the ANSWER BOOK. (5)

4.2 State ONE use for each of the following tools:

4.2.1 Spirit level

4.2.2 Tape measure

4.2.3 Mitre square

4.2.4 G-clamp

(4 x 1) (4)

4.3 Name TWO safety measures that are applicable to each of the following electric tools:

4.3.1 Jigsaw (2)

4.3.2 Angle grinder (2)

4.3.3 Drill (2)
[15]

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QUESTION 5: FIXATIVES, GLUE AND FITTINGS

5.1 Give TWO advantages of screws over nails. (2)

5.2 Give THREE uses for rubber-based (contact) glue. (3)

5.3 DIAGRAM SHEET 3, FIGURE 3 (attached) shows various items often used by woodworkers.

Identify these objects by writing only the name of the object next to the question number (5.3.1–5.3.10) in the ANSWER BOOK. (10)
[15]

QUESTION 6: JOINTS

6.1 DIAGRAM SHEET 2, FIGURE 2 (attached) shows FIVE joints commonly used in woodwork.

Identify these joints by writing only the name of the joint next to the question number (6.1.1–6.1.5) in the ANSWER BOOK. (5)

6.2 Illustrate by means of a neat drawing, what is meant by a corner bridle joint. (5)
[10]

QUESTION 7: BUILDING-RELATED CALCULATIONS

7.1 A sample of wood weighs 300 g. After oven-dry to constant weight, it weighs 255 g.

Determine the percentage moisture content of the sample. (3)

7.2 Sizwe Joinery Works quotes R2 300,00 to make a 0,900 mm casement window.

Calculate the percentage profit he makes by using the following information:

The price of unplaned wood is R580,00 and the price to fit the window is R109,80.
The joiner earns R18,00 per hour and his labourer R8,50.
The overheads for Sizwe Joinery Works amount to R7,50 per hour and it takes 12 hours to machine and assemble the window. (7)
[10]

TOTAL: 100

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DIAGRAM SHEET 1

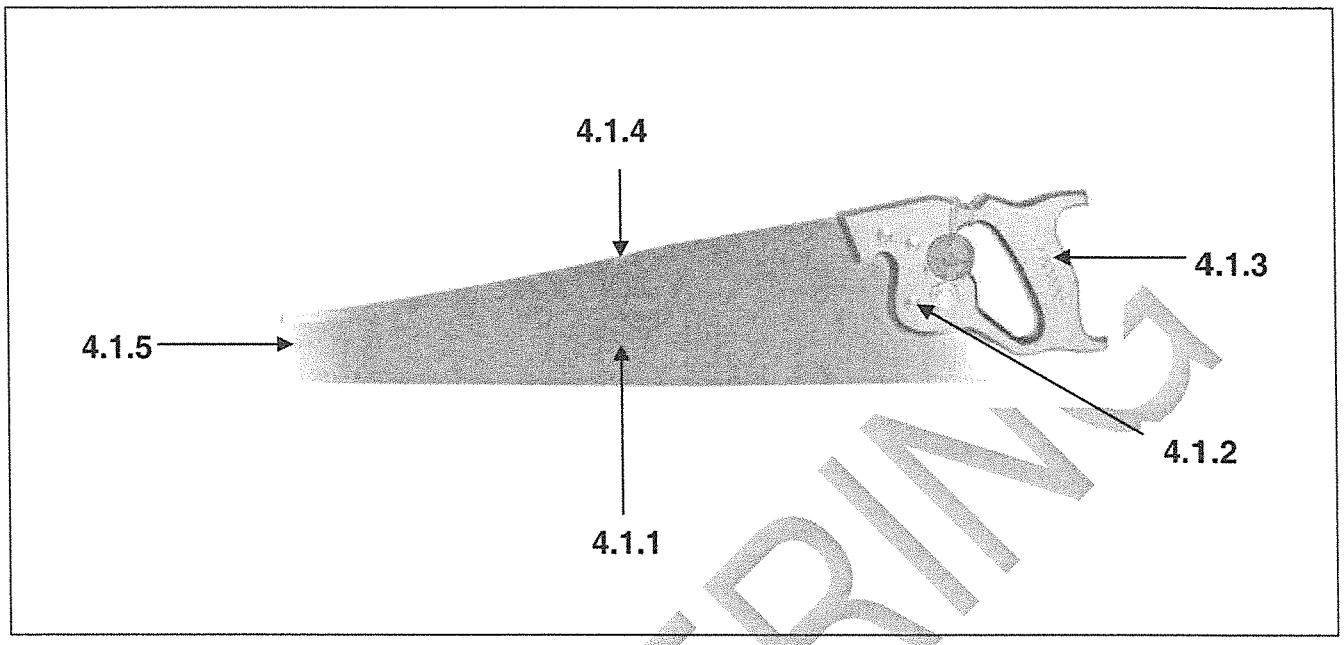
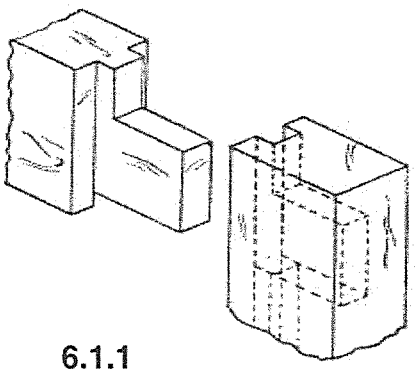


