

**Victorian Certificate of Education
2016**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER Letter

VCE VET FURNISHING
Written examination

Friday 11 November 2016

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	20	20	20
B	14	14	40
C	11	11	40
			Total 100

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers and one scientific calculator.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.

Materials supplied

- Question and answer book of 23 pages.
- Detachable insert for Section C in the centrefold.
- Answer sheet for multiple-choice questions.

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.
- You may keep the detached insert.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1; an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1

Approximately how far from the edge of a plane blade should the cap iron be fitted?

- A. 0.1 mm
- B. 1 mm
- C. 3 mm
- D. 5 mm

Question 2

Which one of the following drill bits can be sharpened with a bench grinder?

- A. hinge bit
- B. forstner bit
- C. masonry bit
- D. brad-point bit

Question 3

Which one of the following tools is used to assemble the hardware shown above?

- A. allen key
- B. nut driver
- C. Phillips screwdriver
- D. straight screwdriver

Question 4

What information is shown on a Material Safety Data Sheet (MSDS)?

- A. tax invoice
- B. instructions for use
- C. health hazard information
- D. expiry date of the product

Question 5

Who is responsible for occupational health and safety (OH&S) in a kitchen cabinet manufacturing company?

- A. everyone working for the company
- B. the supervisor in the company
- C. the workers in the company
- D. the owner of the company

Question 6

Which one of the following tools should be used for smoothing veneered work and cross grain areas before sanding?

- A. cabinet scraper
- B. flat smooth file
- C. jointing plane
- D. spokeshave

Question 7

Which one of the following is the correct hand joint for a bedside table made using leg and rail construction?

- A. halving joint
- B. dovetail joint
- C. tee bridle joint
- D. mortise and tenon joint

Question 8

Knockdown fittings on their own can be used only on

- A. sheet material.
- B. sheet material and solid timber.
- C. the stress joints on chairs and tables.
- D. solid timber, so the fixing is not seen.

Question 9

Which one of the following is an example of leg and rail construction?

- A. bookshelves
- B. dining table
- C. kitchen drawer units
- D. colonial chest of drawers

Question 10

Which personal protective equipment (PPE) should **not** be worn when using a router?

- A. leather gloves
- B. hearing protection
- C. goggles, glasses, face shields
- D. high-visibility vests or jackets, overalls

Question 11

Which one of the following tools is used when cutting a mortise with a chisel?

- A. brad hammer
- B. rubber mallet
- C. claw hammer
- D. wooden mallet

Question 12

When clamping a doorframe, why is it important to use clamping blocks?

- A. They hold the timber in place before the clamps are tightened.
- B. They prevent the glue from spreading all over the sash clamps.
- C. They protect the wood surface from being dented or scratched.
- D. They allow greater pressure to be put onto the piece of furniture when gluing.

Question 13

John is making a coffee table. The top is 500 mm × 500 mm and has a 20 mm overhang on all sides. The legs are 450 mm × 45 mm × 45 mm and are dowelled into the rails.

What is the finished length of the rails for John's coffee table?

- A. 410 mm
- B. 460 mm
- C. 370 mm
- D. 390 mm

Question 14

A dowel joint is appropriate when joining

- A. legs to rails.
- B. sheet material.
- C. timber to metal.
- D. tops to carcasses.

Question 15

When assembling furniture

- A. start with the largest components.
- B. start with the smallest components.
- C. it does not matter in what order the components are assembled.
- D. components should always be assembled according to the instructions.

Question 16

When calculating the solid timber required for a red gum bookcase with a solid timber panelled back, which items must be included?

- A. sides, top and bottom, and all shelves
- B. sides, top and bottom, shelves and back
- C. sides, top and bottom, and all fixed shelves only
- D. sides and top and bottom only; shelves can be made from offcuts

Question 17

A door stile is the

- A. vertical component of the doorframe.
- B. timber that is attached to the centre of the door to add strength.
- C. block of timber that stops the door from swinging into the cabinet.
- D. bead of timber that is placed at the back of the door to hold the panel in place.

