Wood Manufacturing & Finishing

Phase 6

Sample Test Questions & Model Answers

Question 1. What could happen if a timber piece was too long when machining a tenon on the round end tenoning machine.

Answer 1. Similar model answer.

If the material is too long the piece can get caught up in the cutters and it may be violently thrown from the machine.

Question 2. What determines the depth of the mortice when setting up the slot mortice machine?

Answer 2. Similar model answer.

The depth of the mortice is dictated by the amount of forward travel of the table. This in turn is controlled by the positioning of a steel rod which engages a pneumatic valve when the desired depth is reached.

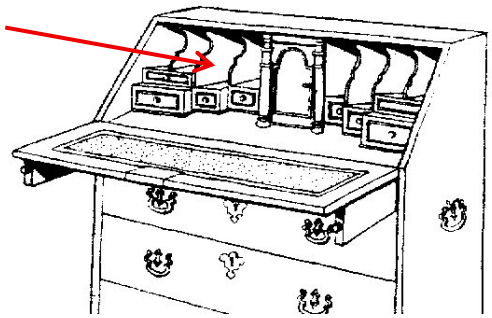
Question 3. A solid Oak tabletop 10 years old has a split running the length of the table around 350mm from the end. The top cannot be removed from the frame. What would you suggest is the best method of repair?

Answer 3. Similar model answer.

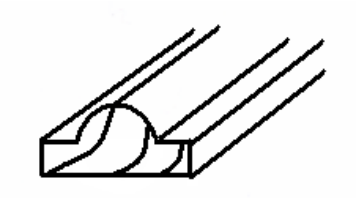
As the top is fixed in place the table will have to be turned upside down and clamped shut as tight as possible. A dovetail key will then be made and fitted to the underside of the top to reinforce the split and stop further splitting. After dry fitting, pressure is released from the clamps glue is forced into the split the top is re-clamped and the dovetail key is fitted and glued in position. When dry it is levelled off.

Question 4. Complete the name of the images below:

A. Pembroke /Dropleaf table



B. Pigeon hole in a Bureau



C. Overhung rail

D. Astragal moulding

Answer 4. **3 out of 4 correct.**

Question 5. A table finished in French polish shellac has a white ring mark on it. Explain what can cause a white ring mark and describe how you would treat this table's surface to restore it.

Answer 5. Similar model answer.

A white ring occurs from moisture trapped between the layers of lacquer caused by placing hot or damp cups, glasses or containers on the tabletop. Clean the surface by removing any dirt or grime. Using a small brush or cotton bud apply a thin film of methylated spirts to the damage area. Set this ring alight the heat will remove the trapped moisture between the layers of lacquer. Finish with a wax and buff to a shine.

Question 6. Give 3 advantages of water-borne varnishes over solvent-borne varnishes?

Answer 6. Similar model answer.

Less omissions, odourless.

Water based varnish does not yellow over time.

Brushes & rollers can be cleaned with warm soapy water.

More environmentally friendly.

Question 7. Draw any two of the following fittings and give an example of where they are used:

(a) Straight Cupboard Lock (b) Counter Hinge (c) Quadrant Stay Hinge

Answer 7. **2 out of 3 correct**.

(a) Straight Cupboard Lock screwed straight onto door material removed for keyhole only.

(b) Counter Hinge on bar top counter double knuckles and plate support 180°.

(c) Quadrant Stay Hinge used on a trinket box lids stay is used to keep lid open.

Question 8. Briefly describe any **three** of the following stair terms:

Baluster	The upright member fitted between the string and handrail can be plane or turned, metal or wood.
Outer String	This member is tenoned into the newel posts & the ends of the steps are housed or fixed into them.
Rise	The distance between one floor level to the next floor level or from top of tread to top of tread.
Nosing	The edge of a tread/step. Usually has a round over or bullnose shape.

Question 9. State **five** of the Building Regulations

Answer 9. **Any 3 correct**

There should be no more than **16** risers in any one flight.
A sphere of **100mm** diameter should not be able to pass through any point of the stairs.
A second handrail is required If the width of the stairs exceeds **1m** in width.
Top and bottom of stairs should be at least **400mm** clear of door openings.

Question 10. Select a suitable going to comply with the 2R + G formula of a private stairs with a total rise of 2,700mm. An optimum rise of 180mm is supplied.

