

2016 VCE VET Furnishing examination report

General comments

The questions on the 2016 VCE VET Furnishing examination assessed the underpinning knowledge of the competencies students had studied in Units 3 and 4.

Overall, many students did well in the examination. Their overall knowledge of the safety aspects associated with their study of VCE VET Furnishing was good.

Many students could read drawings and work out details and measurements associated with the completion of a project. Students could articulate the practical use of tools and equipment well.

Students also showed that they have knowledge of work order and progression, and can articulate responses that reflect that learning. Some students need improvement in reading a drawing and measurement.

Areas of strength in 2016 included:

- ability to answer multiple-choice questions
- ability to articulate answers
- understanding of basic mathematical problems.

Areas of weakness in 2016 included:

- hardware selection and construction knowledge
- generalised and basic work plans
- ability to interpret diagrams.

Specific information

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

Section A – Multiple-choice questions

The table below indicates the percentage of students who chose each option. The correct answer is indicated by shading.

Question	% A	% B	% C	% D	% No answer	Comments
1	8	39	38	14	0	The cap iron should be fitted up to 1.5 mm back from the cutting edge of the plane blade. The other options are either too minimal or excessive.
2	15	20	26	37	1	The brad-point bit is the correct bit. It can be purchased at a hardware supplier, or a metal twist drill bit can be purchased and a brad-point can be applied using a bench grinder. The bench grinder is also used to sharpen bits when blunt.
3	0	5	91	4	0	A Phillips screwdriver is used in the assembly process. The allen key and nut driver have a hexagonal head, and the straight screwdriver is not tapered, making all three options unsuitable.
4	2	9	85	4	0	
5	72	18	2	8	0	Everyone is responsible, although actual responsibilities can vary at different levels of command.
6	39	24	14	22	0	The cabinet scraper, correctly sharpened, is the ideal tool to use in this instance. The flat file, jointing plane and spokeshave are generally used in other woodworking tasks. The spokeshave could be used to remove paper tape used for veneering but, unless very sharp, this would run the risk of 'tearing' out the grain. The cabinet scraper is the best choice.
7	3	23	2	72	0	The mortise and tenon joint is best used in this instance, as it is the true leg and rail construction joint, besides the dowel joint.
8	25	23	20	30	1	Knockdown fittings can be used on both sheet materials and/or solid timber. Knockdown fittings are not confined to tables and chairs, and fittings are generally seen as part of the design.
9	5	90	2	3	0	Both options C and D are predominately drawer construction, and bookshelves (option A) are solid timber construction or manufactured board construction.

Question	% A	% B	% C	% D	% No answer	Comments
10	71	0	0	29	0	It is not necessary to wear leather gloves; it may also be unsafe to do so. The other three forms of protection are indeed deemed necessary (standard work safety wear).
11	2	3	2	93	0	A wooden mallet should always be used in conjunction with a chisel. A hammer can damage a chisel and/or reduce its longevity.
12	3	1	78	18	0	Timber clamping blocks can protect the timber stiles/rails from damage and enable the joint to be adjusted for square, wind and flatness (door on the same plane).
13	16	22	58	4	0	The top is 500 mm × 500 mm minus 40 mm for 20 mm overhang either side = 460 mm; minus 2 × 45 mm for each leg thickness = 90 mm. Therefore, 460 mm – 90 mm = 370 mm
14	92	3	0	5	0	Legs to rails, as in leg and rail construction, is correct. The other options would generally require screws to join metal to timber. Sheet materials (manufactured boards) are generally joined using screws or knockdown fittings.
15	7	0	0	93	0	Each piece of furniture is different and, in most cases, each piece requires much thought and application. Generally, each item should be assembled according to the designer's or tradesperson's instructions.
16	13	80	4	3	0	Option A is missing the back. Option C is incorrect, as some of the shelves may be adjustable and the back is also missing. Option D is also incorrect, as no back is listed and shelves are unlikely to be made using offcuts.
17	52	13	21	13	1	The door stiles are the vertical components in the doorframe. They are held apart by the rails (usually two – one top and one bottom rail).
18	8	63	9	19	1	Option B is the correct answer because, in mitres, each rail (horizontal) or stile (vertical part) is joined using a biscuit joiner or dowel (for example, in a picture frame).