Question 18

A mitred construction method is used to make

- A. tee joints.
- B. corner joints.
- C. widening joints.
- D. leg and rail joints.

Question 19

Timber chair seat rails are angled approximately 5° down from front to back because

- A. angled joints are easier to make.
- B. the finished chair will look better.
- C. the finished chair will be more comfortable.
- D. greater surface area creates a stronger joint.

Question 20

Which of the following tools are required to construct dowel joints?

- A. drill, drill bits, chisel, mallet
- B. dowel jig, battery drill, hammer
- C. drill press, battery drill, screwdriver
- D. square, marking gauge, drill, drill bit

SECTION B – Short-answer questions**Instructions for Section B**

Answer **all** questions in the spaces provided.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1 (1 mark)

How many diners can be comfortably seated at a circular dining table with a diameter (D) of 1200 mm?

circumference of a circle = πD $\pi = 3.14$

Question 2 (4 marks)

A cabinet-maker is required to cut out a circular blackwood tabletop with a diameter of 1200 mm.

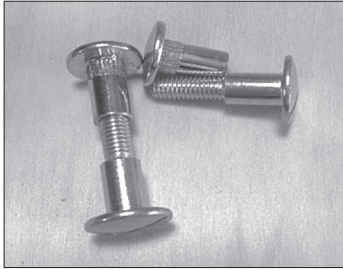
For each of the cabinet-maker's tasks given in the table below, list one power tool and provide one reason for selecting that power tool.

Task	Power tool	Reason
cut top oversize		
clean up cut edge		

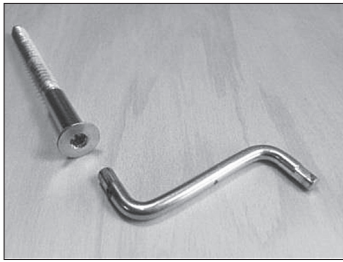
Question 3 (3 marks)

What is each hardware item shown below used for?

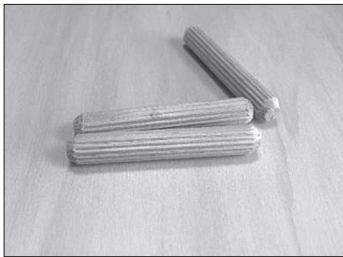
1.



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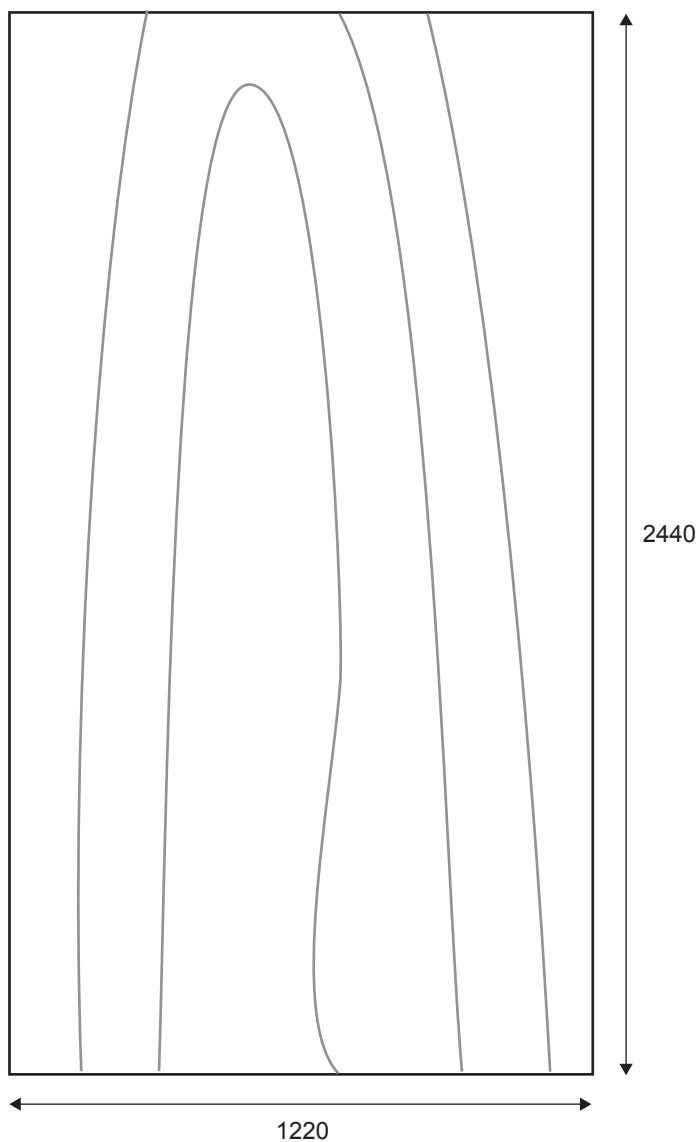
Question 4 (4 marks)

