



Oxford Cambridge and RSA

Wednesday 5 June 2024 – Afternoon

**A Level in Design and Technology:
Fashion and Textiles**

H405/01 Principles of Fashion and Textiles

Time allowed: 1 hour 30 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

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Candidate number

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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 **80**.
- 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 **16** pages.

ADVICE

- Read each question carefully before you start your answer.

- 1 Fig. 1 shows a wallet made from a plant-based eco-material.

Fig. 1



metal popper/press
stud

- (a) Identify **two** advantages of using a plant-based eco-material for the fabric of the wallet.

1

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2

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[2]

- (b) Identify **two** plant-based eco-material alternatives which would be suitable to produce the wallet.

1

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2

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[2]

- (c) The wallet is designed to embrace a circular economy approach.

Identify **two** benefits of using a circular economy approach when developing the design for the wallet.

Justify **each** of your answers.

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[4]

- (d) The wallet is fastened using a metal popper/press stud.

Use annotated sketches and/or notes to show how to attach a metal popper/press stud to the wallet.

Include any relevant equipment, machinery and materials.

[6]

- (e)** The wallet is to be manufactured using a modular/cell production system (MPS).

Identify and explain **one** advantage and **one** disadvantage of using MPS to manufacture the wallet.

Advantage

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Disadvantage

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[4]

- (f)** Discuss the implications of using natural raw materials for textile products.

Use examples of materials and/or products in your answer.

[6]

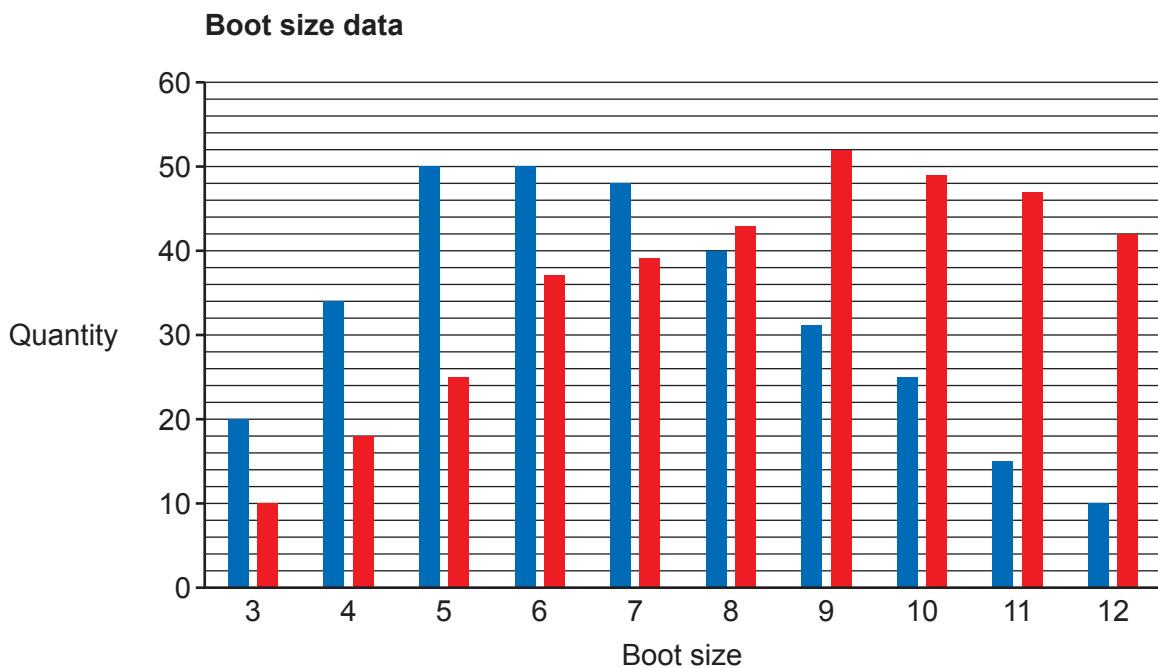
2

- (a) A manufacturer of walking boots carries out quality checks on each batch of 500 pairs of boots. It discovers that 20 pairs of boots in every batch of 500 are faulty (in either the left or right foot).

Calculate the probability that a pair of boots is faulty. Give your answer as a percentage (%) and show your working. [2]

Probability %

- (b) The chart below shows data gathered from a large sample of adults about their boot sizes.



Key:

- Women's Boot Sizes
- Men's Boot Sizes

- (i) Use the chart to identify the mode of the women's boot sizes.

..... [1]

- (ii) Use the chart to identify the mode of the men's boot sizes.

