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Centre Number

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Student Number

2003
HIGHER SCHOOL CERTIFICATE
EXAMINATION

Industrial Technology

Timber Products and Furniture Industries

General Instructions

- Reading time – 5 minutes
- Working time – $1\frac{1}{2}$ hours
- Write using black or blue pen
- Draw diagrams using pencil
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of this page and pages 5, 9, 17 and 25

Total marks – 100

Section I Pages 2–13

60 marks

- Attempt Questions 1–3
- Allow about 55 minutes for this section

Section II Pages 17–27

40 marks

- Attempt Questions 4–5
- Allow about 35 minutes for this section

Section I

60 marks

Attempt Questions 1–3

Allow about 55 minutes for this section

Answer the questions in the spaces provided.

Marks

Question 1 (20 marks)

IND-TECH is a large company situated in the inner city, operating in the timber products and furniture industry specialising in high quality products and/or services. For a variety of reasons the company has decided to purchase and relocate to a new site, 200 km from its present inner city site.

- (a) Identify TWO issues that may have influenced the decision to relocate. **2**

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- (b) Outline TWO environmental responsibilities that must be dealt with when IND-TECH vacates the present site. **2**

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Question 1 continues on page 3

Question 1 (continued)

- (c) Discuss TWO factors that IND-TECH should consider when choosing the alternative site. **4**

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- (d) Identify and describe TWO occupational health and safety (OHS) issues that IND-TECH would need to review/develop for the new workplace. **4**

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Question 1 continues on page 4

Question 1 (continued)

(e) Explain the possible environmental and sociological effects on the community of IND-TECH’s relocation. 8

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End of Question 1

**Industrial Technology
Timber Products and Furniture
Industries**

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Student Number

Section I (continued)

Marks

Question 2 (20 marks)

Management at IND-TECH has decided to upgrade the level of mechanisation as part of its relocation.

- (a) Define the term *mechanisation*. **2**

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- (b) Outline an aspect of IND-TECH's operations that could be investigated for upgraded mechanisation. **2**

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Question 2 continues on page 6

Question 2 (continued)

- (c) Describe TWO methods of evaluating the effects of upgraded mechanisation on IND-TECH's operation. **4**

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- (d) Upgraded mechanisation will require staff training. Outline the advantages for IND-TECH and its workers of accessing training programs. **4**

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Question 2 continues on page 7

Question 2 (continued)

- (e) Identify and analyse issues that could arise between management and workers as a result of upgraded levels of mechanisation. 8

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End of Question 2

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Student Number


Section I (continued)

Question 3 (20 marks)

Please turn over

Question 3 (20 marks)

- (a) The following extract is from a draft report that was produced using computer software.



Half-Yearly Production Report
January 2003 – June 2003

<i>Production rate summary</i>		
<i>Month</i>	<i>Year</i>	<i>Production rate (units)</i>
January	2003	270
February	2003	300
March	2003	325
April	2003	335
May	2003	340
June	2003	370

Growth in production is due to:

- Improved technology
- Better training
- Fewer accidents in the workplace
- Increased access to raw materials

Page 1

- (i) Name a computer software application that could have been used to produce this report. **1**

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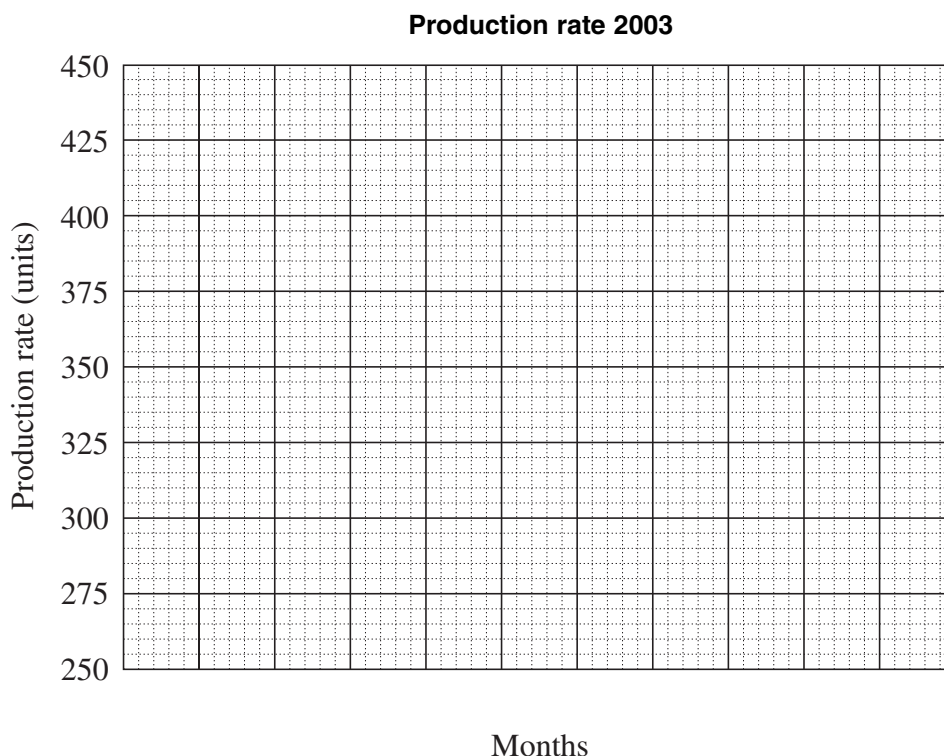
- (ii) Identify FOUR formatting features that have been used in the production of this report. **2**

