

## HSC Exams by Topic.

### **TIMBER: Forestry, Timber Structure, Botanical Classification, Common Commercial Timbers, Conversion of Timber, Seasoning, Shrinkage, Defects, Preservation, Marketing & Costing.**

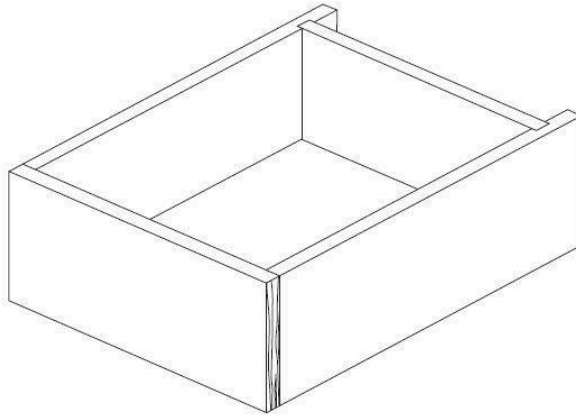
1. What is the aim of sustainable forestry?  
(A) To minimise pollution  
(B) To reduce the hole in the ozone layer  
(C) To ensure the continued availability of natural resources  
(D) To ensure that timber used in production is recyclable or reusable
2. What factors affect the hardness of timber?  
(A) Strength and elasticity  
(B) Toughness and durability  
(C) Colouring and shape of cells  
(D) Wall thickness and size of cells
3. What is a flitch?  
(A) An upholstery nail  
(B) The width of a saw cut  
(C) A component of a chisel  
(D) A timber size classification
4. What feature makes veneers cut from a burl desirable?  
(A) Checks  
(B) Colour  
(C) Tracheids  
(D) Wavy fibre alignment
5. What is monitored to reduce the amount of splitting in timber during seasoning?  
(A) pH  
(B) EMC  
(C) Temperature  
(D) Mineral content
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. The cutting list for a cabinet is given below. The cost of timber is \$6.50 per linear metre.

<i>Part</i>	<i>Quantity</i>	<i>Length (mm)</i>	<i>Width (mm)</i>	<i>Thickness (mm)</i>
Sides	2	600	300	25
Top/Bottom	2	1200	300	25
Shelves	1	1160	300	25

What is the approximate cost of the materials to make TWO cabinets?

(A) \$20.00  
(B) \$31.00  
(C) \$62.00  
(D) \$78.00

8. The diagram shows the details of a drawer.



All measurements are in millimetres.

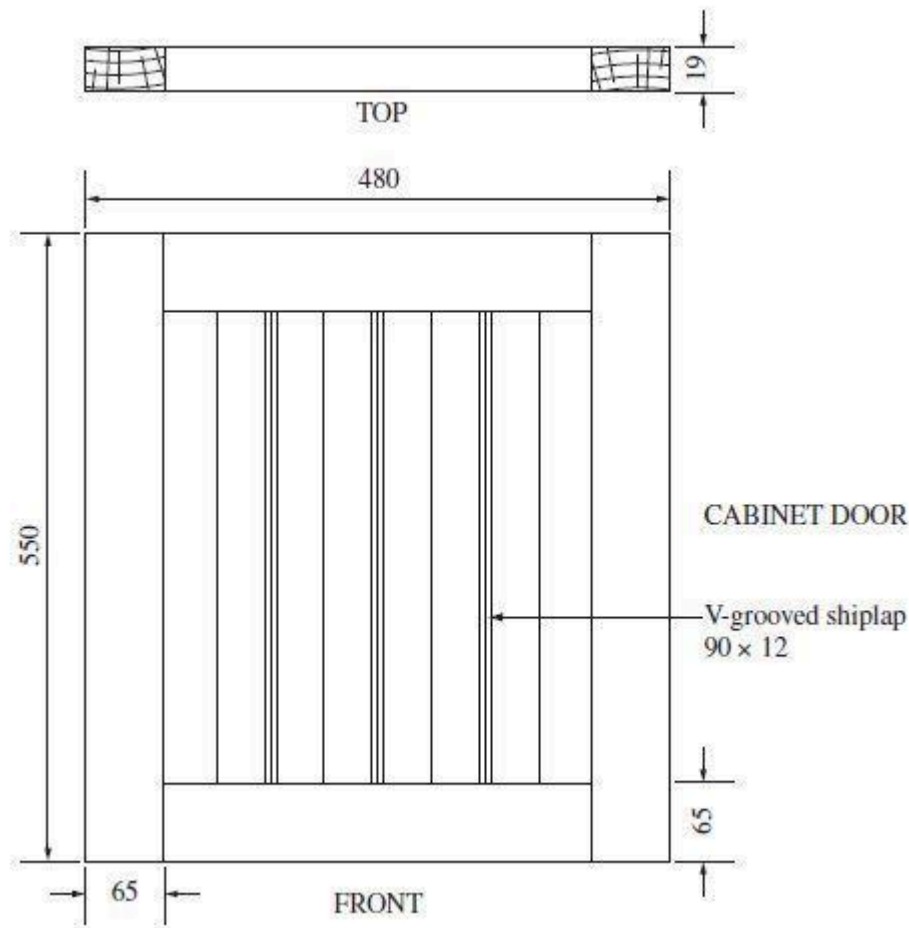
Part	Length	Width	Thickness	Quantity
Drawer front	400	190	19	1
Drawer side	450	190	12	2
Drawer back	380	175	12	1
Drawer base	440	380	3	1

