

Wednesday 7 June 2023 – 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 set square
- geometric 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 **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 **20** pages.

ADVICE

- Read each question carefully before you start your answer.

1 This is a quilted pallet cover used in industry to protect products during transport and storage.

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(a) The outer layer of the quilted pallet cover is constructed from a fabric made from nylon fibres.

Identify **two** advantages of using nylon fibres for the fabric of the quilted pallet cover.

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[2]

(b) The fabric for the pallet cover has been quilted.

Identify **two** reasons why quilting the nylon fabric makes the pallet cover more suitable for its intended purpose.

Justify **each** of your answers.

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[4]

(c) The quilted pallet cover includes a piped trim.

Use annotated sketches and/or notes to show how to make and insert a piped trim.

Include any relevant equipment, machinery and materials.

[6]

A large empty rectangular box with a thin black border, intended for the student to draw annotated sketches and notes related to the task.

(e) Identify and describe **two** factors a manufacturer needs to consider when assessing the marketing lifecycle of a product such as the quilted pallet cover.

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[4]

(f) The quilted pallet cover is manufactured using a natural source of energy.

Identify and explain **two** negative impacts on the environment of using natural sources of energy to manufacture products such as the quilted pallet cover.

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[4]

2 A manufacturer produces T-shirts in the following sizes: **S, M, L, XL**.

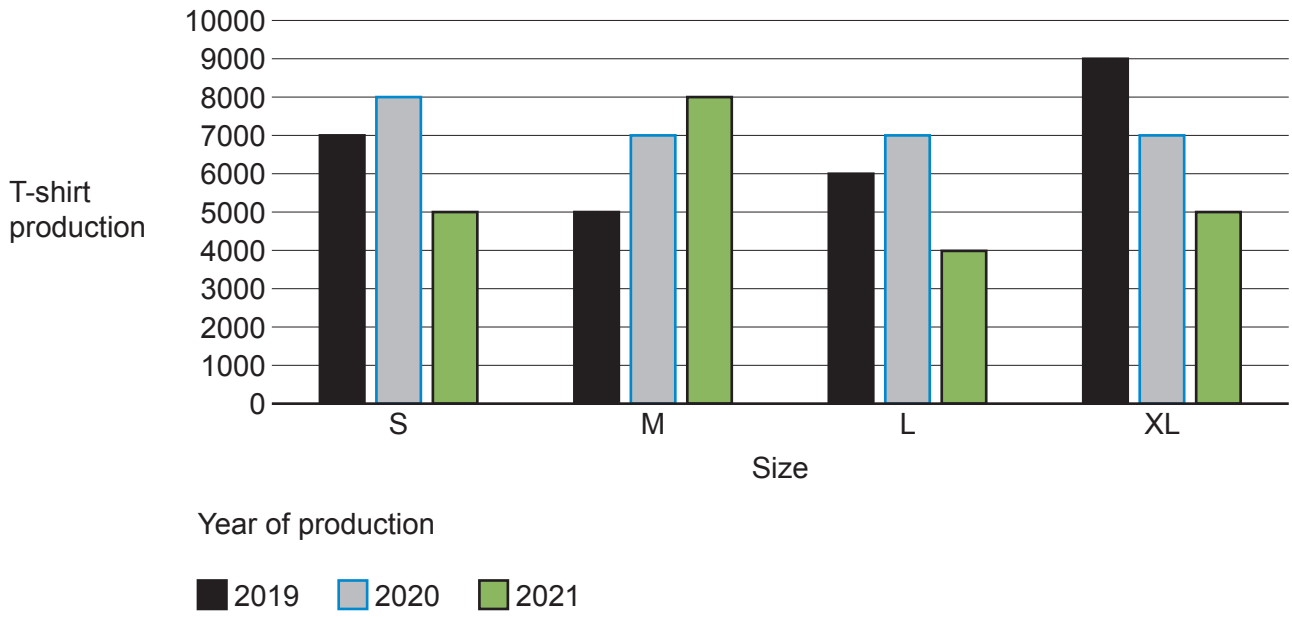
A customer places an order for 4000 T-shirts in the ratio of 4:8:7:6.

