



## 7906-505 MARCH 2022

### Level 2 Technical Certificate in Architectural Joinery

#### Level 2 Architectural Joinery – Theory exam

**Monday 14 March 2022**  
**13:30 – 15:30**

**You should have the following for this examination**

- a multiple-choice answer sheet
- a pen with black or blue ink
- a non-programmable calculator

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**This question paper is the property of City & Guilds Limited and is to be returned after the examination.**

#### **Read the following notes before you answer any questions**

- You **must** use a pen with black or blue ink to complete **all** parts of the answer sheet.
- Check that you have the correct answer sheet for the examination.
- Check that your name and candidate details are printed correctly at the top of your answer sheet.
- Inform the invigilator if your name or examination details are not correct.
- Each question shows **four** possible answers (lettered 'a', 'b', 'c' and 'd'); only **one** is correct.
- Decide which **one** is correct and mark your answer on the **answer sheet** with your pen.

For example if you decide 'a' is correct, mark your answer like this

101	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Cancel	Cancel	Cancel	Cancel

If you want to change your answer, cancel your first choice by filling in the 'cancel' box below the circle like this

101	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Cancel	Cancel	Cancel	

Then mark the answer which you have now decided is correct. For example if you now decide 'c' is correct, mark your answer like this

101	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Cancel	Cancel	Cancel	

Any other marks on the form may invalidate some of your answers.

- Any calculations or rough working can be done on the question paper.
- Attempt all questions. If you find a question difficult, leave it and return to it later.

**This paper contains 60 questions. Answer them using the 'boxes' numbered 1 to 60 on the answer sheet.**

1 A housing development is being built. Which type of construction work is this?

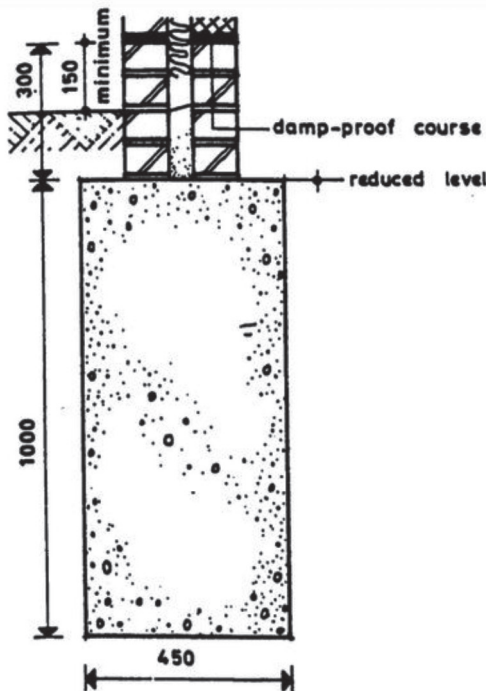
- a Industrial.
- b Domestic.
- c Conversion.
- d Renovation.

2 Which scale is used to draw floor plans for houses?

- a 1:10
- b 1:50
- c 1:750
- d 1:1250

3 Which Regulation specifically covers the use of adhesives?

- a COSHH.
- b PUWER.
- c HASAWA.
- d RIDDOR.

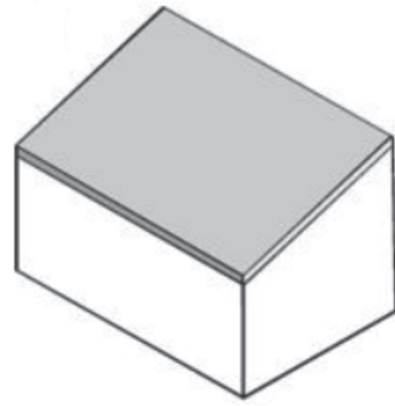


Foundation – published anonymously – <https://slideplayer.com>

**Figure 1**

4 Which type of foundation is shown in Figure 1?

- a Pad.
- b Pile.
- c Deep strip.
- d Reinforced raft.



Roof – published anonymously – bambubuild.com

**Figure 2**

5 What type of roof is shown in Figure 2?

- a Hipped.
- b Valley.
- c Duo pitch.
- d Mono pitch.