Anne is required to cut the parts from the cutting list below with a handheld circular saw and rail system.

Draw the parts from the cutting list on the sheet layout below. Develop Anne’s layout to minimise waste and align the grain to the length of the parts.

Cutting list				
Part	Number of parts	Length (mm)	Width (mm)	Thickness (mm)
sides	2	580	420	16
base	1	1180	404	16
back	1	1180	580	16
top	1	1180	404	16

Sheet layout



Question 5 (4 marks)

Sharpening plane blades requires two operations.

List the two operations and the tools or equipment required for each.

	Operation	Tools or equipment required
1		
2		

Question 6 (2 marks)

When assembling kitchen cabinets, a shelf needs to be added to every cabinet.

Name two ways a shelf could be added to every cabinet.

1. _____

2. _____

Use the following information to answer Questions 7–9.

A client has asked you to make a bookcase in 19 mm veneered particle board (VPB). The bookcase is 2000 mm high × 1400 mm wide × 350 mm deep, with five shelves and a 4 mm lay on ply back. VPB is available in sheets of 2100 mm × 350 mm × 19 mm, pre-edged on one long edge.

Question 7 (3 marks)

How many sheets of VPB are needed for the job? Use the cutting list below to show your working.

Cutting list				
Part	Number of parts	Length (mm)	Width (mm)	Sheets required
top/bottom	2	1364	350	
sides	2	2000	350	2 sheets
shelves	5	1364	350	
Total number of sheets required				
Working space				

Question 8 (2 marks)

What are the length and the width of the ply back?

_____ mm (length) × _____ mm (width)

Question 9 (4 marks)

List two tools that could be used to make the bookcase and state what each would be used for.

	Tool	Use
1		
2		

CONTINUES OVER PAGE

Use Figure 1 to answer Questions 10 and 11.

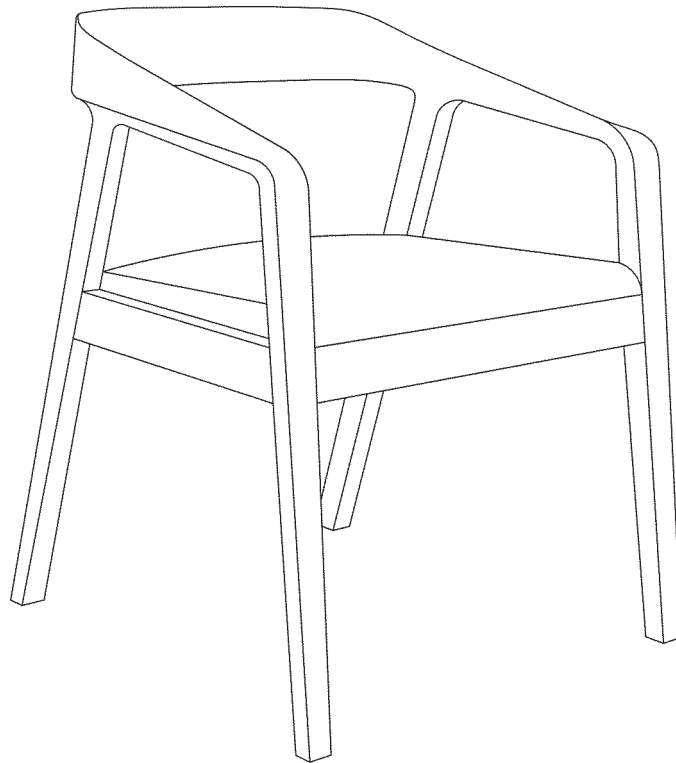


Figure 1

Question 10 (3 marks)

The chair shown in Figure 1 is made using dowel construction.