Question	% A	% B	% C	% D	% No answer	Comments
19	0	4	57	39	0	Most chairs will both slope backwards and downwards and also slope inwards to narrow the back of the chair, all to provide comfort for the user.
20	8	18	1	73	0	

Section B – Short-answer questions

Question 1

Marks	0	1	Average
%	85	15	0.2

Each diner needs 600 mm of elbow room.

$$1200 \times 3.14 = 3768/600 = 6.28$$

Therefore, the dining table could comfortably seat 6 people (diners).

Question 2

Marks	0	1	2	3	4	Average
%	21	5	33	14	26	2.2

Task	Power tool	Reason
cut top oversize	jigsaw	<ul style="list-style-type: none"> can cut curves; easy to use because of size, it can be operated on the bench
clean up cut edge or trim edge	belt sander and/or portable electric router fitted with a roller cutter	good finish, accurate; clean edge, especially if a template is available to run off

Question 3

Marks	0	1	2	3	Average
%	9	48	30	12	1.5

1. Carcase joiners – joining cabinets/sides to other cabinets/carcases
2. Assembling knockdown furniture – an allen key fixing sides and/or ends to a rail, bottom or shelf
3. Leg and rail joints – dowels for joint construction and/or joining timber together

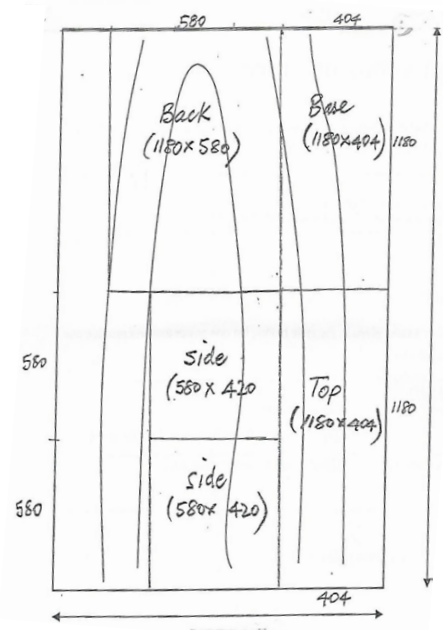
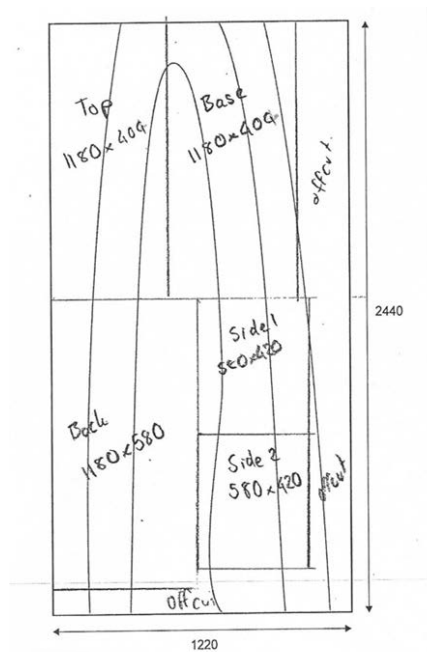
Question 4

Marks	0	1	2	3	4	Average
%	27	24	23	16	10	1.6

Many students found this question difficult. Scaling the drawing along with aligning the grain to suit the cutting process was not handled well.

Some students did not indicate measurements or include part names. On the other hand, a few students were able to handle this question well.

The following are examples of correct responses.



Question 5

Marks	0	1	2	3	4	Average
%	26	19	20	14	20	1.8

	Operation	Tools or equipment required
1	grinding	electric bench grinder, PPE
2	honing	whetstone, oil stone, oil, honing machine (water lubricated), leather strop, water

Students generally related the various steps involved to their coursework experience.

Question 6

Marks	0	1	2	Average
%	30	44	26	1

Acceptable responses included:

- fixed – fixed by screws through the sides
- adjustable – with holes and supports
- routing out trenches to accommodate the shelf; insert from the back of the cabinet.

Generally, students gave minimal answers to this question, with references to flat-pack assembling tasks, the use of cleats screwed to sides and the use of shelf pins.

Question 7

Marks	0	1	2	3	Average
%	16	44	4	36	1.6

Cutting list				
Part	Number of parts	Length (mm)	Width (mm)	Sheets required
top/bottom	2	1364	350	2 sheets
sides	2	2000	350	2 sheets
shelves	5	1364	350	5 sheets
Total number of sheets required				9 sheets

Question 8

Marks	0	1	2	Average
%	28	25	46	1.2

2000 mm (length) × 1400 mm (width), with 1992 × 1392 when allowing for 'set back'

Some students did not allow for 'set back'; others added instead of taking away the set back space.

