Design & Technology

Papers and Boards

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
- Use a cross in the box to mark you answer

Advice

- Marks for each question are in brackets, multiple choice questions are worth 1 mark
- Read each question fully
- Try to answer every question
- For the multiple choice questions, circle your answer

Good luck!

Q1. How many times can paper be recycled?

A 10 times

B 7 times

C 5 times

Q2. Why is paper bleached?

A To give the paper a nice finish

B To keep the paper from browning

C To remove pulp fibres

Q3. What is not an advantage of foil-lined board?

A Good barrier against moisture

B Inexpensive

C Easy to work

Q4. Why might a piece of card be scored?

A To see how thick it is

B So the card is easy to cut

C So the card can be folded neatly

Q5. Which fibres in wood are used to make paper?

A Cellulose fibres from softwood trees

B Bark fibres from any tree

C Cellulose fibres from hardwood trees

Q6. How is the density of paper measured?

A Grams per square millimetre

B Grams per square metre

C By measuring the paper

Q7. What is not a use of bond paper?

A Letterheads

B Photographs

C Graphic work

Q8. Which institution promotes responsible management of the world's forests?

A Forest Stewardship Council

B Forest Protection Group

C Woodland protection council

Q9a. Give one method of strengthening cardboard **(1 mark)**

Q9b. Provide two justifications for why corrugated cardboard is a suitable choice of material for a bird box. **(6 marks)**

1.

2.

Q10. A juice carton has a layer of aluminium on the inside of the carton

Q10a. Explain **one** working characteristic of aluminium that would make it a good candidate for one of the carton's layers. **(3 marks)**

Q10b. After production the cartons are shipped in corrugated cardboard. Sketch a diagram of corrugated cardboard below **(2 marks)**

Q11a. At over what Grams per Square Metre (GSM) is card usually classed as **(1 mark)**

Q11b. Outline how Cartridge paper and Layout paper are used by designers **(4 marks)**

Cartridge paper

Layout paper

Q12. Outline the advantages to the environment of recycling paper and board **(6 marks)**

Answers

Q1. B
Q2. B
Q3. B
Q4. C
Q5. A
Q6. B
Q7. B
Q8. A

9a.

- Lamination (1)
- Coating (1)
- Double wall/tri-wall (1)
- Impregnation with wax/waterproof PVA

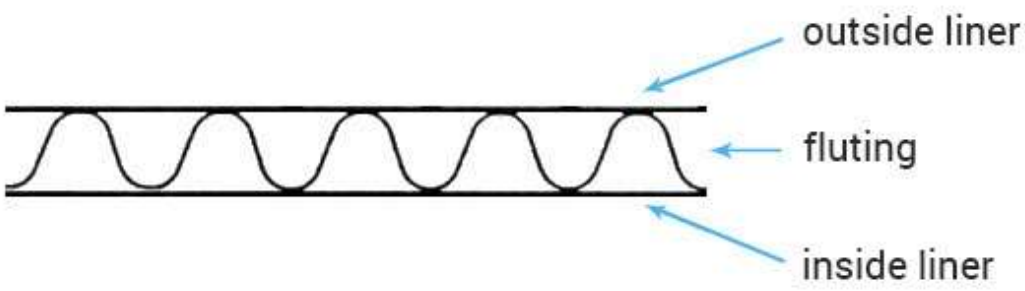
Q9b.

- Corrugated cardboard is stronger than other boards (1) because it is made up from layers of flat and ribbed papers/boards (1), therefore it will last for longer as the cat uses it (1)
- Corrugated cardboard does not have to be bleached (1), therefore it will not contain any harmful toxins (1) and so will not harm the cat (1)
- Corrugated cardboard can be double/tri-walled (1), which means that it has a better strength to weight ratio (1) so it can withstand knocks bumps/cats clawing at it (1)

10a.

- Aluminium foil protects against oxygen/light (1) to maintain the nutritional value/flavours of the product (1), therefore the product will last longer, reducing waste (1)
- Aluminium foil protects against flavour contamination (1) so the product will not be affected by other foods (1), therefore can be stored safely in any cupboard (1)
- Aluminium foil protects against microbial contamination (1) so the product will not be contaminated by harmful bacteria which would spoil the product and could be harmful (1), therefore making it suitable for sterilised products such as orange juice (1)

10b.



11a.

- 200+ GSM

11b.

Cartridge paper

- Ideal for drawing/sketching (1)
- Printing (1)
- Accepts a wide range of media/paint/markers etc (1)
- Could be used for making lightweight, simple models (1)
- Suitable for presentation/final design work (1)

Layout paper

- Used for overlays/copying images/transposing images (1)
- Can be used for tracing an amending existing design (1)
- Ideal for initial/outline sketch work (1)
- Suitable for formal layout/orthographic/engineering/architectural drawings (1)
- Can be used with most media/pens/markers/rendering pens (1)

Q12.

- Reduces need to cut down trees/deforestation (1)
- saves resources for future generations (1)
- Reduces chemical contamination (1)
- Maintains existing natural habitats (1)
- Allows timber to be used for other sustainable uses (1)
- Reduces soil erosion/landslides (1)
- Maintains existing ecosystems (1)
- Reduction of chemicals required (1)
- Maintains CO_2 oxygen conversion (1)
- Less space in landfill/less waste produced (1)

- Reduce CO2 emissions/pollution that would happen when extracting/transporting/processing raw materials (1)
- Reduced energy required for recycling compared to using virgin fibres (1)