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

9. A diagram and details of a cabinet door are shown.



Material costs	
140 × 19 hoop pine	costs \$7.50 per metre
70 × 12 hoop pine	costs \$6.50 per metre
140 × 12 hoop pine	costs \$6.50 per metre
70 × 19 hoop pine	costs \$3.80 per metre

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

- (A) 1 × 1800 × 70 × 19
- (B) 1 × 1800 × 70 × 12
- (C) 1 × 900 × 140 × 19
- (D) 1 × 900 × 140 × 12

10. A litre of lacquer covers an area of 7.5 square metres. If ONE litre of lacquer costs \$9.50, how much would it cost to apply TWO coats of lacquer on 25 dining tabletops (2500 mm × 1500 mm)?

- (A) \$71.25
- (B) \$118.75
- (C) \$187.50
- (D) \$237.50

11. The price of nails needed for a job is \$2.20 per 100 grams and 1000 of these nails weigh 400 grams.

How many nails could be purchased for \$35.20?

- (A) 4 000
- (B) 6 400
- (C) 12 800
- (D) 16 000

12. A seat requires 65 staples for the upholstery to be attached.

How many seats could be upholstered with a box of 5000 staples, allowing for a wastage of 2.5% staples?

- (A) 73
- (B) 75
- (C) 77
- (D) 79

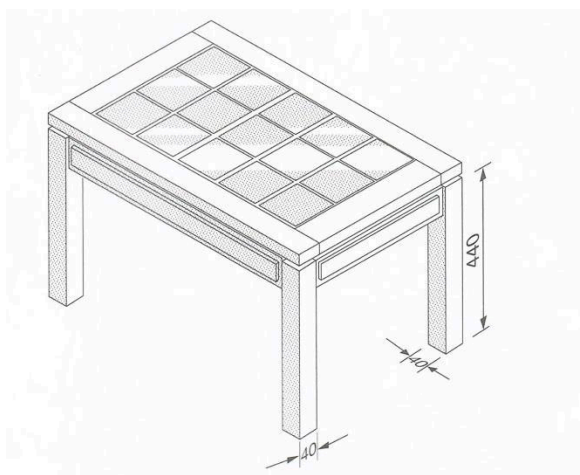
13. What is the main purpose of a materials list?

- (A) To identify the components
- (B) To assist in the assembly process
- (C) To identify the position of each component
- (D) To identify size, quantity and type of materials

14. The length of a cabinet top in a working drawing is measured at 75 mm. If the scale is 1:20 what is the actual length of the cabinet top?

- (A) 1500 mm
- (B) 3000 mm
- (C) 7500 mm
- (D) 15 000 mm

15. The diagram shows a design for a coffee table.



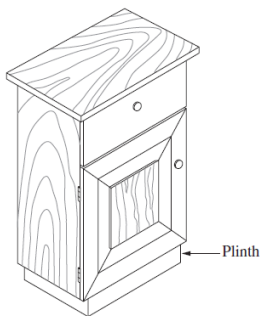
Approximately how many lineal metres of material are required to construct the legs of 28 coffee tables?

- (A) 45
- (B) 50
- (C) 55
- (D) 60

16. An entertainment unit has six doors each measuring 680 mm (H) ×425 mm (W).  
 Approximately how many 3600 mm ×900 mm veneered maple particleboard sheets are required to construct the doors for 46 entertainment units?  
 (A) 20  
 (B) 24  
 (C) 28  
 (D) 32

**Short answer style questions (section 2).**

17.A bedside cabinet is shown below. Use the drawing to answer the Question



Name TWO plantation timbers that can be used to construct this cabinet.  
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18. The photograph shows an Australian red cedar chair.