Question 9

Marks	0	1	2	3	4	Average
%	6	11	18	20	44	2.9

Tool	Use
biscuit cutter	joints
cabinet scraper	cleaning edges of veneer and ends
circular saw	cut sheets to length
file	cleaning of veneer edge
sanding cork	abrasive paper to clean up bookcase

Some students did not address all parts of this question. Students are strongly advised to ensure that they take note of all key words in a question. Most students did this well.

Question 10

Marks	0	1	2	3	Average
%	20	49	25	6	1.2

	Task
1	<i>Complete the full-size set-out from the scale drawings/prototype.</i>
2	Make templates for plan and elevation.
3	<i>Select straight-grained timber.</i>
4	<i>Mark the timber using templates.</i>
5	<i>Cut on a band saw.</i>
6	Shape using spokeshaves and rasps.
7	<i>Cut dowel joint surfaces.</i>
8	<i>Mark out and drill dowel joints.</i>
9	Finish using sanding machines, etc.

Question 11

Marks	0	1	2	3	4	Average
%	11	8	11	22	47	2.9

The following is an example of a possible response.

	Timber chosen	Tasmanian oak
	Property	Reason
1	strength	necessary for chair parts generally, plus strength is needed for the back section and side arms
2	good gluing/workability	necessary to make effective joints; will be able to be readily shaped with tools

Question 12a.

Marks	0	1	Average
%	32	68	0.7

Acceptable responses included:

- point of operation
- contact with an uncontrolled work piece.

Question 12b.

Marks	0	1	Average
%	27	73	0.7

Acceptable responses included:

- descriptor Level 3
- the event may occur at some time, once in 3 years.

Both parts were required for full marks. Partial responses were not awarded any marks.

Question 13

Marks	0	1	2	Average
%	3	12	85	1.8

Acceptable responses included:

- 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 diameter of twist drill and material.

Generally, students completed this question well; students tend to know the safety aspects well.

Question 14

Marks	0	1	2	Average
%	13	13	74	1.6

Consequence: injury or ill health requiring first aid

Definition: minor/2

Some students' responses were not specific enough to the given example. To achieve full marks, students were required to decipher the statements provided, articulate the consequences and identify the definitions.

Section C – Case study

Marks	0	1	2	3	4	5	6	7	8	Average
%	4	17	18	28	14	8	3	5	2	3.1

Item no.	Item name	No. of pieces	Length (mm)	Width (mm)	Thickness (mm)	Remarks	Material
1	top	1	1088	444	20	6 mm pencil round over	
2	carcase bottom	1	1060	450	20		
3	carcase top	1	1060	450	20		
4	sides	2	1310	450	20		
5	shelves	3	1087	406	20	6 mm pencil round front edges	
6	back	1	1310	127	12	120 cover	
7	door top rails	2	420	55	20		
8	door bottom rails	2	420	67	20		
9	stiles	4	1200	55	20		
10	top facing	1	950	55	20		
11	bottom facing	1	950	55	20		
12	legs	4	210	55	55		
13	rails	2	950	55	20		
14	side rails	2	320	55	20		
15	corner blocks	4	150	90	35		

Generally, students struggled with this question. The visualisation process proved difficult, along with the addition and subtraction process. Some were able to process the question correctly. These students were able to read a drawing correctly and received high marks for the question.

Question 2

Marks	0	1	2	3	4	5	Average
%	2	4	14	33	26	21	3.4

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

This question was answered well by many students. They were able to take a cue from the step process and match the step and the list of tools and equipment to the task.

Question 3

Marks	0	1	2	3	Average
%	15	21	12	51	2

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		\$565
Total:		\$6215
Payment:	30% deposit on confirmation of order	\$1864.50
	Balance on delivery	\$4350.50
Delivery:	Delivered and installed: 1238 Gertrude Street Fitzroy 3065	
	This quotation is valid for 30 days.	E&OE

This question was well answered by many students.

Question 4a.

Marks	0	1	Average
%	4	96	1

12 hours

This answer was found by reading the 'Directions for use' section. The fifth dot point is 'Full strength is attained after 12 hours at 20 °C and 50% humidity.'

This question was well answered by students.

Question 4b.

Marks	0	1	2	Average
%	20	51	29	1.1

Acceptable answers were:

- adds strength to joints
- provides point for screwing the part together and helps to keep the base solid and square.

