# AQA

# A-level

# DESIGN AND TECHNOLOGY: FASHION AND TEXTILES

Paper 1    Technical Principles

Friday 5 June 2020          Morning          Time allowed: 2 hours 30 minutes

**Materials**
For this paper you must have:
- normal writing and drawing instruments
- a scientific calculator.

**Instructions**
- Use black ink or black ball-point pen.  Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided.  Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book.  Write the question number against your answer(s).
- Do all rough work in this book.  Cross through any work you do not want to be marked.

**Information**
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.

| For Examiner's Use | |
|---|---|
| Question | Mark |
| 1–4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9–10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| **TOTAL** | |

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Answer **all** questions in the spaces provided.

| 0 | 1 | Complete **Table 1** by inserting the correct **two** fibres into each category from the selection below.

Do not use any fibre more than once.

**[6 marks]**

| Acrylic | Angora | Carbon | Linen | Metallic |
| Mohair | Ramie | Silk | Tactel® | Wool |

**Table 1**

| Cellulose fibres | Hair fibres | Inorganic fibres |
|---|---|---|
|  |  |  |
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| 0 | 2 | Explain what is meant by the term 'denier'.

**[2 marks]**

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**0 3** Explain the difference between retro and vintage fashions.

[4 marks]

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**0 4** Explain **three** advantages of vertical in-house production.

[3 marks]

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**15**

**Turn over for the next question**

**Turn over ▶**

**0 5** **Table 2** shows the time taken in minutes for a machinist to sew a pair of leggings.

**Table 2**

| Time taken, $t$, minutes | $0 \le t \le 10$ | $10 \le t \le 20$ | $20 \le t \le 30$ | $30 \le t \le 40$ | $40 \le t \le 50$ | $50 \le t \le 60$ |
|---|---|---|---|---|---|---|
| Frequency of leggings | 2 | 9 | 17 | 27 | 18 | 7 |

**0 5 . 1** Use the data from **Table 2** to complete the cumulative frequency in **Table 3**.
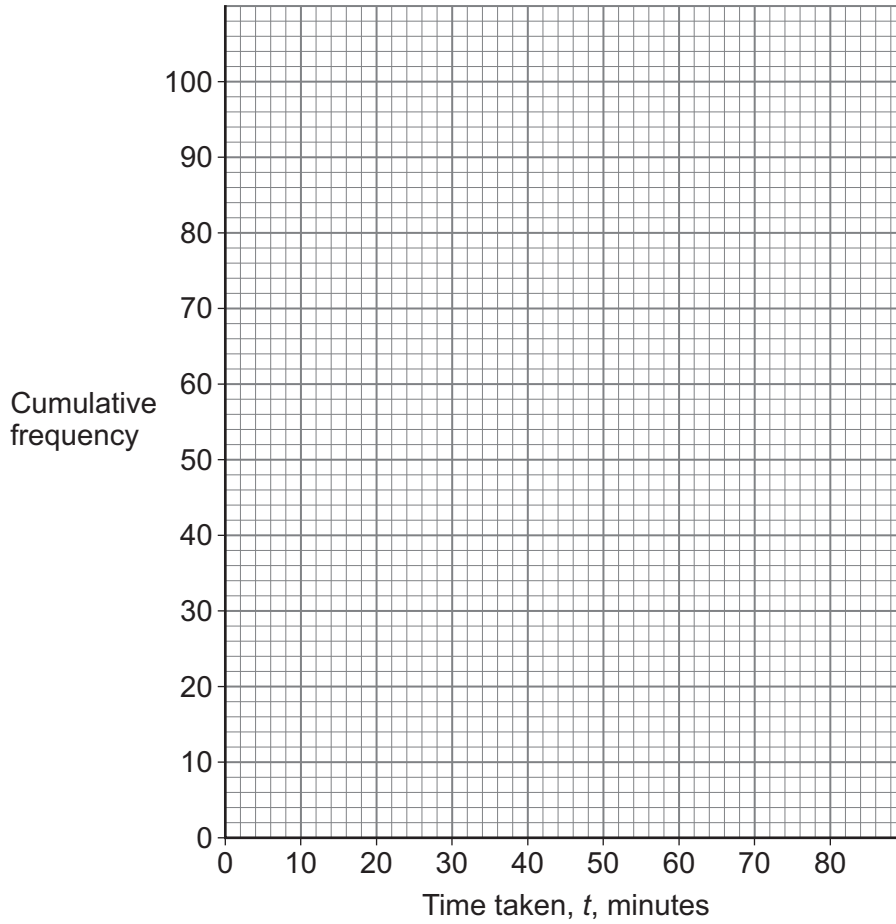
**[1 mark]**

