OCR
Oxford Cambridge and RSA

Monday 15 May 2023 – Afternoon

AS Level in Design and Technology: Fashion and Textiles

H005/01 Principles of Fashion and Textiles

Time allowed: 1 hour 45 minutes

You can use:
- a ruler (cm/mm)
- a scientific calculator
- geometrical instruments

Please write clearly in black ink. **Do not write in the barcodes.**

Centre number [ ][ ][ ][ ][ ]   Candidate number [ ][ ][ ][ ]

First name(s) _____

Last name _____

INSTRUCTIONS
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. You can use extra paper if you need to, but you must clearly show your candidate number, the centre number and the question numbers.
- Answer **all** the questions.
- Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.

INFORMATION
- The total mark for this paper is **90**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **20** pages.

ADVICE
- Read each question carefully before you start your answer.

Turn over

1 This shows a stool upholstered in a jacquard woven fabric.

(a) Identify **two** reasons why a jacquard woven fabric is suitable for the upholstered stool.

Justify **each** of your answers.

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(b) The jacquard woven fabric could be made from natural or synthetic fibres.

With reference to the fibres used, identify and explain **two** ways jacquard woven fabric may impact on the environment.

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(c) Describe **two** considerations a designer needs to take into account when exploring contexts in which the upholstered stool is to be used.

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(d)* Woven fabrics have influenced fashion and textile trends for centuries.

Discuss how key historical movements, figures and their methods have influenced developments in textile weaving.

Use examples in your answer.

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2 **Fig. 2.1** shows the template for the lid of a regular hexagonal hat box. The radius (r) of the **lid** is 20 cm.

Fig. 2.2 shows the lid with a lip. The lip folds over the sides of the hat box. The length (l) of the **lip** is 6 cm.
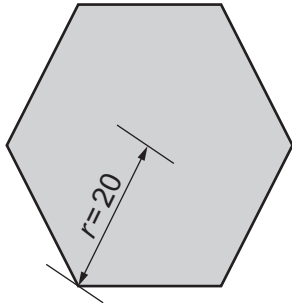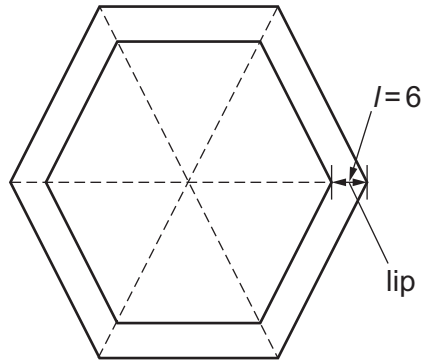

Fig. 2.1
(not to scale)

Fig. 2.2
(not to scale)

(a) The lid and lip will be covered on the outside with a felt material. Calculate the total area in cm^2 that will be covered with felt. Give your answer to **2** decimal places and show your working.

The formula to calculate the area of an equilateral triangle is A = ($\sqrt{3}/4$)a^2 where a = length of a side **[5]**

Total area .... cm^2

(b) The hat box is going to have two identical rhombus shapes appliquéd onto the top of the lid.

Fig. 2.3 shows the lid of the hat box with the two rhombus shapes.

Fig. 2.4 shows a template for one rhombus shape. The template indicates that all of the internal angles of the rhombus add up to 360° and the rhombus has four right angles.
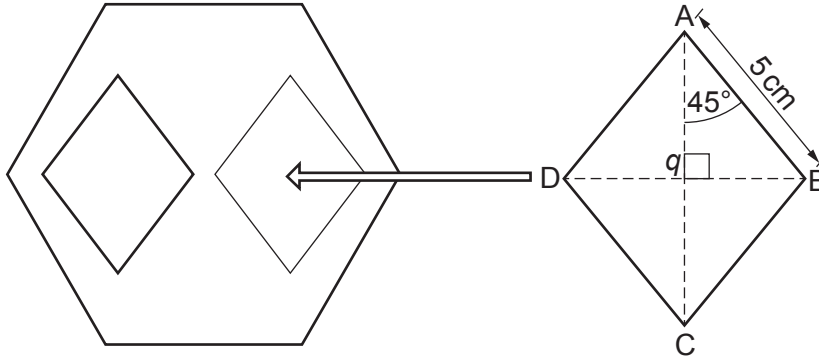

Fig. 2.3	**Fig. 2.4**
	(not to scale)

(i) The centre point of the rhombus is labelled q.

Use trigonometry to calculate the length AC and the length BD. Give your answers in cm and show your working. **[4]**

AC .... cm

BD .... cm

(ii) Use your answer to **part (b)(i)** to calculate the area in cm^2 of one rhombus shape. Give your answer to **2** decimal places and show your working.