(a) Calculate how many T-shirts in each size the manufacturer has to produce.
Show your working.

[4]

	S
	M
	L
	XL

(b) This graph shows the quantity of T-shirts produced by size over a three-year period.



- (i) Calculate the percentage (%) increase or decrease of the production of L size T-shirts from 2020 to 2021. Give your answer to 2 decimal places and show your working. [3]

..... %

- (ii) Calculate the mean quantity of **XL** T-shirts produced over the three years. Show your working. [2]

Mean quantity of XL T-shirts produced

- (c) The manufacturer currently has 105 faulty T-shirts in a batch of 7000. It wants to reduce the number of faulty T-shirts by 90%.

Calculate the probability of there being faulty T-shirts in the batch if the number of faulty T-shirts is reduced by 90%. Give your answer to **4** decimal places and show your working. [5]

Probability

- (d) Other than care instructions, identify **one** piece of information which could be included on the label attached to a T-shirt.

Justify why this piece of information is important to the end-user.

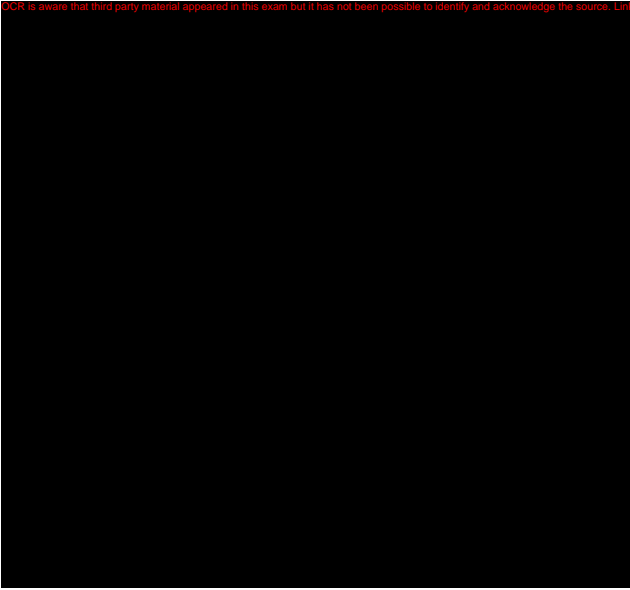
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..... [2]

3 This is a sensory fidget toy. It is used to help children and adults with autism, anxiety or sensory needs.



(a) The sensory fidget toy is made from chenille yarn.

Identify and explain **two** benefits to the user of the sensory fidget toy being made from chenille yarn.

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[4]

4 These are synthetic rubber sports shoes.

OCR is aware that third party material appeared in this exam but it has not been possible to identify and acknowledge the source. Link to Material Help/Feedback



(a) Identify **two** reasons why synthetic rubber is suitable for the sports shoes.

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- 2
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[2]

- (b) Identify **three** factors that the designer of the synthetic rubber sports shoes needs to consider to minimise environmental impact.

Justify **each** of your answers.

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[6]

- (c) (i) The synthetic rubber sports shoes have eyelets and tie fastenings.

Identify and explain **one** reason why this is a useful feature for the wearer.

