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Design & Technology
AQA A-Level

Paper and board forming processes

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 is the primary purpose of die cutting in paper packaging?

A Adding decorative colours

B Cutting precise shapes using a metal die

C Increasing material thickness

Q2. Which process uses a high-powered beam to create intricate designs in paper?

A Creasing

B Bending

C Laser cutting

Q3. Why is creasing applied to paper or board before folding?

A To weaken the fibres for easier bending

B To add waterproof coatings

C To enhance print quality

Q4. What is a key advantage of laser cutting over traditional die cutting?

A Lower initial setup costs for small batches

B Faster production of large quantities

C No need for skilled operators

Q5. Describe the process of die cutting **(6 marks)**

Answers

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

Q5.
Die production

- A thin steel cutter blade is folded and shaped into the desired profile or shape.
- Creasing rules and perforations can be incorporated into the die depending on the required output.
- These blades are mounted into a substrate board/cylinder which maintains the shape and alignment of the die.

Mounting die in machine

- The die is mounted into a pressing machine that may be manual or hydraulic.
- The die can either be flat or cylindrical.

Feed card into machine

- Card blanks are fed into the press either in batches or continuously.

Card secured in place

- The substrate to be cut is located in the machine, often using locator guides to ensure the correct alignment.

Pressure applied to card

- The die is forced through the material and the waste material and die cut pattern is removed.

Pressure removed and card ejected

- A soft rubber support surrounds the die. This is compressed when the die is used and ejects the cut material when the force is removed.