..... [1]

7

(iii) A total of 323 women were surveyed to gather data about their boot sizes.

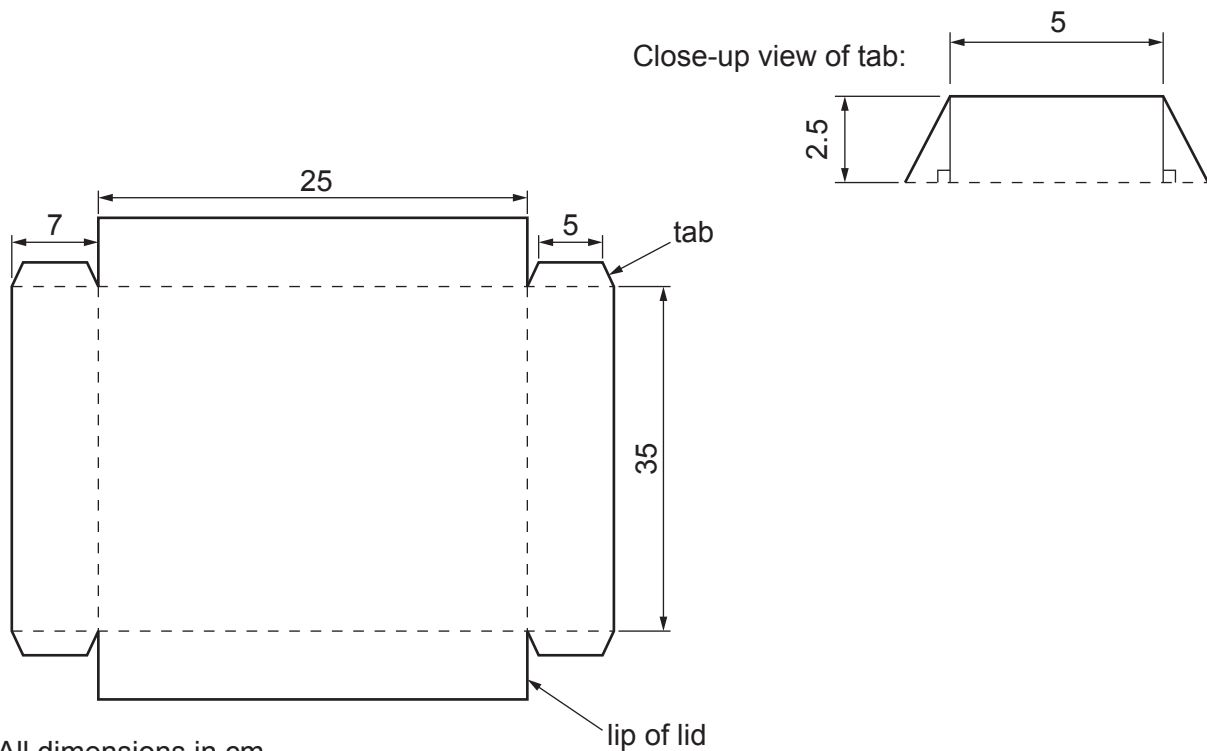
Use the chart to calculate the proportion of women whose boot size is size 7. Give your answer as a percentage correct to **1** decimal place. Show your working. **[3]**

Proportion of women %

(c)

(i) Fig. 2.1 shows the template for a standard sized box lid to hold men's walking boots.

Fig. 2.1

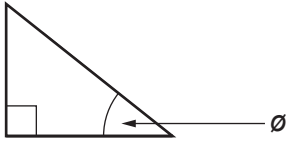


All dimensions in cm
(not to scale)

Use Fig. 2.1 to determine by calculation that the area of the tab is 15 cm^2 . Show your working. [4]

- (ii) Fig. 2.2 shows one of the triangles within the close-up view of the tab on page 8.

Fig. 2.2



Use Fig. 2.1 and Fig. 2.2 to calculate angle \varnothing . Give your answer to 1 decimal place and show your working.

[3]

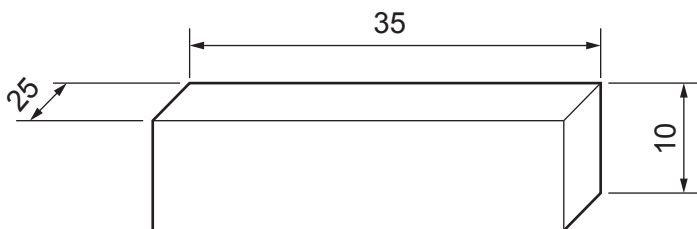
.....[°]

- (iii) Fig. 2.3 shows the box without the lid.