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Question 3 continues on page 11

Question 3 (continued)

- (iii) (1) Use the information from the production report to: 3
 - produce a graph that shows the monthly production rate (indicate the months on the horizontal axis);
 - graph the average monthly production rate (January–June).
- (2) Assuming the production trend continues, indicate on the graph the predicted production rate for September 2003. 2



- (b) Materials handling injuries make up 40% of workplace injuries. Describe a procedure IND-TECH could implement to communicate improved materials handling strategies to its employees. 4

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Question 3 continues on page 12

Question 3 (continued)

- (c) In its new location, IND-TECH has an opportunity to reorganise its production system to make use of increased mechanisation and to improve efficiency. Shown below is a table rail manufactured by IND-TECH.

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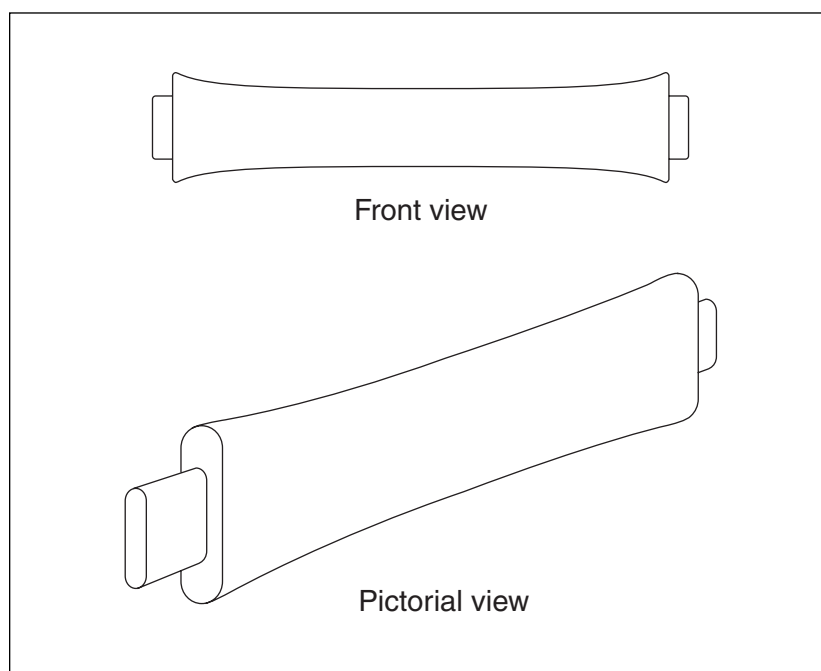