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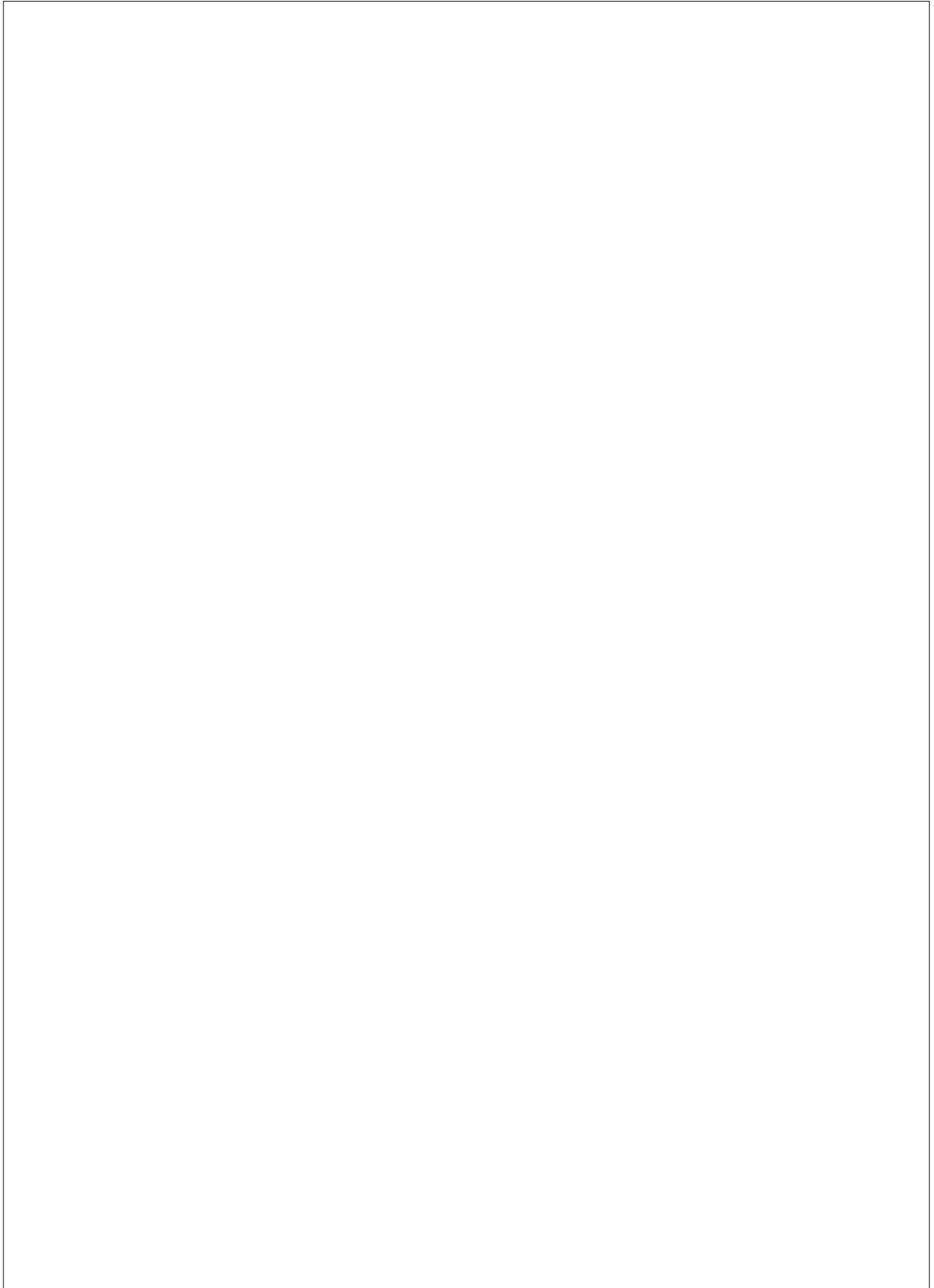
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[2]

- (ii) Use annotated sketches and/or notes to show how to insert an eyelet into fabric.

Include any relevant equipment, machinery and materials.

[6]



(d) This table shows the sales of men's trainers over a two-year period.