Area of a rhombus (A) = (AC × BD)/2 **[1]**

Area of one rhombus shape .... cm^2

(c) The hat boxes are produced in a variety of colours. The probability of someone purchasing a hat box in a specific colour scheme is shown in the table.

Black/White	Blue/Yellow	Peach/Cream	Red/Pink
0.16	0.20	0.38	?

Calculate the probability of someone purchasing a Red/Pink hat box. Show your working. **[2]**

Probability ....

Turn over

(d) 65 hat boxes are available for sale in either Black/White or Peach/Cream.

Customers purchase either one hat box or two hat boxes (one of each colour combination).

- 34 customers bought the Black/White hat box.
- 48 customers bought the Peach/Cream hat box.
- 17 customers bought the Black/White hat box and the Peach/Cream hat box.

Display this information in the Venn diagram below. Show your working. **[2]**

Space for working:
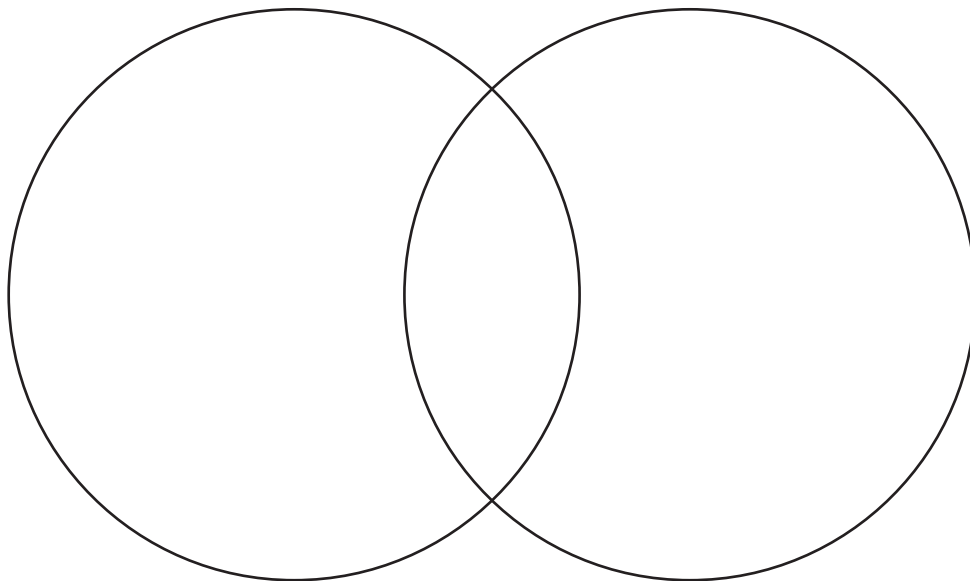
3 This is a free machine embroidered design. The design is created using digitising software to convert an image into stitches.

(a) Polyester thread is used for working the free machine embroidered design.

Identify **one** reason why a synthetic textile fibre such as polyester thread is suitable for working the embroidered design.

Justify your answer.