Answer 10. Model Answer, correct method should prove whatever figures used.

2700 divided by 180 = 15

(15 risers needed 14 threads formula 2R + G = 550 – 700mm)

180 + 180 = 360mm Mid point = 625mm

625 – 360 = 265 going

(Recheck formula 180 + 180 + 265 = 625mm within regulations)

(Also check the pitch is less than 42°)

Tan A = $\frac{\text{Rise}}{\text{Going}}$ Tan A = $\frac{180}{265}$ Tan A = 0.6792 A = Tan^{-1} 0.6792
A = 34.18°

Question 11. €22,000 was invested at compound interest for 3 years. The first year rate was 5% The second year rate was 4.5% The third year rate was 4%.
Calculate the final amount and the interest earned.

Answer 11. Model Answer, correct method.

	€
Invest	24500.00
+5%	1225.00
Yr1	25725.00
+4.5%	1157.625
Yr2	26882.625
+4%	1075.305
Yr3	€27,957.93

€27,957.93 - €24500 = €3457.93
Interest = €3457.93
Final amount= €27,957.93

Question 12. A builder estimates that for every € 2.50 he spends on materials he needs €1.50 for labour and € 0.75 for overheads. On a job costing a total of €120,000 what is the amount of (a) overheads (b) labour (c) materials

Answer 12. Model Answer, correct method.

2.50 : 1.50 : 1.00 = 5 : 3 : 2 = 10 parts
0.50

€132,000 ÷ 10 =13,200

Materials = 5 parts 13,200 x 5 = €66,000

Labour = 3 parts 13,200 x 3 = €39,600

Overheads = 2 parts 13,200 x 2 = €26,400

Question 13. Calculate the percentage waste when 6 half round table tops, 540mm in diameter, are cut from a sheet of MDF measuring 600m x 2.440m.

Formula for the area of a circle = πr^2

Formula for percentage waste = $\frac{\text{Waste} \times 100}{\text{Material}}$

Answer 13. Model Answer correct method.

Area of MDF sheet = 0.600 x 2.440 = 1.464m²

Area of 1 stool seat = 3.14 x 0.270 x 0.270 = 0.229m²

Area of 16 stool seats = 0.229 ÷ 2 = 0.1145m²

Area of 6 tops = 0.1145 x 6 = 0.687m²

Sheet Area - 16 stool seats = Waste 1.464 - 0.687 = 0.777m²

Waste ÷ Sheet Area = Percentage waste

0.777 ÷ 1.464 = 0.530 (x 100)

Percentage waste = 53%

Question 14. Sketch **one** of the following items of furniture:

a) Regency/Trafalgar Chair **or** b) Breakfront Cabinet

Regency/Trafalgar Chair

Sabre legs and continuous back leg.

Breakfront Cabinet

Any style, must show front section jutting out.

Answer 14. Model Answer: Sketch similar to either

Question 15. Explain what is the meant by the following Furniture Terms; Use sketches to support your answer.

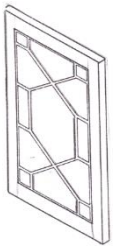
Stretcher rail:	The lowest bottom rail on a chair or table runs between the legs to reinforce the structure.
Swan necked pediment:	A decorative upright piece can be solid of pierced in the shape of a swan's neck can be found on elaborate high class furniture cabinets.
Angled glue blocks:	Glue blocks used to keep step square and reinforce the joint between the tread and riser
13 pane bar door:	Bar door set out with mouldings and ribs to a similar geometric pattern as shown, traditional 13 panes of glass were cut to complete this door.

Answer 15. **3 out of 4 correct.**

Stretcher Rail

Swan neck pediment

Angled glue blocks



13 Pane bar Door

Question 16. Provide the Standard Sizes for the following in relation to Furniture:

Answer 16. **3 out of 4 correct**

Optimum reach for shelf from kitchen worktop upwards while standing:	900mm
Depth of Kitchen worktop:	600mm
Maximum shelf height reach while sitting at a desk:	475mm
Desk height to accommodate keyboard:	650mm

Question 17. With regards to adhesives give four maintenance checks that should be carried out to ensure that the Edge-banding machine runs smoothly.