What is a sustainable plantation timber that could be used to manufacture the chair?  
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Very few chairs are now manufactured from solid Australian red cedar. Give two reasons for this.

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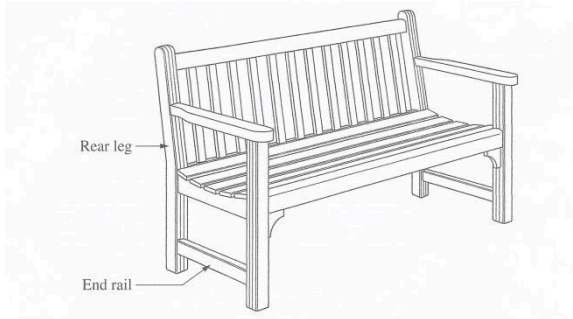
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19. An outdoor garden bench seat is shown.



Outline the properties that need to be considered in the selection of timber for the outdoor garden bench seat.

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20. What are the advantages of kiln seasoning over air seasoning?

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**MANUFACTURED BOARDS: Particleboard, Plywood, MDF, Masonite, Laminated beams, Fingerjoint, Trusses**

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

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

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**HAND TOOLS: Marking Out, Cutting, Boring, Holding, Impelling.**

26. Which marking tool is used to make two parallel lines along the edge of timber at the same time?

- (A) A cutting gauge
- (B) A marking gauge
- (C) A mortise gauge
- (D) A pencil gauge

27. What is the most appropriate tool for removing bent nails from timber?

- (A) A pair of pliers
- (B) A pair of pincers
- (C) A ball pein hammer
- (D) A Warrington hammer

28. Prior to honing, chisels are commonly ground to an angle within the range of

- (A) less than 20°.
- (B) 20° – 30°.
- (C) 40° – 50°.
- (D) greater than 50°.

29. 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.

**PORTABLE POWER TOOLS: Drills, Sanders, Saws, Planer, Routers & Trimmers, Biscuit/Domino, Staple/Nail, Glue/Heat, Air, Cordless**

A coffee table top has the edge shaped as shown.



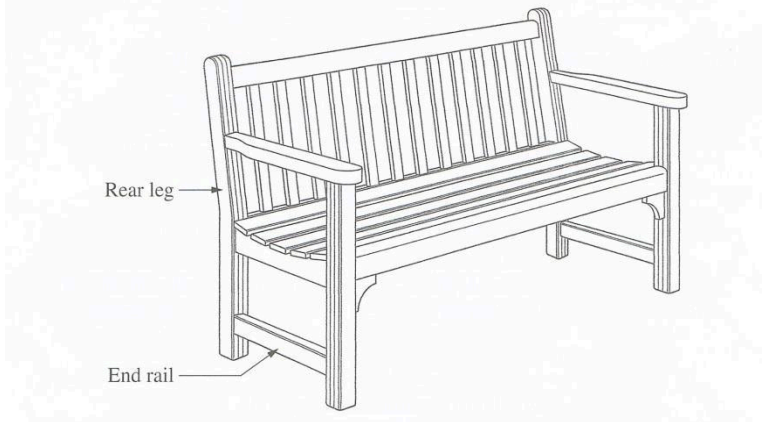
30. Which portable power tool was used to create the shape?

- (A) A router
- (B) A jigsaw
- (C) A rebate plane
- (D) A domino machine

**STATIC MACHINES:** Saws, Jointer/Thicknesser, Spindle Moulder, Mortising Machine, Horizontal Borer, Drill, Hinge Sinker/Multi-spindle Borer, Grinder, Sanders, Edge Bander, Post Former, Point to Point/CNC, Lathe.

**ADHESIVES:**

31. Which of the following is a non-waterproof adhesive?
- (A) PVA
  - (B) Hot melt
  - (C) Epoxy resin
  - (D) Urea-formaldehyde
32. 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
33. An outdoor garden bench seat is shown.



Name a suitable adhesive and justify its use in the construction of the seat.