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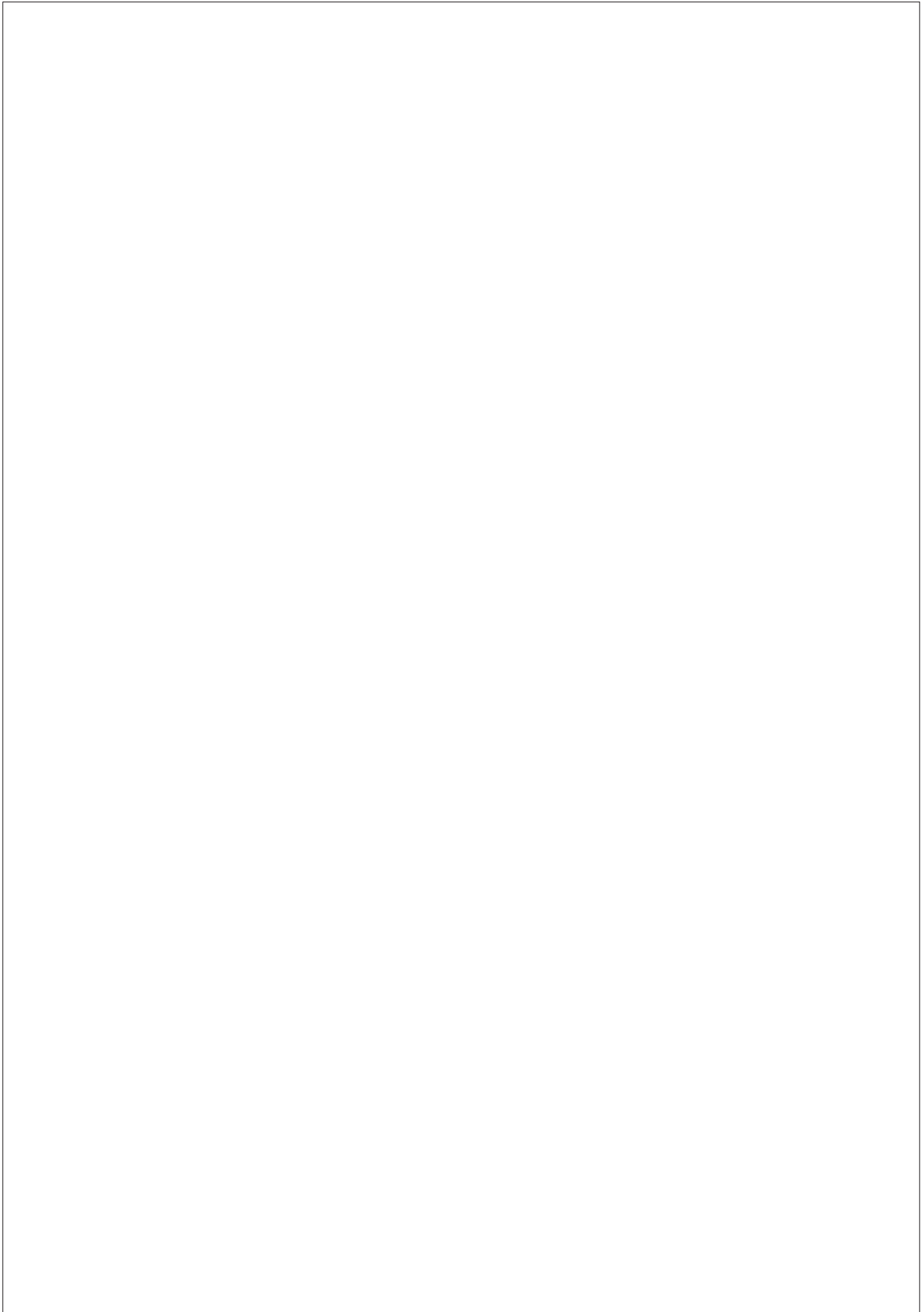
.... **[2]**

(b) Use annotated sketches and/or notes to show how to work a piece of free machine embroidery.

Identify any relevant equipment, machinery and materials. **[6]**

(c) Embroidery is a decorative technique that is used to enhance the aesthetic qualities of textile products.

Explain **two** advantages to the designer of using free machine embroidery compared to traditional hand embroidery methods.

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Turn over

(d) The free machine embroidered design is produced using digital design software.

Discuss the ways industry professionals use digital design tools to support product development.

Use examples in your answer.

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.... **[6]**

4 **Fig. 4.1** shows a tailored jacket.

Fig. 4.2 shows interfacing used in the sleeve of the tailored jacket.

Fig. 4.1

interfacing

Fig. 4.2

(a) (i) Identify **two** reasons why interfacing has been used for the sleeve of the tailored jacket.

Justify **each** of your answers.

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(ii) Use annotated sketches and/or notes to show how to apply interfacing onto fabric.

Identify any relevant equipment, machinery and materials. **[6]**

(b) Specialist tools and equipment are often used in a workshop environment when manufacturing products.

(i) Identify **one** type of specialist tool that could be used to cut the fabric needed to manufacture the tailored jacket.

Justify why this specialist tool is suitable for this purpose.

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(ii) Describe how specialist tools and machinery could be used to accurately join the fabric needed to manufacture the tailored jacket.

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(c) Describe **two** ways in which the use of templates and patterns can ensure quality and accuracy when making a prototype of the tailored jacket.

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Turn over

(d) Identify and explain **two** considerations a designer needs to take into account to ensure the functionality of the tailored jacket.

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5 These are flip-flops made from sugarcane.

(a) The increase in demand for natural plant textiles has led to innovative ideas in the textile industry.

Identify **one** reason why the use of a natural plant textile such as sugarcane is beneficial to the manufacturer of the flip-flops.

Justify your answer.

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(b) Product usability is an important consideration when designing prototypes.

Explain **two** factors that a designer would consider to ensure the flip-flops are inclusive to a wide variety of users.

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(c)* Designers need to recognise and assess how physical testing systems are integrated into the manufacturing process to test functional feasibility.

Discuss the ways designers test textile products to ensure they meet all technical criteria and specifications.

Use examples in your answer. **[8]**

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END OF QUESTION PAPER

PLEASE DO NOT WRITE ON THIS PAGE