BOSTES | BOARD OF STUDIES TEACHING & EDUCATIONAL STANDARDS NSW

2016 HSC Industrial Technology
Timber Products and Furniture Technologies
Marking Guidelines

Section I

Multiple-choice Answer Key

Question	Answer
1	A
2	D
3	A
4	B
5	C
6	C
7	D
8	D
9	B
10	B

Section II

Question 11

Criteria	Marks
• Provides a correct answer	1

Sample answer:

Identify the face side.

Question 12

Criteria	Marks
• Provides characteristics and features of making a widening joint using a portable power tool	3
• Sketches in general terms how to make a widening joint using a portable power tool	2
• Provides a feature of making a widening joint	1

Sample answer:

Put the boards side by side (edge to edge) and mark the position of the biscuit. Using a biscuit cutter, cut the slots on both the boards. Put glue in the slots and put biscuits in the slots in one board. Put two boards together and cramp the boards using a sash cramp.

Answers could include:

1. The above process could use a portable drill to drill holes for dowels then glue and cramp.
2. The same could be done using a domino machine.
3. A router could be used to cut a groove in both the boards then insert a tongue and glue the boards.

Question 13

Criteria	Marks
• Demonstrates an understanding of the similarities and/or differences in uses of oil-based and water-based finishes on timber	3
• Demonstrates limited understanding of the similarities and/or differences between oil-based and water-based finishes	2
• Gives a use of an oil-based or water-based finish	1

Sample answer:

Oil-based finish

- Looks better, lasts longer, costs less, leaves an amber glow and requires fewer coats
- Good 'levelling' (brush strokes fill themselves in to create a smooth finish)
- Hard, durable finish, oil-based poly wears better than ANY water-borne finish; oil-based finishes have a more natural appearance in comparison, gives the wood more depth and more colour.

Disadvantages – requires a five-hour wait between coats. Strong odour, flammable, yellows over time.

Water-based finish

- Clear finish, low odour, can be recoated after two hours, clean tools with water.

Disadvantages – they won't give that rich glow that oil-based finishes impart, need to apply four coats for water-based compared to two or three for oil-based. Water-based may need a recoat every two years.

Question 14

Criteria	Marks
• Provides characteristics and features of sharpening the blade of the chisel	3
• Provides features of how the blade can be sharpened	2
• Provides a feature of sharpening the blade	1

Sample answer:

Grind the chisel using a bench grinder. Grinding angle is 20–25 degrees. The chisel has to be dipped in cold water often to prevent heating.

Use an oilstone to sharpen. Sharpening angle 25–30 degrees. Use petroleum based oils for sharpening on oilstones. Water stones use water as lubricant. Remove burr on a piece of wood or leather strap.

Question 15

Criteria	Marks
• Provides advantages of why manufactured boards are used	5
• Provides limited advantages of using manufactured boards	3–4
• Provides a basic understanding of manufactured boards	1–2

Answers could include:

- High uniform strength
- Freedom from shrinking, swelling and warping
- Non-splitting qualities; solid wood splits fairly readily along the grain. Plywood by virtue of the cross laminations can be nailed or screwed near the edges without damage from splitting.
- Availability of relatively large sizes
- Economical and effective utilisation of figured wood
- Dense woods can be sliced and bonded into plywood panels for use in furniture construction
- Usually cheaper than solid timber.

Section III

Question 16 (a)

Criteria	Marks
• Provides a good understanding of the main features of the purpose of risk assessment in the timber products and furniture industry • Provides a relevant industry example	5
• Provides an understanding of the main features of the purpose of risk assessment in the timber products and furniture industry • Provides a relevant industry example	4
• Sketches in general terms the purpose of risk assessment in the timber products and furniture industry • Provides an industry example	3
• Provides a feature of the purpose of risk assessment in the timber products and furniture industry • May provide an example	2
• Provides some relevant information	1

Sample answer:

The purpose of risk assessment within the timber industry is to identify, eliminate, remove or minimise hazards for workers in the industry.