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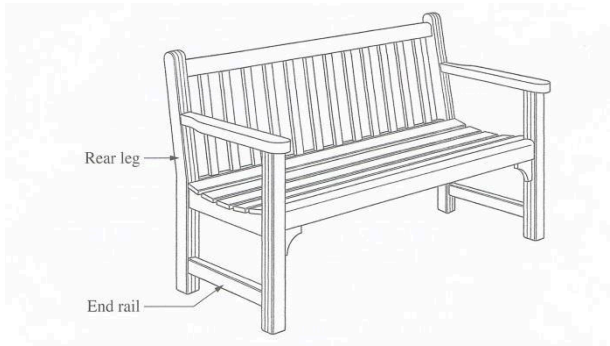
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**TIMBER FINISHING:**

An outdoor garden bench seat is shown.



34. Describe how the outdoor garden bench seat should be prepared before a finish is applied. In your answer, identify a suitable finish and how it should be applied.

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35. Evaluate a range of industrial finishes that could be used on a timber dining room table.

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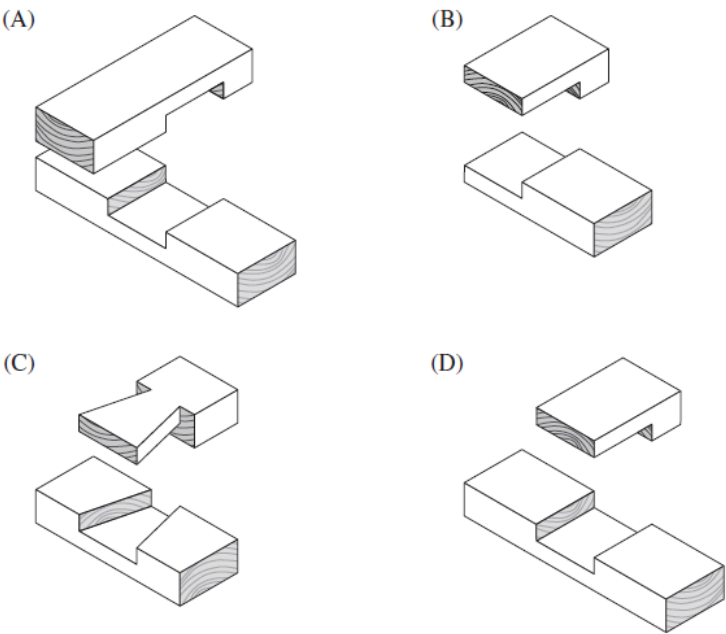
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**TIMBER TERMS:**

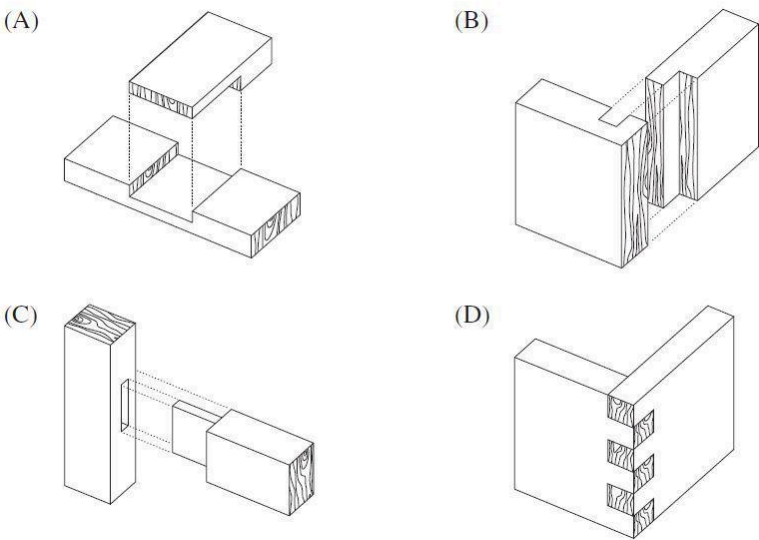
**TIMBER EDGE SHAPES:**

**JOINTS: Widening, Angle or Box, Framing. KDFs**

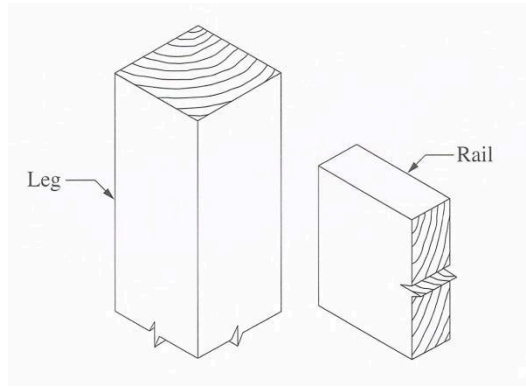
36. Which of the following is a cross halving joint?