FIGURE 1

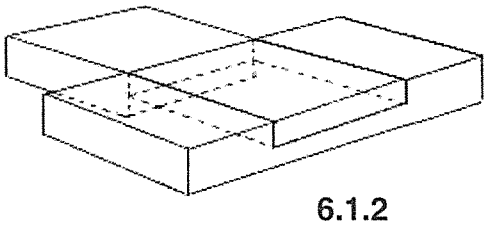
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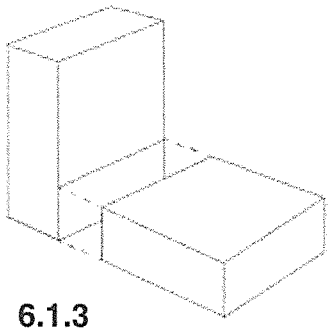
DIAGRAM SHEET 2



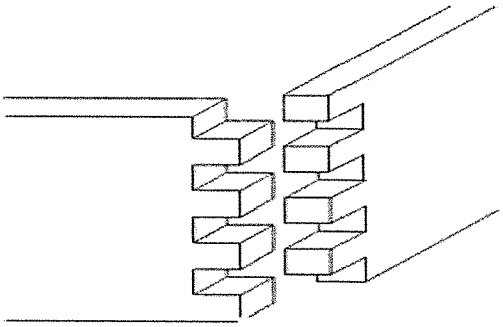
6.1.1



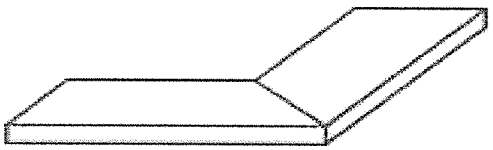
6.1.2



6.1.3



6.1.4

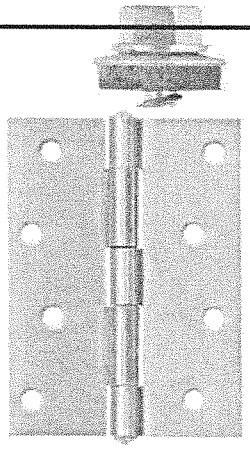


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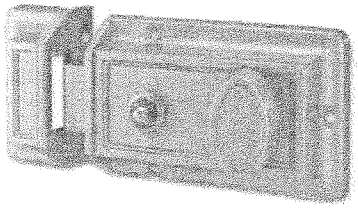
FIGURE 2

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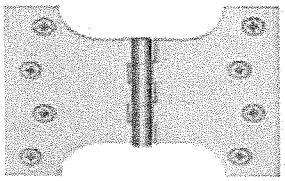
DIAGRAM SHEET 3



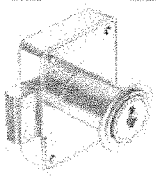
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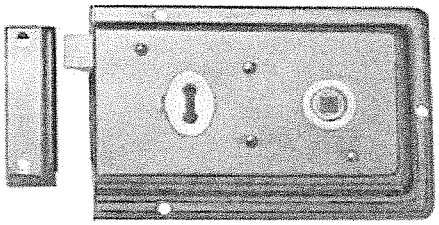
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5.3.3



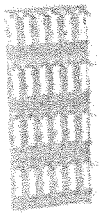
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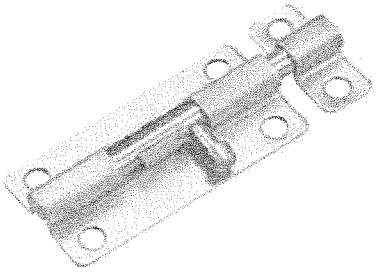
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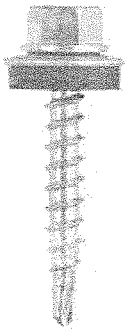
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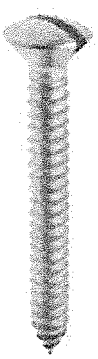
5.3.7



5.3.8



5.3.9



5.3.10

FIGURE 3

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