Answer 17. **Any 3 correct.**

1. Keep glue pot clean.
2. Keep second pot ready to go.
3. Use the correct temperature required for the adhesive used.
4. Shut off when not in use.
5. Clean machine daily.
6. Check heating elements and tooling.

Question 18. On a CNC what are External tooling and where are they kept?

Answer 1. Similar model answer.

External tooling are router cutters loaded to the change magazine and are automatically loaded when called within a programme.

Question 19. When running a CNC Programme the controller does not recognise a “word” and error occurs. What name is given to this error?

Answer 19. Similar model answer.

Syntax error.

Question 20. Explain the following terms in Relation to High Speed Moulding

Answer 20. **Any 2 out of 3 correct.** Similar model answer.

Feed Speed: The feed speed refers to the speed at which the material is passed through the
machine.

Pitchmark: The distance between consecutive peaks is generally known as the “pitchmark”

Rear Pressure Shoe: The function of the rear pressure shoe is to hold the work piece against the table after the cutter block to prevent vibration thereby enhancing surface quality.

Question 21. In circular saw blade manufacturing what are expansion slots and how do the work?

Answer 21. Similar model answer.

Expansion slots are cut into the saw blade they come in a variety of shapes and are used to ensure continued trueness of the saw plate even when its periphery heats up and expands. They are used to reduce the tendency to buckle.

Question 22. Fill in the names of each Insect in the statements given below:

Answer 22. **2 out of 3 correct.**

The larvae of the **Powder Post Beetle** reduces wood to a fine powder if given enough time to feed.

Wood-boring weevils feed on damp or decaying wood and will also eat wood products such as cardboard and paper that have been infested with fungus.

The **Common Furniture Beetle** is responsible for 80% of woodworm damage to furniture and surrounding wooden flooring, skirting and architraves.

Question 23. Give 4 Safety Regulations that should be observed when using the Band Resaw:

Answer 23. **Any 4 correct**

- Use the machine only for its intended use.
- Check the operation of safety equipment daily and before each start ensure all protective covers are in place and doors closed.
- Use ear defenders and protective goggles.
- Check that the blade is tensioned before starting.
- Never increase the feed-speed while a workpiece is being fed through the machine.
- Never stand behind a workpiece entering the machine.

Question 24. In relation to surface finishes:

Answer 24. **3 out of 4 correct.** Similar model answer.

a) What would be the cause of uneven coating of lacquer on the surface?

Incorrect method used, arcing the gun when spraying.

b) What type of finish should be used on baby's wooden toys?

A non-toxic finish.

c) What are Isocyanates?

A toxic chemical found in polyurethane coatings mainly 2 part paints and lacquers?

d) What name is given to the fault that occurs when spraying lacquer in damp or humid conditions that results in a milky haze on the lacquered surface?

Blooming.

Question 25. Name three safety precautions to be observed when sanding on the lathe?

Answer 25. **2 out of 3 correct.**

Remove the tool rest.

Wear proper PPE

Reduce speed to reduce friction and heat.

Always hold sandpaper flat, never wrap your hand around the work piece.

Question 26. Describe steps taken to treat and eradicate Dry Rot in a timber floor and joists of a ground floor building.

Answer 26. Similar answer

Remove and cure damp source & provide ventilation.

Remove all affected timber and sound timber past + 1M.

All affected timber and waste removed from site including shavings, sawdust & debris.

All replacement timbers should be treated.

Surrounding brickwork and walls must be surface heated and treated to kill off any mycelium and spores.

Question 27. Explain how timber preservatives work?

Answer 27. Similar model answer. Timber preservatives poison the timber which is the food source for fungi and insects therefore prevent fungal and insect attack.

Question 28. What is the primary use of the profile grinder?

Answer 28. Similar model answer.

The profile grinder is primarily used for grinding patterned cutters mounted in loose-cutter type heads.

Question 29. Provide the correct machine that uses each of the following guards.

Answer 29. **3 out of 4 correct**

Bonnet guard	Spindle moulder curved work
Crown guard	Table saw
Bridge guard	Surface planner
Shaw guards	Spindle straight work

Question 30. Correctly name any two of the following and state where they are used.

Answer 30. **Any 2 correct**

1 Piano Hinge: used for piano lids & flush fitting doors.

2 Escutcheon: used to protect the keyhole

3 Box Lock: used on a trinket box.