It is made out of recycled cardboard that is 0.5 cm thick.

The measurements shown are the external measurements of the box in cm.

Fig. 2.3



(not to scale)

Calculate the internal volume of the box. Give your answer in m^3 . Show your working.

[3]

Internal volume m^3

- 3 Fig. 3 shows a garment being constructed using whole garment knitting technology.

Fig. 3



- (a) Identify and explain **two** factors a designer needs to consider when developing design solutions for whole garment knitting.

1

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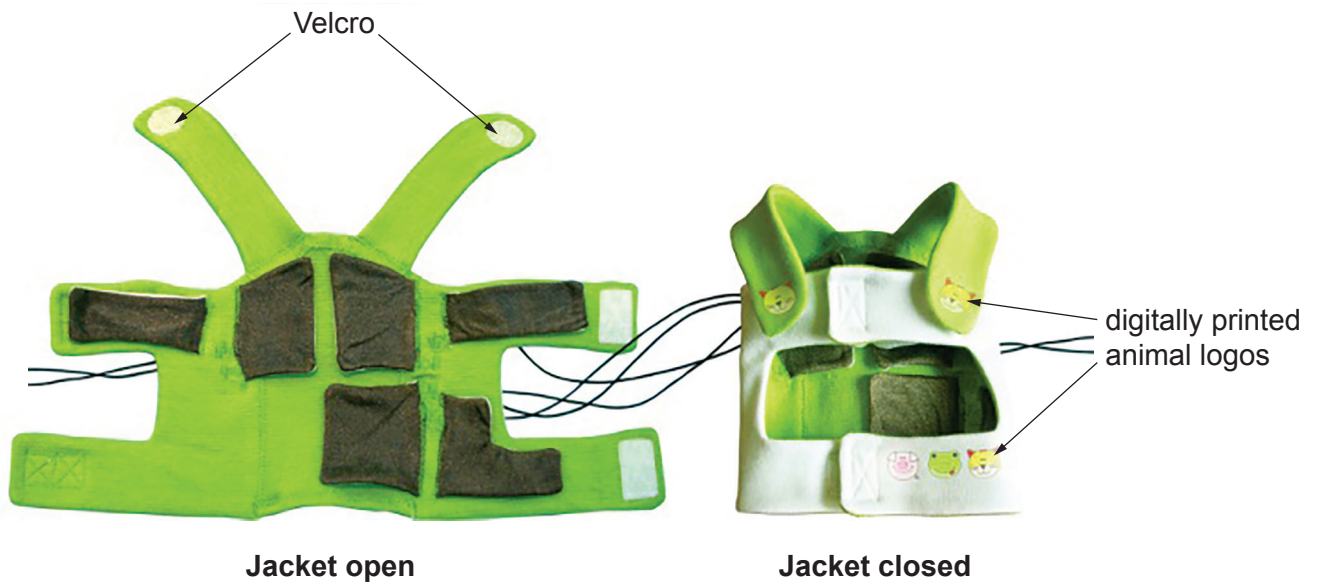
[4]

(b)* Discuss the benefits to the manufacturer and the consumer of whole garment knitting compared to fully fashioned knitted panels.

..... [8]

- 4 Fig. 4 shows a baby monitoring jacket with a built-in wearable sensor system.

Fig. 4



- (a) Identify **one** benefit of embedding the sensor system of the baby monitoring jacket into a soft, woven fabric.

Justify your answer.

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..... [2]

(b)

- (i) Identify and explain **two** reasons why the designer of the baby monitoring jacket has used digital printing for the animal logos.

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[4]

- (ii) In a workshop, the animal logos shown on the baby monitoring jacket will be produced using the screen-printing method.

Use annotated sketches and/or notes to show how to apply the animal logos using screen-printing.

Include any relevant equipment, machinery and materials.

[6]

- (c) Identify **one** quality control check that should be carried out on the finished screen-printed animal logos.

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..... [1]

- (d) The baby monitoring jacket uses a Velcro fastening.

Identify and explain **two** reasons why a Velcro fastening is a useful feature on this product.

1
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..... [4]

- (e) Identify **two** factors that need to be considered when deciding the order of assembly for a final prototype of the baby monitoring jacket.

Justify **each** of your answers.

1
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..... [4]

- (f) The baby monitoring jacket is an example of a medical textile.

Other than the baby monitoring jacket, discuss how new and emerging technologies influence and inform the function and innovation of medical textiles.

Use examples of these technologies in your answer.

[6]

END OF QUESTION PAPER

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