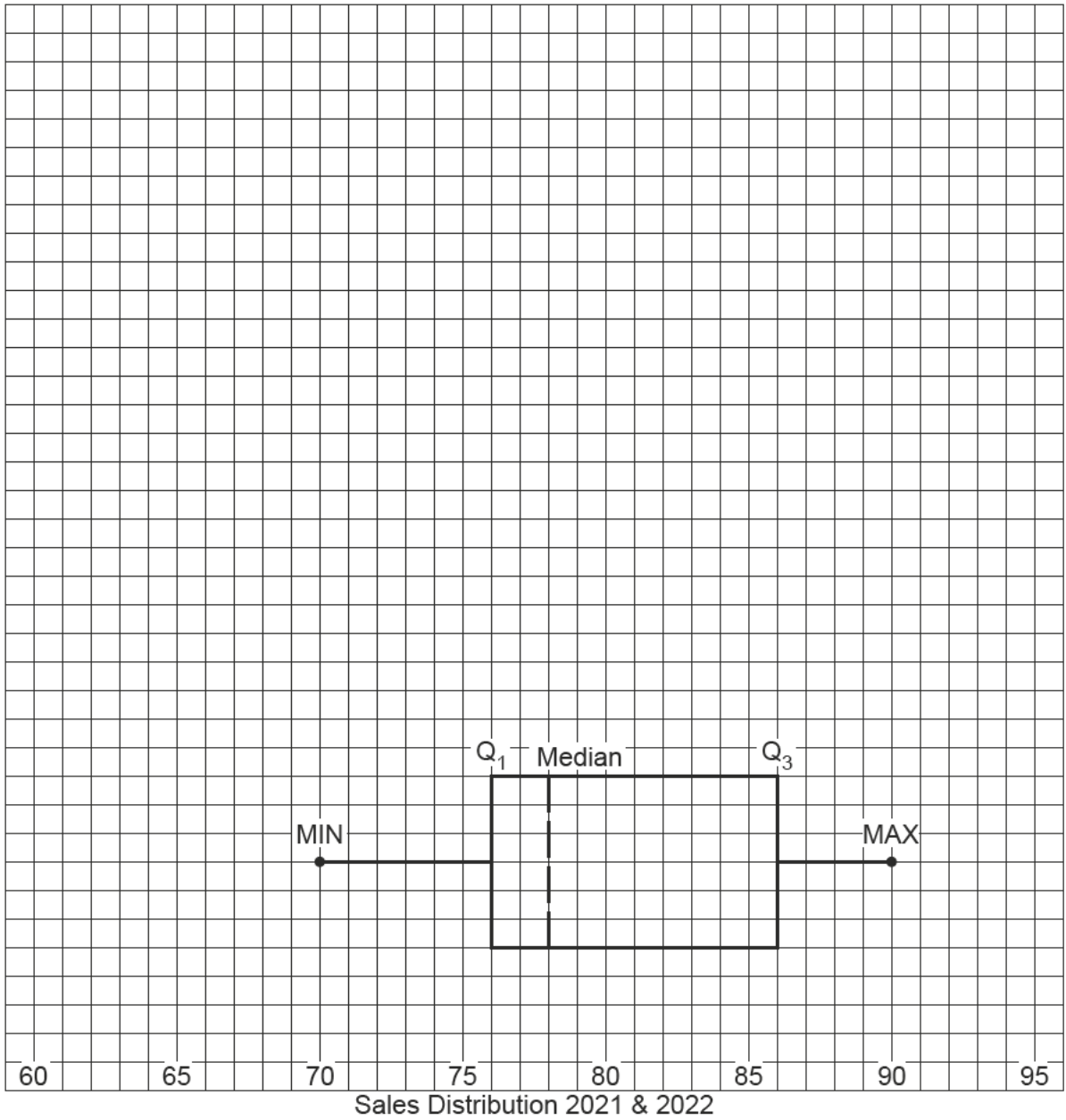
Men's trainer sizes	Sales (in thousands) 2021	Sales (in thousands) 2022
6	80	77
7	76	75
8	90	84
9	86	95
10	78	86
11	70	68
12	77	60

(i) Calculate the **1st quartile** and **3rd quartile** values for the sales for 2022. Show your working. Insert the values into the table at the bottom of this page. [1]

Space for working:

	Sales 2021	Sales 2022
Minimum value	70	60
Q1: 1st quartile	76	
Median	78	77
Q3: 3rd quartile	86	
Maximum value	90	95

- (ii) Draw the box plot on the graph paper to show the distribution of the sales data for 2022. Follow the labelling format as already supplied for the distribution of the sales data for 2021. [2]



(e) The synthetic rubber sports shoes are produced using lean manufacturing.

Identify and explain **two** reasons why this type of production method is beneficial to the manufacturer of this product.

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[4]

(f) The synthetic rubber sports shoes are to be up-cycled.

Identify **three** ways the consumer could up-cycle the synthetic rubber sports shoes.

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[3]

END OF QUESTION PAPER

19
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