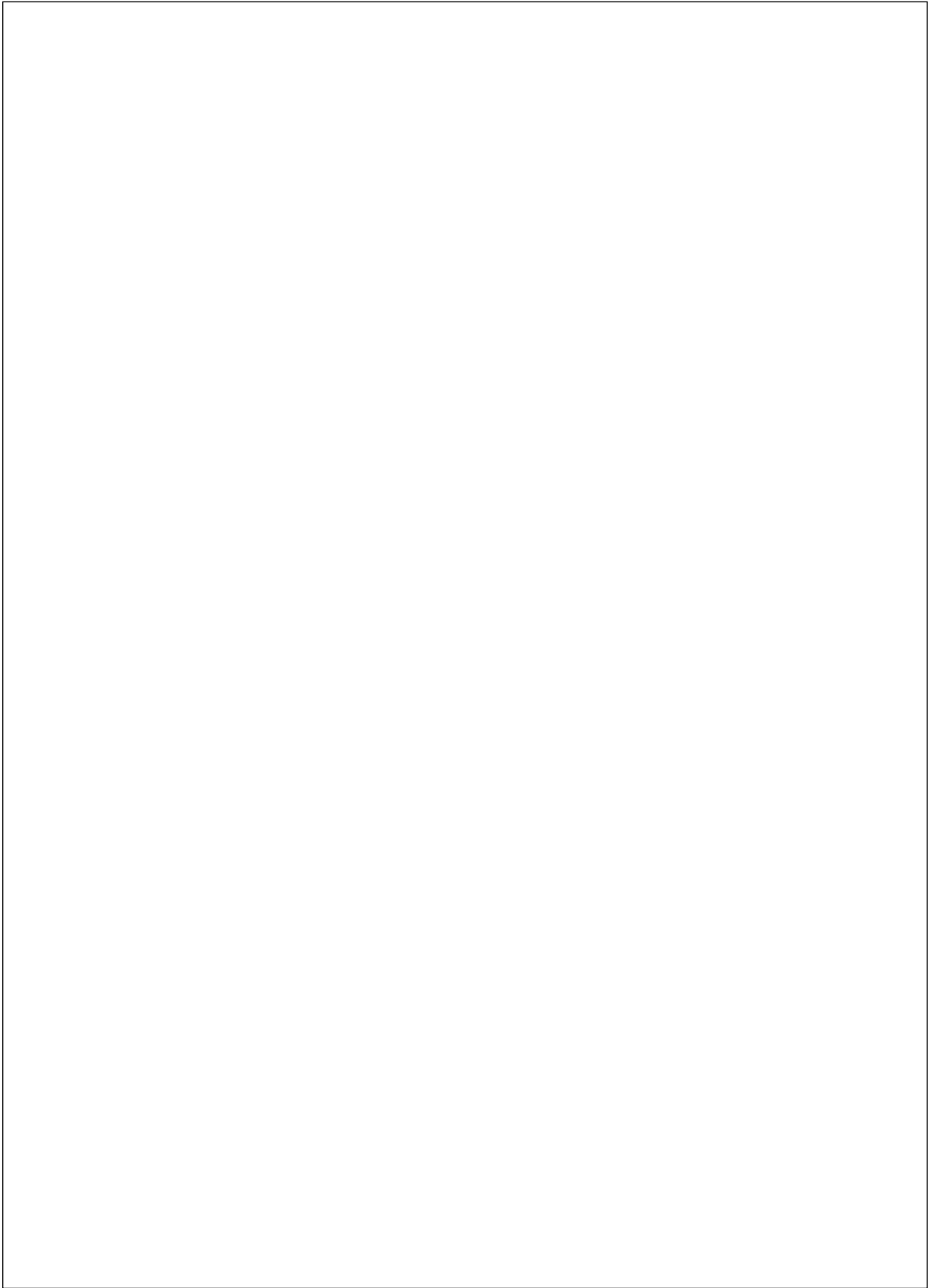
Table rail

Based on your study of the timber products and furniture industry, use the space provided on page 13 to graphically represent the processes used to produce the table rail shown. In your answer you should:

- show the sequencing of the components and/or processes;
- name each piece of equipment used;
- state the process carried out with each piece of equipment;
- indicate where quality control would occur, and what would be checked.

Question 3 continues on page 13

Question 3 (continued)



