DTBase©

Design & Technology
Eduqas GCSE

Textiles: 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. In batik, what is used to resist the dye?

A Hot wax applied with a tjanting tool

B Elastic bands

C A bleaching paste

Q2. How does discharge printing work?

A A carved wood or lino block is inked and pressed onto the fabric

B The fabric is dyed first, then a chemical paste removes the colour in the design area

C Paint floats on a thickened liquid and is picked up by the fabric

Q3. How does burn out (devoré) work?

A Gutta outlines stop the colours spreading

B Fabric paint is sprayed with compressed air

C A chemical paste dissolves one fibre in a blend, leaving a sheer pattern

Q4. In silk screen printing, a separate screen is needed for each:

A Colour

B Garment

C Size

Q5. What is gutta used for when painting on silk?

A Fixing the paint by ironing

B Outlining the design so the colours do not spread

C Making raised 3D lines

Q6. Which printing method uses engraved metal rollers, one per colour, and is fast for mass production?

A Block printing

B Stencilling

C Roller printing

Q7. A t-shirt has been dyed using a resist method. Parts of the fabric were bound tightly before dyeing, giving a pattern of circles.

Q7a. State the resist method used to create the dyed pattern on the t-shirt. **(1 mark)**

Q7b. Identify what could have been used to resist the dye's absorption. **(1 mark)**

Q8. The figures on a set of outdoor bunting are made from woven nylon fabric. Name one surface finish or surface treatment that could be used to apply the detail to each figure's face. **(1 mark)**

Q9. A child's t-shirt has a dinosaur design that has been inkjet transfer printed. Transfer printing relies on CAM (computer aided manufacture).

Q9a. Outline two advantages of using CAM when printing on clothing. **(2 marks)**

Q9b. Using notes and sketches, describe the stages you would take to inkjet transfer print the decoration onto a t-shirt in a school setting. **(4 marks)**

Q10. A decorative badge on a sports shirt has been designed on a CAD (computer aided design) system and made by CAM embroidery.

Q10a. Describe one reason why a CAD system has been used to design the badge. **(2 marks)**

Q10b. Describe one advantage of using CAM to make the badge. **(2 marks)**

Q11. Using notes and sketches, describe the decorative process of appliqué. **(4 marks)**

Q12. Analyse the quality control checks that need to be carried out during the decorative process of appliqué. **(5 marks)**

Q13. Evaluate the benefits of using a CAM embroidery machine instead of embroidering by hand. **(6 marks)**

Q14. A page of a children's fabric book is decorated with appliqué features: a tree made from fleece fabric and a pond made from satin fabric. Explain one reason for using different fabrics for the tree and the pond. **(2 marks)**

Answers

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

Q7a.

Tie and dye (tie-dye) (1). Only acceptable answer.

Q7b.

Elastic bands or string (1). Credit any other appropriate response.

Q8.

One from (1): fabric paint; fabric markers; embroidery (hand or computerised); printing, e.g. sublimation, screen, transfer or block printing; components such as buttons or sequins. Do not accept patchwork, quilting or dyeing.

Q9a.

Two advantages (1 mark each). Answers must refer to printing for full marks; with no reference to printing, a maximum of 1 mark. For example:

- CAM printing is faster than printing by hand, so more printing is done in less time (1)
- CAM prints accurately every time, e.g. the same colours and shades (1)
- CAM gives consistency and quality control, so every print is the same (1)
- CAM printing can run 24 hours a day, 7 days a week if needed (1)
- Complicated patterns, designs and colours are not a problem (1)

Q9b.

Up to 3 marks for a clear understanding of the stages in words. A maximum of 2 marks for clear sketches if the written explanation is missing. For example:

- Print the design onto transfer paper using an inkjet printer (1)
- Cut around the outside edge of the design (1)

- Peel away the backing paper (1)
- Position the transfer face up on the t-shirt (1)
- Cover it with protective (parchment) paper (1)
- Use a hot iron or heat press to transfer the design onto the t-shirt (1)
- Leave to cool before removing the protective paper (1)

Students may describe a “light” transfer sheet, where the image is reversed, placed face down on the fabric, heated and the backing peeled away. This is not the right process for this design, so a maximum of 3 marks if everything else is correct.

Q10a.

