DTBase©

Design & Technology
Eduqas GCSE

Timber: surface treatments and finishes

Materials required for questions

- Pencil
- Rubber
- Calculator

Instructions

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- For the multiple choice questions, circle your answer

Advice

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don’t spend too much time on one question

Good luck!

Q1. What does a primer do?

A Seals the wood and helps the top coats stick

B Changes the colour while the grain still shows

C Gives a soft sheen when buffed

Q2. Which finish is a dye that soaks into the wood to change its colour?

A Varnish

B Wood stain

C Wax polish

Q3. Which finish would be used on a chopping board?

A Preservative treatment

B Gloss paint

C Food safe oil

Q4. When preparing timber for finishing, abrasive paper should be used:

A From fine to coarse, e.g. 240 to 80 grit

B From coarse to fine, e.g. 80 to 240 grit

C Only at 40 grit

Q5. Why must rags soaked in oil finishes be disposed of safely?

A They can catch fire

B They stain the bench

C They make the oil go cloudy

Q6. Tanalising is a type of:

A Polish

B Varnish

C Preservative treatment

Q7. Different finishes are applied to a range of children's wooden toys. Explain why a finish is used. **(2 marks)**

Q8. A wooden toolbox has been surface treated. State a suitable finish used to protect the toolbox. **(1 mark)**

Q9. A birch plywood stool has a clear finish of polyurethane varnish. Using notes and sketches, describe the stages needed to prepare the surfaces of the stool and apply the polyurethane varnish. **(4 marks)**

Q10. A wooden toy kit for children under 5 years old is finished with coloured stains. Explain one reason for using different coloured stains for the different parts of the toy kit. **(2 marks)**

Q11. A high gloss paint finish is spray painted onto the drawer fronts of a desk. Describe the process of spray painting gloss paint as a finish on the drawer fronts. **(2 marks)**

Q12. A teaching aid has number wheels made from beech that rotate against each other. Give two different surface finishes or treatments that could be applied to the beech number wheels. Explain one advantage of using each surface finish or treatment. **(6 marks)**

Q13. A wooden house holds a battery-powered candle. The main body is made from birch and the roof from mahogany. The wooden house has been finished with shellac. Explain two reasons for finishing the wooden house with shellac. **(4 marks)**

Q14. A children's easel has a hardwood frame and an MDF painting surface. Explain one reason why varnish has been applied to the frame of the easel. **(2 marks)**

Q15. A wall-mounted plant holder for plant pots is made from pine. Explain two benefits of using a varnish to finish the surfaces of the frame and plant pot holders. **(6 marks)**

Q16. The hardwood parts of an adjustable lamp will have a clear finish applied to them before they are assembled.

Q16a. Describe how the surfaces of the hardwood parts would be prepared before a clear finish is applied. **(2 marks)**

Q16b. Name a suitable clear finish for the hardwood parts. **(1 mark)**

Q16c. Give two advantages of a clear finish rather than a painted finish for the hardwood. **(2 marks)**

Q16d. State one reason why it is important to use glasspaper along the grain and not across it. **(1 mark)**

Answers

Q1. A
Q2. B
Q3. C
Q4. B
Q5. A
Q6. C

Q7.

Up to 2 marks for a clear explanation. For example:

- Staining the wood gives different coloured finishes; if the natural colour is kept, an oil or clear varnish is added to keep the natural colour of the wood (stain and varnish are also available in one)
- A finish attracts the target user and grabs their attention
- A finish protects the toy and makes it easy to clean

Q8.

Any one (1): wood stain; oil; varnish; lacquer; wax.

Q9.

Up to 4 marks for a clear understanding of the stages needed to apply the varnish safely. A maximum of 2 marks for clear sketches if the written explanation is missing. For example:

- Sand the birch plywood in the direction of the grain, using a range of grades of glasspaper (1)
- Stir or shake the varnish and apply it evenly with a brush along the grain (1)
- Wait for it to dry, then sand down any rough texture with wet and dry paper (1)
- Repeat, applying more coats if needed (1)

Q10.

A reason (1) and a linked justification (1). For example:

- It makes the toy more visually appealing (1), so children are encouraged to play with it and more parents are likely to buy it (1)
- It can be used as a learning aid (1), teaching young children their colours (1)
- It creates a contrast in colour (1), helping children to identify the different parts (1)

Q11.

Any two of these stages (1 mark each):

- The surfaces are sanded and cleaned (1)
- A primer sealer is sprayed onto the drawer fronts, wearing a mask and with good ventilation (1)
- Gloss coats are added and built up to the final finish (1)

Q12.

Two finishes or treatments (1 mark each), each with two linked justifications (1) + (1). For example:

- Oil or wax (1): the wheels will rotate and slide over each other (1), so there is less wear and friction between the touching wheels (1)
- Varnish, shellac or lacquer (1): the surface is better protected against dirty fingers (1), so it stays looking nicer for longer (1)
- Stain or paint (1): the wheels can be different colours (1), so the number wheels and the wheel with the sum operation stand out from each other (1)

Q13.

Two reasons (1 mark each), each with a linked justification (1 mark each). For example:

- Shellac dries clear (1), so the natural grain and the contrast in colour between the birch body and mahogany roof can be seen (1)
- Shellac can be rubbed down between coats (1), giving a harder, smoother finish (1)

- Shellac can be buffed to a glossy shine (1), so the light from the candle reflects from the surface (1)
- Shellac does not darken or yellow with age (1), so the product keeps its natural colour (1)

Q14.

A reason (1) and a linked justification (1). For example:

- Varnish gives a wipe clean surface (1), so paint on the frame can be washed off easily (1)
- Varnish seals the grain (1), so paint will not soak into the timber and leave a permanent stain; it also reduces the risk of the surface splintering (1)
- Varnish is a clear gloss or matt finish (1), so the natural grain can be seen, making the product more attractive (1)

Q15.

Two benefits (1 mark each), each with two linked justifications (1) + (1). Do not accept anything about a smoother surface. For example:

- Varnish gives a waterproof finish that seals the grain (1), so water or rain is repelled from the surface (1), so it will not soak in and rot the wood, and stains from pots and soil are prevented (1)
- Varnish gives a tough surface finish (1), protecting the timber when plant pots are put in and taken out (1), prolonging the life of the product (1)
- Varnish is clear and lets the natural grain be seen (1), giving a shiny, more attractive product (1), resulting in greater sales (1)

Q16a.

Any two (1 mark each): use different grades of glasspaper (abrasive paper), e.g. one grade then a finer grade; wipe off the dust; use a cabinet scraper; use a sander. Do not accept files, a sanding disc or a plane.

Q16b.

Any one (1): varnish; white or French polish; Danish oil; teak oil; lacquer; beeswax; epoxy resin.

Q16c.

Any two (1 mark each): the natural grain can be seen; the natural colour can be seen; painted finishes can chip and peel; oils and polishes are easier to apply. Do not accept “more attractive” or “aesthetically pleasing”.

Q16d.

To avoid scratching the surface (1). Do not accept “damages the wood”, “splinters” or “chips”.