Complete the missing steps in the table below to cut out and shape the arms.

	Task
1	Complete the full-size set-out from the scale drawings/prototype.
2	
3	Select straight-grained timber.
4	Mark the timber using templates.
5	Cut on a band saw.
6	
7	Cut dowel joint surfaces.
8	Mark out and drill dowel joints.
9	

Question 11 (4 marks)

The chair in Figure 1 will be made from one of the timbers given in the table below.

	Timber properties					
	Appearance	Workability	Colour	Weight (kg/m³)	Strength (seasoned)	Source
River red gum	somewhat coarse grain; is commonly interlocked with frequent gum veins	hard and abrasive; glues and polishes well	rich red	910	medium; many defects may reduce strength	Australian native forest
Radiata pine	very distinctive early and late wood; knots are common	nails and glues well, except when resinous	pale early wood and rich honey-brown late wood	550	reasonably low	plantation
Tallowwood	straight grained; moderately coarse with interlocked grain	relatively easy to work; difficult to bond satisfactorily	pale to dark yellow-brown; indistinct figure	1000	high	Australian native forest
Tasmanian oak	straight grained; a strong and stable timber; sometimes with fiddleback	good all-round workability; planes, sands, finishes and glues well	pale pink to yellowish brown	650	reasonably high	plantation and Australian native forest
Western red cedar	fine, straight grain with visible growth rings	soft with good all-round workability	pale to rich, dark brown	350	very low	North American native forest

Select a timber and two properties of that timber from the table above. Give a reason why each property is important in chair construction.

	Timber chosen	
	Property	Reason
1		
2		

Use the following information to answer Questions 12–14.

Risk assessment – Drill press					
Identify task (Think about the work area and each stage of the work to be performed.)	Identify hazards (Against each stage/item, list the hazards that could cause injury/incident when performed.)	Risk rating (Refer to OH&S risk management procedure.)			Risk control measures (List the control measures required to eliminate or minimise the risk.)
		Consequence	Likelihood	Risk level	
Equipment – drill press	<ul style="list-style-type: none"> contact with uncontrolled rotating work piece rotating drill 	3	3	med	<ul style="list-style-type: none"> Always secure work. Never use a machine without the correct training from a teacher or qualified instructor. There should be no more than one student operating a machine or within the safety zone at one time. Always check that the safety guards are in place. Always wear appropriate personal protective equipment (PPE). Eyewear is mandatory. Some operations can be noisy, necessitating hearing protection. Operators must wear close-fitting protective clothing. No jewellery is to be worn. Long hair must be tied back or a hairnet worn. Sturdy footwear must be worn. Twist bits, forstner bits, spade bits, hole saws and other cutting tools must be sharp and in sound condition. Use the correct drill speed for the diameter of the twist drill and material. Report any incidents or faults immediately to a technician or a teacher. Place an 'out of order' sign on the drill until the fault has been rectified.
	<ul style="list-style-type: none"> entanglement – Clothing, hair and hands may be caught and pulled into the unprotected chuck or spindle. 	3	2	med	<ul style="list-style-type: none"> Always check that the safety guards are in place. Always wear appropriate PPE. Eyewear is mandatory. Operators must wear close-fitting protective clothing. No jewellery is to be worn. Long hair must be tied back or a hairnet worn. Sturdy footwear must be worn.