A reason (1) and a clear description relating to the badge (1). For example: CAD gives an accurate representation of the badge (1), unlike a hand-drawn design (1). Other reasons:

- Designs can be changed and edited quickly and easily during development, which would take much longer by hand (2)
- Colour trials can be tested (1)
- Designs do not need simplifying, as the software supports intricate detail (2)
- The client can view the design instantly, so changes can be made easily (2)
- The lead time from design to manufacture is shorter, so the product reaches the market sooner (2)

Q10b.

An advantage (1) and a clear description (1). For example: CAM machines can make large quantities of badges in a short time because of their speed, compared with traditional methods (2). Other advantages:

- Fewer errors are made because of the software (2)
- CAM gives consistent results, which is reliable for both client and consumer (2)
- Accuracy means less waste of raw materials (2)
- Size, shape and colour can be changed with very little down time (2)
- Complicated patterns or designs are not a problem (2)

Q11.

Up to 3 marks for a clear understanding of the stages in words. A maximum of 2 marks for clear sketches if the written explanation is missing. For example:

- Iron Bondaweb onto the wrong side of the fabric (1)
- Draw around the template or shape (1)
- Cut out the shape (1)
- Position the shape on the background fabric, Bondaweb side down, right side facing up (1)
- Iron in position to melt the Bondaweb (1)
- Machine stitch in place (1)

Do not penalise students who do not use Bondaweb.

Q12. (5 marks)

Indicative content. Quality control checks take place at each stage (input, process and output) so the appliqué is accurate, with no faults, and as intended. Checks include:

- The fabric is checked for even colour and pattern and for flaws in the weave
- Bondaweb (or similar) keeps the shape flat before sewing, and is ironed onto the wrong side of the fabric
- The iron temperature suits the fabric (not too hot for synthetics that melt), or the fabric is protected
- Templates are used so all the shapes are the same size and shape
- Any marking is done on the wrong side of the fabric
- The appliqué is cut accurately with suitable equipment, e.g. fabric scissors, and positioned in the right place
- The sewing machine is threaded correctly and the tension is correct for the fabric
- The needle suits the fabric and thread; the presser foot suits the stitch
- The correct stitch length and width are chosen for the shape and fabric
- The thread colour matches or complements the appliqué; the stitching is secured

Band	Marks	Descriptor
3	4 to 5	A coherent answer with detailed, relevant knowledge and understanding of the quality control checks needed during appliqué. Relevant examples and a well-developed, logical chain of reasoning, sustained throughout.
2	2 to 3	Some coherence, with partial knowledge and understanding. Mostly relevant examples and a logical chain of reasoning that may not be sustained throughout.
1	1	Basic knowledge and understanding. Limited relevant examples or logical chain of reasoning.
0	0	Incorrect or irrelevant answers.

Q13. (6 marks)

CAM embroidery: advantages

- Any design, however intricate, can be made
- Pre-installed designs save design and programming time; CAD packages increase creativity
- Once set up, machines can be left to embroider without being watched
- Far faster than hand embroidery

CAM embroidery: disadvantages

- Set-up costs: buying machines, training and mistakes while learning
- Results look commercially made, which can reduce the aesthetic appeal
- The range of threads and colours is still limited compared with hand embroidery
- Down time is needed to re-thread for colour changes
- Still a time-consuming process, so not as cost effective as some other decorative effects

Hand embroidery: advantages

- A creative hobby that brings enjoyment and relaxation
- Changes (e.g. thread colour or design) can be made during the process, as in couture
- Other effects such as beads or appliqué can be added; errors can be corrected immediately
- Many stitches are available that not all CAM programs can produce
- The hand-made finish adds to the aesthetic qualities

Hand embroidery: disadvantages

- Extremely time consuming and not cost effective, making the retail price too high for most
- Experience is needed to keep the stitch tension even

Band	Marks	Descriptor
3	5 to 6	A coherent answer with detailed, relevant knowledge and understanding of the benefits of CAM embroidery compared with hand embroidery. Relevant examples and well-developed, substantiated judgements in a logically structured response.
2	3 to 4	Some coherence, with partial knowledge and understanding. Mostly relevant examples and partly substantiated judgements in a generally well-structured response.
1	1 to 2	Basic knowledge and understanding. Limited relevant examples or judgements, with little structure.
0	0	Incorrect or irrelevant answers.

Q14.

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

- Different fabrics have different colours, textures and effects (1), so they can show different features, e.g. simulate water or foliage (1)
- Small scraps or upcycled fabrics can be used for the different parts (1), reducing waste and making efficient use of the material available (1)
- Different fabrics have different tactile properties (1), making the book more interactive and educational (1)