Joinery component – published anonymously – [www.howdens.com](http://www.howdens.com)

**Figure 3**

6 What will be the finished product when the components in Figure 3 are assembled?

- a Door lining.
- b Window frame.
- c Apron lining.
- d Box frame.

7 At what degree would a sliding bevel be set to mark out the plumb cut of a half pitch roof?

- a At 15°
- b At 30°
- c At 45°
- d At 60°

- 8 Why is it important to consider material storage when pre-planning a site layout?
- a To avoid double handling.
  - b To avoid the need for skips.
  - c To limit neighbourhood noise.
  - d To eliminate the need for security.

1 Number of people at work	2 Number of cubicles	3 Number of washbasins
1 to 5	1	1
6 to 25	2	2
26 to 50	3	3
51 to 75	4	4
76 to 100	5	5

HSE.gov.uk

**Table 1**

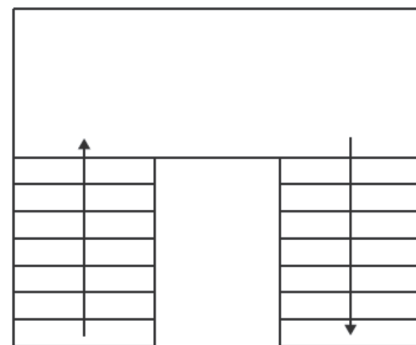
- 9 Table 1 shows an extract from the Workplace (Health, Safety and Welfare) Regulations 1992. What is the **minimum** number of cubicles required for a joinery shop with 19 joiners, 4 wood machinists, 2 labourers and a supervisor?
- a 2 cubicles with 2 wash basins.
  - b 2 cubicles with 3 wash basins.
  - c 3 cubicles with 2 wash basins.
  - d 3 cubicles with 3 wash basins.

- 10 Which element is the **second** to be installed in a new build house?
- a Floorboard.
  - b Door lining.
  - c Architrave.
  - d Studwork.

- 11 An operative has been asked to order the skirting boards for a rectangular room measuring 5.2 m long and 3.3 m wide, including an 800 mm wide door and a 1200 mm wide window. How many metres of skirting boards are required?
- a 15.0 m
  - b 16.2 m
  - c 17.0 m
  - d 17.8 m

- 12 An operative has been asked to calculate the amount of emulsion paint required to decorate a room measuring 4.1 m x 3.4 m with a ceiling height of 3 m. The covering capacity of paint is 9 m<sup>2</sup>/litre. How many 5 litre tins of emulsion paint would be required to apply two coats of paint to the walls?
- a 1
  - b 2
  - c 3
  - d 4

- 13 Which document is supplied by the product manufacturer when requested by the setter out, to provide information about their resources?
- a Requisition order.
  - b Material data sheet.
  - c Building Regulations.
  - d Bill of Quantities.



**Figure 4**

- 14 What type of staircase is shown in Figure 4?
- a Helical.
  - b Dog-leg.
  - c Winding.
  - d Open well.

15 Which conversion method produces the **most** suitable timber for floor joists?

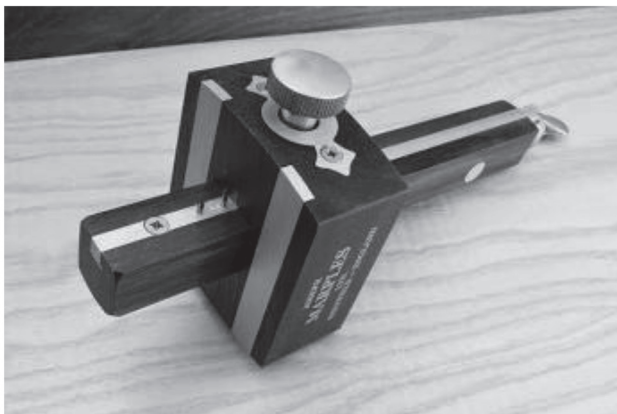
- a Tangential.
- b Quarter cut.
- c Boxed heart.
- d Through and through.

16 What timber is **most** commonly used as a plywood veneer?

- a Ash.
- b Oak.
- c Birch.
- d Elm.

17 Which adhesive is emulsion based?

- a PU.
- b PVA.
- c Phenol formaldehyde.
- d Melamine formaldehyde.