Question 4c.

Marks	0	1	2	Average
%	78	15	7	0.3

Spacing between shelves = 285 mm or 294 mm (293.75 mm)

Most students chose to determine the solution by identifying the elements of the drawing, subtracting the relevant parts and then dividing by the number of spaces equally. Many students were challenged by this question; few were able to process the correct spacing(s).

One answer was calculated in the following way:

- $1540 \text{ mm (overall height)} - 210 \text{ mm (base)} = 1330 \text{ mm} - 75 \text{ mm (top/top rail)} = 1255 \text{ mm} - 55 \text{ mm (bottom rail section)} = 1200 \text{ mm} - 60 \text{ mm (3 x shelf thicknesses)} = 1140 \text{ mm}$
- Therefore: $1140 \text{ mm divided by 4 spaces between shelves} = 285 \text{ mm}$

The other answer was calculated in the following way:

- $1140 \text{ mm plus } 35 \text{ mm (extra space behind top rail)} \text{ divided by } 4 \text{ spaces} = 293.75 \text{ mm taken to the nearest whole number} = 294 \text{ mm}$

Question 4d.

Marks	0	1	2	Average
%	80	14	6	0.3

Spacing between shelves = 224 mm or 231 mm

- $1540 - 20 \text{ (less top)} = 1520 - 55 \text{ (facing/inside top)} = 1465 - 55 \text{ (bottom + facing)} = 1410$, less base $- 210 = 1200 - 80 \text{ (4 shelves)} = 1120$ divided by 5 equal spaces = 224 mm
- $1540 - 20 \text{ (less top)} = 1520 - 20 \text{ (less inside top)} = 1500 - 55 \text{ (bottom + facing)} = 1445$, less base $- 210 = 1235 - 80 \text{ (4 shelves)} = 1155$ divided by 5 equal spaces = 231 mm

Students did not complete this calculation very well and few answered correctly. This question required students to think clearly and use calculations accurately.

Question 5

Marks	0	1	2	Average
%	49	36	15	0.7

Acceptable responses included (any two of):

- the drawer is not measuring diagonally square
- the drawer sides are not parallel
- uneven bench/gluing surface/cramping blocks

- rails not square off the face
- dowel holes not aligned correctly
- cramps not parallel to rails
- damaged cramps
- incorrectly selected cramping blocks (too big/too small).

Question 6

Marks	0	1	2	Average
%	95	4	1	0.1

Length: 1096 mm (allows for 1 mm clearance for each rail – top/bottom)

Width: 438 mm (again allows for 1 mm clearance for each door stile – each side)

A few students were able to work out the correct answers. The process for answering the question was similar to that used for Questions 4c. and 4d.

Question 7

Marks	0	1	2	Average
%	81	13	6	0.3

Acceptable responses included:

- a rebate is in the back of the door for the glass to fit in
- a beading is attached in front of the glass from the rebated side by brads (small nails), to hold the glass securely in place after polishing.

Most students found it difficult to describe the process of fitting the glass and use the common terminology to describe what occurs. Some students handled this question well.

Question 8a.

Marks	0	1	Average
%	56	44	0.5

The tool that should have been used to make the pencil round was a router/trimmer.

Question 8b.

Marks	0	1	Average
%	59	41	0.4

The radius of the pencil round is 6 mm.

Question 9a.

Marks	0	1	Average
%	51	49	0.5

320 grit

Other grits that were acceptable were 240 and up to 320. The higher the number, the finer the grit and the smoother the finish.

Question 9b.

Marks	0	1	2	Average
%	53	26	21	0.7

Acceptable responses were (any two of):

- Remove the arris at the bottom of each leg. (The arris is the sharp edge at the bottom of a leg or any adjoining surface; it is usually another surface at right angles.)
- Attach 'hardware protectors' to the bottom of each leg (rubber feet, caps, glides, etc.).
- Bevel the base of the leg with a small plane, rough file or rasp, to prevent 'chipping'.

Question 10

Marks	0	1	2	3	Average
%	21	5	28	46	2

Power tool: biscuit jointer

Step 1: *Mark out timber for joint.*

Step 2: Cut the biscuit slots in the timber.

Step 3: 'Dry check' that the biscuit joint is accurate before gluing the joint together.

Step 4: *Glue and clamp the boards.*

Question 11

Marks	0	1	2	3	Average
%	6	5	23	65	2.5

Safety glasses, ear muffs (could also include dust mask, protective clothing, ventilation where necessary)