37. Which of the following diagrams shows a halving joint?



38. The legs and rails of a stool are to be joined. What is the most appropriate joint for this task?



- (A) A lap joint
- (B) A butt joint
- (C) A finger joint
- (D) A mortise and tenon joint

39. What is an example of a widening joint?

- (A) A bridle joint
- (B) A biscuit joint
- (C) A scribed joint
- (D) A mortise and tenon joint

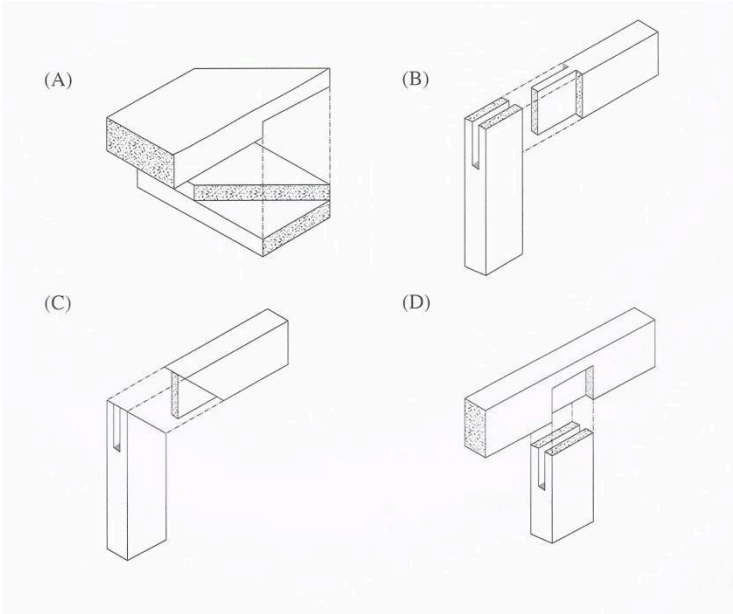
40. What type of framing joint shows no end grain?

- (A) Mitre
- (B) Bridle
- (C) Box pin
- (D) Halving

41. Which of the following is a common dovetail pitch?

- (A) 1:15
- (B) 1:12
- (C) 1:5
- (D) 1:3

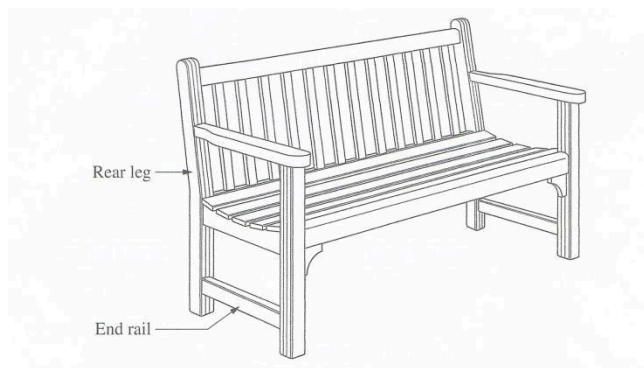
42. Which of the following is a mitred bridle joint?



43. A butt joint has been used for the corner of the carcass construction. Name and sketch an alternative joint for this corner.

Name of the joint .....

44. An outdoor garden bench seat is shown.



(i) Sketch and label a suitable joint that could be used for joining the end rail to the rear leg.



(ii) Outline the advantages of using this joint.

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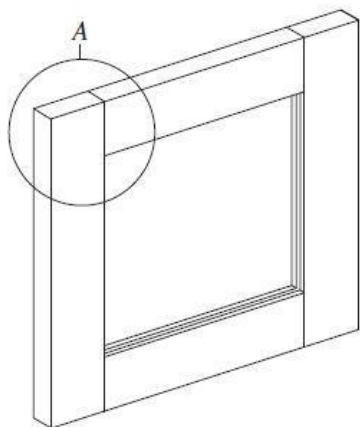
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45. The details of a glass door frame from the entertainment unit are shown.



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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**TIMBER DECORATION: Veneering, Carving, Inlays, Onlays, Fretwork, Other.**

46. What is the name of the technique of inlaying wood, often of different colours worked into a geometric pattern, in floors?
- (A) Intarsia
  - (B) Marquetry
  - (C) Parquetry
  - (D) Veneering

47. 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

**PROCESSES: Preparation of Timber, Sawing, Drilling, Edge Treatment, Nailing & Screwing, Sanding & Scraping.**

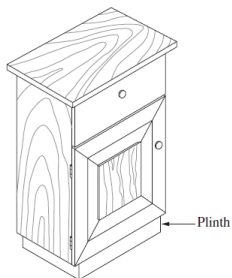
48. What is the purpose of dovetailed nailing in timber?
- (A) To hide the nails
  - (B) To allow for timber movement
  - (C) To prevent the timber from splitting
  - (D) To give the nails better holding power
49. Why should internal panels in solid timber doors NOT be glued in?
- (A) Assembly would be more difficult.