Gauge – publish anonymously – <https://www.workshopheaven.com>

**Figure 5**

18 What type of gauge is shown in Figure 5?

- a Cutting.
- b Mortice.
- c Marking.
- d Combination.

19 A pair of single action doors are to be fitted. What ironmongery is required?

- a Hinges, 1 pair of push plates, 1 pair of handles and a door selector.
- b Hinges, 2 pairs of handles, 2 pairs of push plates and a door selector.
- c Hinges, 2 pairs of push plates and 4 flush bolts.
- d Hinges, 1 pair of handles and 4 flush bolts.

20 A window frame has been constructed so the head and cill have no horns. Why are the joints secured with star dowels rather than by wedging?

- a To prevent the cill and head splitting when the star dowel is driven.
- b To prevent the remaining inside wedge pushing the joint open.
- c The wedges restrict the removal of the horns.
- d The star dowels will act as a draw-bore.

	<b>Timber</b>	<b>Dovetail angle</b>
W	Oak	1:6
X	Whitewood	1:8
Y	Redwood	1:6
Z	Beech	1:8

**Table 2**

21 Which two options in Table 2 correctly match the dovetail angle required for the timber being jointed?

- a W and X
- b X and Y
- c Y and Z
- d Z and W

22 What is the benefit of using kiln dried timber?

- a To make it pliable.
- b To preserve the wood.
- c To kill any fungus present.
- d To reduce the seasoning time.

23 The hypotenuse dimensions of a step are required to be marked along the margin line of a stair string. Which tool will step this dimension off **most** accurately?

- a 200 mm pair of spring bow compasses.
- b 200 mm pair of quadrant dividers.
- c 400 mm trammel beam.
- d 600 mm steel rule.

24 Which method produces consistently accurate results when marking out shoulder lengths of the transom rail for a batch of window frames?

- a Mark the transom out directly from the rod.
- b Mark the transom out from the pattern head.
- c Scale the transom shoulder length from the architects drawing.
- d Use a calculator to determine the shoulder length of the transom.

25 Match the moisture content in List 1, with the final position the timber is to be used in List 2.

**List 1**

- 1 7-9%
- 2 11-13%
- 3 14-16%
- 4 17-19%

**List 2**

- W Staircase.
- X Window.
- Y Roof truss.
- Z Radiator casings.

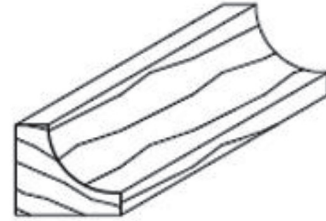
	W	X	Y	Z
a	1	2	3	4
b	2	3	4	1
c	3	2	4	1
d	4	1	3	2

26 What is used to reinforce the joint between the tread and riser?

- a Shrinkage plates.
- b Corner brackets.
- c Folding wedges.
- d Glue blocks.

27 Which joint is used to connect a muntin to a top rail in panelled door construction?

- a Housing.
- b Dovetail.
- c Stub tenon.
- d Corner bridle.



Moulding – published anonymously – <https://solumber.com>

**Figure 6**

28 What type of moulding profile is shown in Figure 6?

- a Torus.
- b Ovolo.
- c Scotia.
- d Thumb.

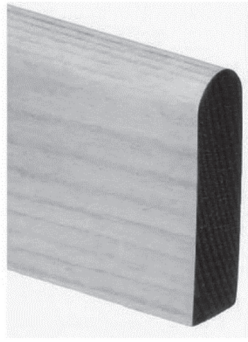


Ironmongery – published anonymously – <https://media.screwfix.com>

**Figure 7**

29 What item of ironmongery is shown in Figure 7?

- a Casement stay.
- b Sash fastener.
- c Ratchet bolt.
- d Norfolk latch.



Moulding – published anonymously – www.builderdepot.co.uk

**Figure 8**

- 30 What is the purpose of the moulded component shown in Figure 8?
- To separate vertical sliding sashes.
  - To trim around a door frame.
  - To increase the thickness of a stair tread.
  - To provide capping to a stair string.
- 31 How can a handrail be pulled tight to a newel on-site?
- With the use of folding wedges.
  - With the use of foxed wedging.
  - With the use of star dowels.
  - With the use of draw dowels.
- 32 Why is a dowel grooved along its length?
- To allow a smaller hole to be bored.
  - To prevent break out on the remote face.
  - To allow excess glue to escape from the hole.
  - To prevent it from splitting.
- 33 What is the purpose of a mullion?
- It provides a means of dividing a window into sections.
  - It provides a means of dividing a door into sections.
  - To provide a post in corner base unit construction.
  - To provide a post in stair construction.