End of Question 3

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Industries**

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Centre Number

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Student Number

Section II

40 marks

Attempt Questions 4–5

Allow about 35 minutes for this section

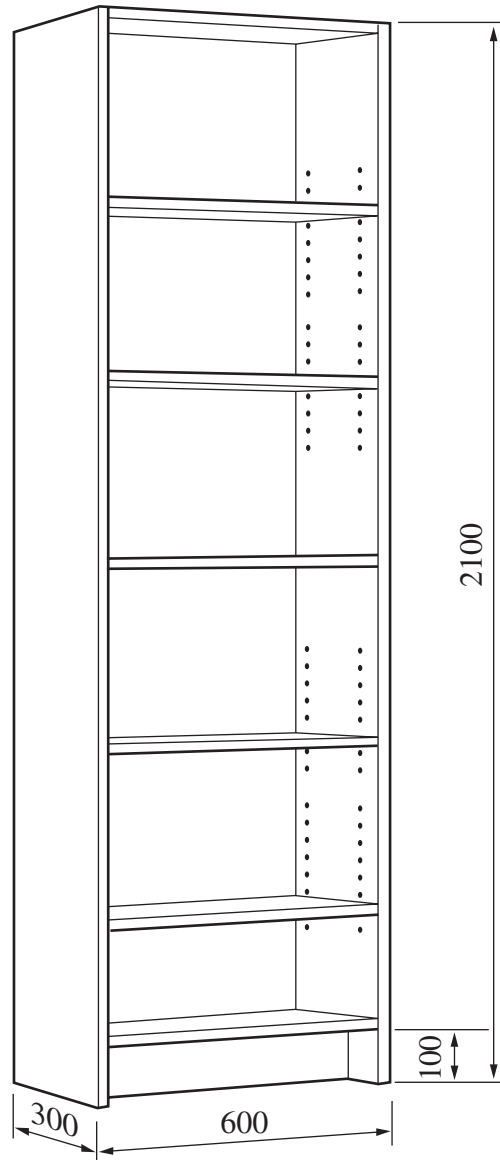
Answer the questions in the spaces provided.

Question 4 (20 marks)

Please turn over

Question 4 (20 marks)

The bookcase shown is to be mass produced by IND-TECH in timber-veneered MDF, and sold ready to assemble.



All measurements are in mm.

- (a) For what is MDF a common abbreviation?

1

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Question 4 continues on page 19

Question 4 (continued)

- (b) The middle shelf, the top and bottom of the bookcase are to be fixed to the sides of the bookcase. Name and sketch a suitable fixing method, excluding nails and screws. 2

Name:

- (c) Holes are to be drilled in the sides of the bookcase to support the adjustable-shelf pins. Identify a method IND-TECH could use to carry out the process, and explain how this method ensures accuracy and consistency. 4

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Question 4 continues on page 20

Question 4 (continued)

- (d) The grid on page 21 represents a 2400 mm × 1200 mm × 18 mm sheet of timber-veneered MDF. 5

Complete the cutting list below for all the pieces needed to make the bookcase, excluding the back. On the grid on page 21, draw the best possible arrangement for these pieces, ignoring allowances for saw cuts.

<i>Item</i>	<i>Number required</i>	<i>Length</i>	<i>Width</i>

Question 4 continues on page 21

Question 4 (continued)

A large grid of graph paper for writing answers. The grid consists of 20 columns and 30 rows of small squares. The grid is empty and intended for the student to write their response to Question 4.

Question 4 continues on page 22

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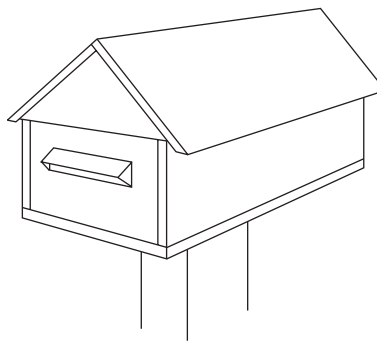
Student Number

Section II (continued)

Marks

Question 5 (20 marks)

The closed letterbox shown is to be constructed from butt-jointed 140 mm × 12 mm boards.



- (a) Suggest a suitable timber for the letterbox. 1

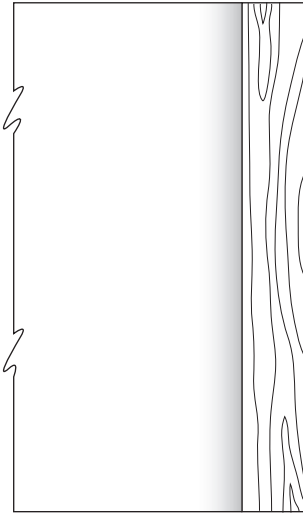
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- (b) With the aid of sketches, explain how the letterbox can be opened to allow for easy retrieval of the mail. 2

Question 5 continues on page 26

Question 5 (continued)

- (c) The letterbox is to be screwed together using countersink screws. The diagram shows one corner of the letterbox. Show on the diagram how the timber needs to be prepared for the screws, and explain how and why this is done. 4



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- (d) The timber for the letterbox is to be cut squarely to length with a power saw. Name a suitable power saw, and identify a range of safety and maintenance checks that should be carried out prior to its use, and the safety precautions that must be observed by the operator. 5

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Question 5 continues on page 27

Question 5 (continued)

- (e) Identify and explain the factors that must be considered when selecting the materials, components and processes for the construction of the letterbox. 8

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