- (B) Movement is needed within the frame.
- (C) Changes may be required at a later date.
- (D) It reflects poor craftsmanship if the glue is seen.

50. 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.

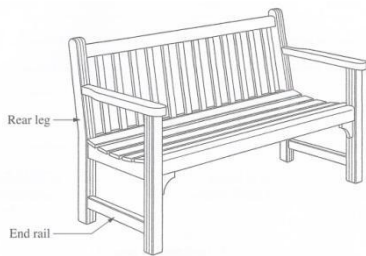
A bedside cabinet is shown below. Use the drawing to answer the Question



51. Outline how a 75 mm plinth would be screwed to the cabinet. Include a labelled sketch in your response.

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An outdoor garden bench seat is shown.

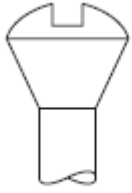


52. Describe a mass production process for manufacturing the rear leg of the seat.

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**COMPONENTS: Nails, Screws, KDFs, Hinges.**

What is the name of the screw shown?

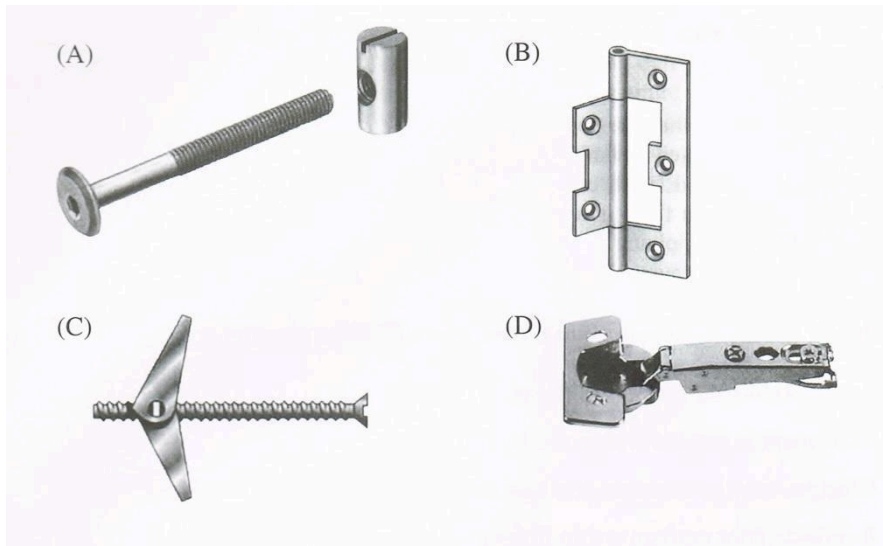


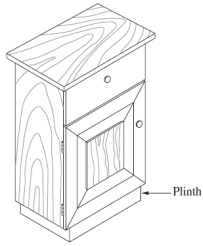
53. (A) Bugle head  
(B) Round head  
(C) Raised head  
(D) Countersunk head

54. 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

55. Which knockdown fitting is commonly used for assembling flat pack furniture?





A bedside cabinet is shown below. Use the drawing to answer the Question

56. Describe a process for attaching the door to the carcass using butt hinges.

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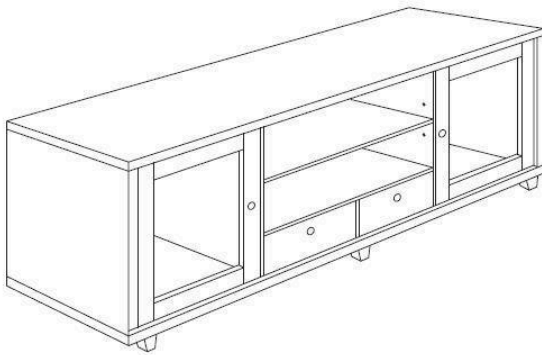
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Questions following refer to the diagram of an entertainment unit below. The unit is to be manufactured as a 'flat pack'.



57. Sketch a knockdown fitting that could be used.

58. What are the advantages of producing the entertainment unit as a 'flat pack'?

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