<ul style="list-style-type: none"> • flying chips and material <ul style="list-style-type: none"> – Chips and swarf can be thrown into the operator's face during operation, resulting in an eye injury. – Certain types of dust may cause an allergic reaction. 	3	2	med	<ul style="list-style-type: none"> • Always secure work. • Always check that the safety guards are in place. • Eyewear is mandatory. • Twist bits, forstner bits, spade bits, hole saws and other cutting tools must be sharp and in sound condition. • Use the correct drill speed for the diameter of the twist drill and material.
<ul style="list-style-type: none"> • unfamiliar with equipment <ul style="list-style-type: none"> – incorrect use, lack of training 	3	2	med	<ul style="list-style-type: none"> • Conduct a toolbox meeting to train users on the safe use of power tools and to read through the appropriate manual. • Work through SWMS or risk assessment forms. • Ensure the user is trained and qualified to use power tools.
<ul style="list-style-type: none"> • burns from <ul style="list-style-type: none"> – hot chips – hot job – hot drill 	2	2	low	<ul style="list-style-type: none"> • Care must be taken with blades or drill bits directly after use as they can become very hot after use. • In the case of metal, care must be taken with material being drilled or cut as it can become hot.
<ul style="list-style-type: none"> • musculoskeletal injuries • back injuries 	2	3	med	<ul style="list-style-type: none"> • Take breaks from using power tools every 10–15 minutes by changing tasks, e.g. collecting offcuts and stretching. • Perform stretches before and after the use of power tools.

Risk ratings

Likelihood

Descriptor	Level	Definition
rare	1	The event may occur only in exceptional circumstances.
unlikely	2	The event may occur at some time, say once in 10 years.
possible	3	The event should occur at some time, say once in three years.
likely	4	The event will probably occur in most circumstances, say once a year.
almost certain	5	The event is expected to occur in most circumstances, say many times a month.

Consequence

Descriptor	Level	Definition
insignificant	1	no injury
minor	2	injury or ill health requiring first aid
moderate	3	injury or ill health requiring medical attention
major	4	injury or ill health requiring hospital admission
severe	5	fatality

Question 12 (2 marks)

Janet is using the drill press to make holes for hinges.

- a. In the section entitled 'Identify hazards' on pages 14 and 15, what is the most likely cause of injury when undertaking this task? 1 mark

- b. What is the likelihood of the injury given in **part a.** occurring? List the descriptor and the level. 1 mark

Question 13 (2 marks)

List **two** risk control measures that can be taken to eliminate or minimise the risk of chips and material flying into the operator's face when using the drill press.

Question 14 (2 marks)

When using the drill press, the risk of chips and material flying into the operator's face during operation and causing an injury is at likelihood level 2.

What are the consequence and definition for level 2?

Consequence _____

Definition _____

SECTION C – Case study**Instructions for Section C**

Please remove the insert from the centre of this book during reading time.

Use the case study provided in the insert to answer the questions in this section.

Use explanatory diagrams, charts and sketches if you believe they will improve your answers.

Answer **all** questions in the spaces provided.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1 (8 marks)

Complete the missing information in the cutting list below.

Item no.	Item name	No. of pieces	Length (mm)	Width (mm)	Thickness (mm)	Remarks	Material
1	top	1		444	20	6 mm pencil round over	
2	carcase bottom	1	1060	450	20		
3	carcase top	1		450	20		
4	sides	2	1310	450	20		
5	shelves	3	1087		20	6 mm pencil round front edges	
6	back		1310	127	12	120 cover	
7	door top rails	2	420	55	20		
8	door bottom rails	2	420		20		
9	stiles	4		55	20		
10	top facing	1	950	55	20		
11	bottom facing	1	950	55	20		
12	legs	4	210	55			
13	rails	2	950	55	20		
14	side rails	2		55	20		
15	corner blocks	4	150	90	35		

Question 2 (5 marks)

Complete the job plan for the carcass of the bookcase by filling in the blanks in the table below.

Section	Step	Tools/equipment required
carcase	Select timber and set-out for sides, top and bottom panels.	tape measure
	Mark and cut biscuits for sides, top and bottom panels.	
	Glue sides, top and bottom panels.	
	Machine and cut to size all parts.	thicknesser, panel saw
	Mark out the joints.	marking and measuring tools
	Make biscuit joints.	biscuit jointer, dust extractor, personal protective equipment (PPE)
	Rout rebates for back.	
	Sand all internal faces.	orbital sander, dust extractor, PPE
	Chisel rebate corners.	chisel, mallet, vice
	Glue and clamp carcass.	clamps, clamping blocks
	Pencil round front edges.	
		orbital sander, dust extractor, PPE

Question 3 (3 marks)

Complete the quotation below by filling in the blank boxes.