For example, prior to using a power tool a worker will have completed or accessed a risk assessment for the power tool. This will contain information about the correct use, what PPE is required and level of hazards identified in using the equipment. The worker will have had the safe use of the tool demonstrated, have demonstrated theoretical knowledge in its safe use, and demonstrated safe use in using the tool.

This process clearly demonstrates all hazards and risks associated with using the tool to be made safer by minimising them.

Answers could include:

A risk assessment involves measuring the degree of harm that could be inflicted on someone who is exposed to a hazard.

WorkCover (NSW) — action plan for risk assessment:

1 Work out how severe the harm could be
2 Work out how hazards may cause harm
3 Work out likelihood of harm occurring.

The purpose of risk assessment is to determine the harm that could happen to a worker in the timber industry. Completing a risk assessment indicates that risks have been identified, including the severity and likelihood of the harm to a worker.

Once a risk assessment is done, various hazard controls can be adopted.

A risk assessment allows workers in the timber industry to work safely due to the identity, measurement of severity of harm, and control of hazards. This not only means fewer injuries, but also fewer days sick leave which means a more efficient industry in both costing and time.

Question 16 (b)

Criteria	Marks
• Provides a detailed explanation of the influence of particular historical developments on the timber products and furniture industry • Provides a logical and cohesive response that includes industry terminology and specific industry examples	10
• Provides an effective explanation of the influence of particular historical developments on the timber products and furniture industry • Provides a logical response that includes industry terminology and industry examples	8–9
• Provides some explanation of the influence of particular historical developments on the timber products and furniture industry • Provides a response that includes industry terminology and industry examples OR • Provides a detailed explanation of the influence of ONE particular historical development on the timber products and furniture industry • Provides a response that includes industry terminology and an industry example	5–7
• Attempts to provide explanation of the influence of particular historical developments on the timber products and furniture industry • Communicates information using industry example(s)	3–4
• Provides some relevant information relating to historical development(s)	1–2

Answers could include:

The timber industry started with mostly hand tools and some basic machines like a table saw and thicknesser.

The introduction of new machines and portable power tools, like a domino machine or biscuit jointer, have revolutionised the timber industry. Furniture can now be mass produced easily and quickly.

Recently the introduction of the CNC lathe and the CNC milling machine have enabled the timber industry to produce quality furniture quickly and with a smaller workforce.

As a result of these power tools the timber industry has been able to mass produce furniture and make huge profits. At the same time people have lost jobs due to the introduction of these machines.

The introduction of new materials has positively influenced the furniture industry. The quality of products has improved greatly. More people are now buying products made with these new materials, which means more profit for timber companies.

New timber finishes have also positively influenced the furniture industry. Products have better finishes so more people are buying them. This means more profits, new machines, technologies, materials and finishes have produced better quality products, thus delivering huge profits. At the same time people have lost jobs.

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Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	Materials	H1.2
2	1	Processes, tools and machinery	H3.2
3	1	Materials	H4.3
4	1	Materials	H4.3
5	1	Processes, tools and machinery	H4.1
6	1	Processes, tools and machinery	H4.1
7	1	Materials	H4.3
8	1	Processes, tools and machinery	H1.2
9	1	Processes, tools and machinery	H4.3
10	1	Processes, tools and machinery	H4.3

Section II

Question	Marks	Content	Syllabus outcomes
11	1	Processes, tools and machinery	H4.3
12	3	Processes, tools and machinery	H1.2
13	3	Processes, tools and machinery	H4.1
14	3	Processes, tools and machinery	H4.1
15	5	Processes, tools and machinery	H4.3

Section III

Question	Marks	Content	Syllabus outcomes
16 (a)	5	Work Health and Safety	H1.2, H4.3
16 (b)	10	Historical development	H1.2, H1.3, H4.3, H7.2