Design & Technology

Printing

Materials required for questions

- Pencil
- Rubber
- Calculator

Instructions

- Use black ink or ball-point pen
- Try to 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
- Don’t spend too much time on one question

Good luck!

Q1. Offset lithography is a process used in which scale of production?

A Mass scale

B Continuous

C Batch

Q2. What are the four colours used in offset lithography printing?

A Cyan, red, yellow and black

B Cyan, magenta, yellow and black

C Blue, magenta, yellow and black

Q3. When printing commercially, what is a registration mark used for?

A To check alignment of paper during print process

B To show where to cut paper after print

C To indicate that a registered trademark logo has been used

Q4. Which of the following is most suitable for batch process?

A Offset lithography

B Flexography

C Screen printing

Q5. Which of these is a characteristic of gravure printing?

A Cheap set up cost

B Short print runs

C Quick print times

Q6. Give **three** reasons why the use of biodegradable ink is beneficial when printing on packaging **(3 marks)**

Reason 1:

Reason 2:

Reason 3:

Q7. Explain the screen printing process. Include both notes and sketch(es) in your answer **(5 marks)**

Q8. Explain **two** advantages of flexographic printing **(2 marks)**

Q9. Describe, using annotated sketches, the process of printing using flexography **(4 marks)**

Q10. Explain **two** advantages of using flexography rather than gravure for printing on commercial packaging **(6 marks)**

Answers

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

Q6.

Any **three** from:

- Less likely to smudge
- Do not contain toxic elements
- Do not smell as they are not mineral based
- Completely safe and do not require safety labelling
- Less ink required as they flow more efficiently than conventional inks
- More vivid/stronger colours

Q7.

- Material to be printed placed on base
- Template made from card with required design placed on top of material
- Screen placed on top of template, made from stretch nylon fabric and wood frame
- Ink squeezed onto nylon fabric
- Rubber blade spreads ink out and push through fabric and template onto material
- Printed pattern can now be seen on material

Q8.

Any **two** from:

- Economic on long print runs
- Fast
- Low maintenance cost, low breakdown rate
- Can be combined with web-fed systems which is much cheaper and faster than sheet fed
- Fast drying inks

Q9.

- Diagram showing 4 rollers with media in the correct position (1)
- Correctly labelling all 4 cylinders in the correct order (1)
- Ink pan/fountain sources ink for fountain roller/cylinder (1)
- Ink transferred to the plate cylinder using rollers (1)
- Doctor blade removes excessive ink (1)
- Ink is transferred to the media by pressure applied by the impression cylinder/roller (1)

If no sketch, or a sketch without labels, award a maximum of **two** marks

Q10.

Any **two** of the following explanations that include identification of an advantage (1) and linked justifications of that advantage (1) + (1):

- Printing plates can be made from solid or liquid photopolymer (1) whereas gravure needs an engraved copper plate (1) this means that flexography has lower start-up costs / overall is a quicker start-up (1)

- Flexography prints onto sheet material (1) whereas gravure is fed from material on a roll (1) making flexography more versatile for printing on different media/mountable on uneven surfaces (1)

- Flexography can be used on shorter print runs (1) as it is able to respond to changes in demand / has shorter lead times (1) enabling greater flexibility and varied use of the process (1)