2010
HIGHER SCHOOL CERTIFICATE EXAMINATION

Industrial Technology
Timber Products and Furniture Technologies

General Instructions
• Reading time – 5 minutes
• Working time – 1 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 page 9

Total marks – 40

Section I Pages 2–5
10 marks
• Attempt Questions 1–10
• Allow about 20 minutes for this section

Section II Pages 9–12
15 marks
• Attempt Questions 11–16
• Allow about 35 minutes for this section

Section III Page 13
15 marks
• Attempt Question 17
• Allow about 35 minutes for this section
Section I

10 marks
Attempt Questions 1–10
Allow about 20 minutes for this section

Use the multiple-choice answer sheet for Questions 1–10.

1 What type of screw is the most suitable to achieve a flush fitting surface in timber?
   (A) Countersunk
   (B) Pan head
   (C) Raised head
   (D) Round head

2 What is the most suitable timber adhesive for furniture that is going to be used outdoors?
   (A) Contact
   (B) Hot melt glue
   (C) Polyvinyl acetate
   (D) Resorcinol formaldehyde

3 What is marquetry?
   (A) A decorative edge treatment
   (B) An initial step in marking out timber for cutting
   (C) A wood carving technique that results in a 3D image
   (D) The process of cutting and fitting veneers together to form a design

4 Which of the following hand tools will produce the smoothest timber finish?
   (A) Hand scraper
   (B) Block plane
   (C) Smoothing plane
   (D) Cork block and 80 grit garnet paper
5 Which of the following diagrams shows a halving joint?

(A)  

(B)  

(C)  

(D)  

6 Which of the following conversion processes will produce the most stable board?

(A) Back sawn  
(B) Quarter sawn  
(C) Rotary peel  
(D) Through sawn  

7 Which of the following manufactured boards has uniform strength in both directions?

(A) Coreboard  
(B) Blockboard  
(C) Composite board  
(D) Medium density fibreboard  

8 How do you prevent splitting when nailing near the ends of hardwood?

(A) Use a bradawl.  
(B) Drill a pilot hole.  
(C) Use small diameter nails.  
(D) Drive the pointed end of a marking knife into the wood.
The diagram shows the details of a drawer.

All measurements are in millimetres.

<table>
<thead>
<tr>
<th>Part</th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawer front</td>
<td>400</td>
<td>190</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Drawer side</td>
<td>450</td>
<td>190</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Drawer back</td>
<td>380</td>
<td>175</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Drawer base</td>
<td>440</td>
<td>380</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Material costs
190 × 19 hoop pine costs $8.50 per metre
190 × 12 hoop pine costs $8.25 per metre
440 × 380 × 3 plywood costs $0.25 per piece

What is the total cost of the materials required to produce one drawer?

(A) $13.86
(B) $14.11
(C) $14.21
(D) $14.53
A diagram and details of a cabinet door are shown.

What is the most cost effective timber order for the cabinet door frame?

(A) $1 \times 1800 \times 70 \times 19$

(B) $1 \times 1800 \times 70 \times 12$

(C) $1 \times 900 \times 140 \times 19$

(D) $1 \times 900 \times 140 \times 12$

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**Material costs**

- $140 \times 19$ hoop pine costs $7.50 per metre
- $70 \times 12$ hoop pine costs $6.50 per metre
- $140 \times 12$ hoop pine costs $6.50 per metre
- $70 \times 19$ hoop pine costs $3.80 per metre
Questions 11–16 refer to the diagram of an entertainment unit below. The unit is to be manufactured as a ‘flat pack’.

**Question 11 (1 mark)**

Sketch a knockdown fitting that could be used.
Question 12 (2 marks)

What are the advantages of producing the entertainment unit as a ‘flat pack’?

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Question 13 (2 marks)

The details of a glass door frame from the entertainment unit are shown.

Name and describe, with the aid of sketches, a suitable framing joint that could be used in the area marked at A in the door frame.

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Question 14 (3 marks)
Describe the safety precautions that need to be considered when constructing and finishing cabinet furniture made from manufactured boards.

Question 15 (3 marks)
What are the advantages and disadvantages of using solid timber as opposed to manufactured board for the top of the entertainment unit?
Question 16 (4 marks)

Describe techniques used when making furniture from manufactured boards.
Question 17 (15 marks)

A small family-owned company is operating successfully in a local market. The company is assessing the feasibility of relocating to a larger facility in order to expand production.

(a) Outline environmental considerations that may affect the expansion of the company.

(b) Analyse the structural, technical and personnel issues to be considered prior to relocating and expanding.

End of paper