		Really Grate Furniture Company
Quotation:	Clever Buyer	
	1238 Gertrude Street	
	Fitzroy 3065	
Quotation number:	36	
Date:	2/03/2016	
ABN:	99 108 596 405	
Item description:		Cost:
Bookcase as per plans supplied		\$5370
Delivery and installation		\$280
Cost:		\$5650
Plus 10% GST		
Total:		\$6215
Payment:	30% deposit on confirmation of order	
	Balance on delivery	
Delivery:	Delivered and installed: 1238 Gertrude Street Fitzroy 3065	
	This quotation is valid for 30 days.	E&OE

Question 4 (7 marks)

- a. Your employee, James, has just completed gluing three pieces of Tasmanian blackwood for the bookcase top using polyvinyl acetate (PVA).

Polyvinyl acetate adhesive

- a high-quality adhesive for wood, paper, cork and most porous surfaces
- will not stain timber
- dries clear
- water clean-up
- non-toxic
- not suitable for waterproof gluing

Directions for use

- Shake the bottle to ensure adhesive is well mixed prior to use.
- Surfaces to be bonded must be close-fitting, dry and clear of grease, wax and oils.
- Apply a thin film to both surfaces.
- Clamp or weigh down for one hour to achieve a partial bond.
- Full strength is attained after 12 hours at 20 °C and 50% humidity.

Refer to the information given above. How long should James wait before the top can be unclamped and machined if the temperature is 20 °C?

1 mark

- b. Corner blocks must be fitted to the base of the bookcase.

Provide **two** reasons for fitting corner blocks.

2 marks

- c. If the shelves are evenly spaced, what is the spacing between them? Show your working.
A diagram may be used.

2 marks

Working space	
Spacing between shelves	

- d. If the client asked for four shelves, all evenly spaced, what would the spacing between the shelves be now? Show your working.

2 marks

Working space	
Spacing between shelves	

Question 5 (2 marks)

What are the **two** most common causes of twist or wind in a timber door when it is being assembled?

Question 6 (2 marks)

What are the length and width of the glass in the doors? Allow for 1 mm clearance on all edges.

Length _____

Width _____

Question 7 (2 marks)

How is the glass fitted to the doorframe?

Question 8 (2 marks)

The doors are set back 6 mm from the front of the carcass. Both front edges of the carcass have a 6 mm pencil round as a feature.

- a. Which tool should be used to make the pencil round? 1 mark

- b. What is the radius of the pencil round? 1 mark

Question 9 (3 marks)

The bookcase is to be prepared for polishing and transport.

- a. What is the finest grade of abrasive paper that should be used on the bookcase? 1 mark

- b. List **two** ways to prevent the ends of the legs from chipping. 2 marks

Question 10 (3 marks)

The sides of the bookcase are 450 mm wide. The timber is only available at a width of 125 mm.

Which power tool should be used to make the joint and what steps should be followed in making the joint?

Power tool _____

Step 1 *Mark out timber for joint.* _____

Step 2 _____

Step 3 _____

Step 4 *Glue and clamp the boards.* _____

Question 11 (3 marks)

When making the biscuit joint to join the boards together, what PPE should be worn?

Insert for Section C

Please remove from the centre of this book during reading time.

Your client has requested a bookcase with the following specifications:

- all timber to be solid Tasmanian blackwood
- three adjustable internal shelves
- adjustable shelves set back 6 mm from inside of doors
- glass doors 4 mm float glass
- 12 mm solid timber tongue and groove panelled back
- all timber 20 mm thick
- front edges of the carcass to be 6 mm pencil round
- top to be set back 6 mm and 6 mm pencil round
- door and base dowel construction
- carcass biscuit construction
- all widening joints to be biscuit joints

TURN OVER