- 34 An operative has been given the data below and asked to calculate the horizontal measurement between the top and the bottom newel of a staircase. What is this measurement?

**Data**

The flight had 5 risers.

The going is 250 mm.

The newels are 90 mm x 90 mm.

- 910 mm
  - 1000 mm
  - 1250 mm
  - 1160 mm
- 35 Match the mortice and tenon joint required in List 1, to the product position in List 2.

**List 1**

- Twin
- Franked
- Haunched
- Bare faced

**List 2**

- W Top rail to stile of a panelled door.  
 X Middle/lock rail to stile of a panelled door.  
 Y Bottom rail to stile of an ovolo moulded sash.  
 Z Bottom rail to stile of a framed ledged and braced door.

	W	X	Y	Z
a	2	1	3	4
b	4	3	2	1
c	3	1	2	4
d	3	2	4	1

- 36 This question consists of a statement and a reason. Which option relating to the statement and reason is correct?

**Statement**

In door construction, the glazed pane should be 5 mm smaller than the rebate size it sits in.

**Reason**

To allow for expansion of the glass.

- Statement false Reason true.
- Statement false Reason false.
- Statement true Reason true.
- Statement true Reason false.

37 Pattern components are being marked out for a batch of stairs. Which **two** components can be marked out directly from **each** other?

- a Newel and riser.
- b Riser and string.
- c String and handrail.
- d Handrail and riser.

38 Which Regulation specifically covers the safe use of a router table?

- a CDM.
- b COSHH.
- c RIDDOR.
- d PUWER.

39 What should be used to safely plane short lengths of timber on a surface planer?

- a False bed.
- b Push stick.
- c Push block.
- d Saddle board.

40 Which machine has a thrust wheel?

- a Spindle moulder.
- b Surface planer.
- c Thicknesser.
- d Bandsaw.

41 Which machine has a sliding table?

- a Wall saw.
- b Bandsaw.
- c Cross-cut saw.
- d Dimension saw.

42 Which machine is used when mitring bed mouldings to a panelled door?

- a Rip saw.
- b Wall saw.
- c Chop saw.
- d Cross-cut saw.



Woodworking machine part – published anonymously – <https://www.bricoutensili.com>

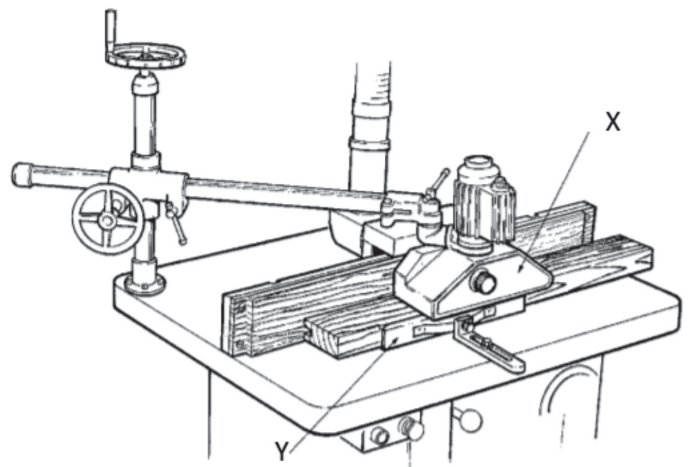
**Figure 9**

43 On which machine would the component in Figure 9 be fitted?

- a Rip saw.
- b Thicknesser.
- c Cross-cut saw.
- d Spindle moulder.

44 Which guard is set up to ensure a surface planer is used safely?

- a Bonnet.
- b Crown.
- c Bridge.
- d Nose.

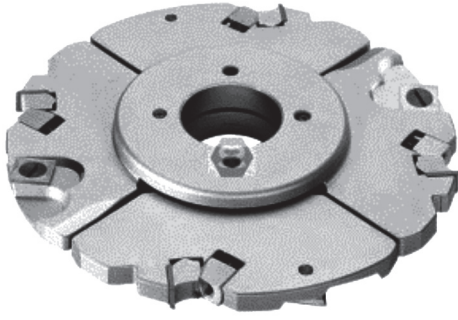


Spindle – published anonymously – [www.hse.gov.uk](http://www.hse.gov.uk)

**Figure 10**

45 Which spindle moulding component is shown at 'Y' in Figure 10?

- a False fence.
- b Shaw guard.
- c Crown guard.
- d Automatic feed.



Cutter block – published anonymously – <https://www.scosarg.com>

**Figure 11**

- 46 What type of cutter block is shown in Figure 11?
- Panel raiser.
  - Variable angle.
  - Variable profile.
  - Adjustable groover.
- 47 Which pre-start check is made prior to running a bandsaw machine?
- The bridge guard is correctly set.
  - The adjustable bed is locked.
  - The cutter block runs freely.
  - The tracking is set correctly.
- 48 What has to be adjusted when bevel cutting on a bandsaw?
- Table bed.
  - Cutter block.
  - Tracking wheel.
  - Guide assembly.
- 49 What **must** be marked on a circular sawing machine?
- The minimum saw blade speed.
  - The maximum saw blade speed.
  - The minimum saw blade diameter.
  - The maximum saw blade diameter.
- 50 Which is the next operation to be carried out after planing the face of the timber on a surface planer?
- Bringing to width.
  - Edging the timber.
  - Deeping the timber.
  - Bringing to thickness.
- 51 What depth of stub mortice is required for a stair string tenon, when jointed to a 95 mm square newel?
- 15 mm
  - 35 mm
  - 55 mm
  - 85 mm
- 52 What will be the effect if the extraction is blocked when bringing planed timber to thickness?
- Chip bruising will show on the face of the timber.
  - Varying dimensions of timber will be produced.
  - Tram lines will be produced on the face of the timber.
  - The timber will chatter as it passes by the cutter block.
- 53 Timber that has been machined on surface planer is showing pronounced pitch marks. What is the cause?
- The cutters are dull.
  - The feed speed is too fast.
  - The infeed table is set too high.
  - The cutter block is not balanced.
- 54 In what order are the following sections of timber machined to width?
- 45 mm x 16 mm
  - 80 mm x 32 mm
  - 34 mm x 34 mm
  - 120 mm x 32 mm
- 1, 2, 3, 4
  - 1, 3, 2, 4
  - 4, 2, 1, 3
  - 4, 3, 2, 1
- 55 Which machine has the following four components?
- Fence.
  - Drive belt.
  - Cutter block.
  - Adjustable infeed table.
- Morticer.
  - Thicknesser.
  - Surface planer.
  - Spindle moulder.



Spindle cutter – published anonymously – www.wealdentool.com

**Figure 12**

56 Which profile will be produced using the spindle cutter shown in Figure 12?

- a Handrail.
- b Sash stile.
- c Architrave.
- d Skirting board.

57 What is the cause of timber jamming immediately after passing over the cutter block when surfacing timber?

- a The infeed table is set too low.
- b The infeed table is set too high.
- c The outfeed table is set too low.
- d The outfeed table is set too high.

58 The back end of planed timber has dropped on to the cutter block when surfacing timber. What is causing this fault?

- a The false fence is not supporting the work.
- b The cutter block is projecting too far.
- c The outfeed table is too low.
- d The timber is not parallel.

59 A through mortice in a door stile is found to be offset in relation to its thickness. What has caused this fault?

- a The chisel has become blunt and is veering off.
- b The auger is loose in the chuck and boring out of true.
- c The depth stop has not been set accurately halfway though.
- d The face side has not been kept to the fence when rotated.

60 The stiles and rails of a door have been marked out. Using the information below what is the correct sequence of operation?

- W Mortice stiles.
- X Profile components.
- Y Cut tenons on bandsaw.
- Z Cut haunches on bandsaw.

- a W Z X Y
- b Y X W Z
- c Z X Y W
- d W Y X Z

**NOW GO BACK AND CHECK YOUR WORK**

- IMPORTANT -  
Are the details at the top of the answer sheet correct?  
Have you filled in your answers in INK in the appropriate boxes on the answer sheet?