**Table 3**

| Time taken, $t$, minutes | $0 \le t \le 10$ | $0 \le t \le 20$ | $0 \le t \le 30$ | $0 \le t \le 40$ | $0 \le t \le 50$ | $0 \le t \le 60$ |
|---|---|---|---|---|---|---|
| Cumulative frequency | | | | | | |

**0 5 . 2** Use the information from **Table 3** to plot the graph in **Figure 1**.

**[2 marks]**

**Figure 1**



**0 5 . 3** Use your graph to estimate values for the:

median _____
**[1 mark]**

upper quartile _____
**[1 mark]**

lower quartile _____
**[1 mark]**

**6**

**Turn over ▶**

| 0 | 6 |

Analyse and evaluate the use of warp and weft knitted fabrics for casual wear.

**[6 marks]**

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| 0 | 7 |

Discuss how computer controlled systems are used to reduce waste, improve production, and assist the distribution and storage of fashion products.

[12 marks]

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| 0 | 8 |

**Table 4** shows a specification for a range of dresses that include a decorative trim.

**Table 4**

| Dress size | 8 | 10 | 12 | 14 | 16 | 18 |
|---|---|---|---|---|---|---|
| Amount of fabric in metres (m) | 0.92 | 1.00 | 1.08 | 1.16 | 1.24 | 1.32 |
| Length of trim in metres (m) | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 | 0.78 |
| Retail price in £ | 19.99 | 19.99 | 19.99 | 19.99 | 21.99 | 21.99 |

| 0 | 8 | . | 1 |

The trim is sold in rolls of 34 m.

Calculate the number of size **8** dresses that can be made from one roll of trim.

**[2 marks]**

Answer _____

| 0 | 8 | . | 2 |

The manufacturing cost of dress size **12** is £6.92

Calculate the percentage of profit for each size **12** dress.

Give your answer to **two** decimal places.

**[2 marks]**

Answer _____

| 0 | 8 | . | 3 |

The fabric costs the manufacturer £2.81 per metre.

Calculate the difference in fabric costs to the nearest penny, for dress sizes **10** and **18**.

**[2 marks]**

Answer _____

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**0 9** Define what is meant by the term 'smart material'.

**[1 mark]**

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**1 0** Give **two** reasons for using Bondaweb® in appliqué work.

**[2 marks]**

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**3**

**Turn over for the next question**

**Turn over ▶**

**1  1**  Describe the structure of slub and bouclé yarns and the appearance of fabrics made from them.

**[4 marks]**

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**1 2** Explain the importance of production, planning and control (PPC) systems in the planning and manufacture of fashion products.

[9 marks]

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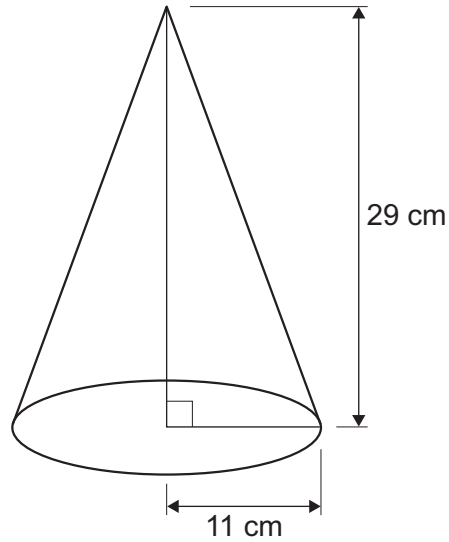_____

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**Turn over ▶**

**1 3** A designer creates a prototype of a novelty doorstop in the shape of a cone as shown in **Figure 2**.

**Figure 2**



29 cm

11 cm

Calculate the volume of the cone, using the formula v = $\frac{1}{3} \pi r2 \, h$

Give your answer to the nearest whole number.

Show your working.

**[3 marks]**

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Answer _____

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**1 4** Explain the difference between interfacing, underlining and interlining.

Give reasons for their use.

[6 marks]

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**1 5** Explain how products are inclusive in their design to meet the needs of a wide range of consumers.

**[9 marks]**

G/Jun20/7562/1

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**1 6** Give **three** reasons why trade fairs are important to fashion designers.

**[3 marks]**

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**3**

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**1 7** Explain the role of the British Standards Institute (BSI) in ensuring fashion and textile products are safe for consumers.

[6 marks]

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**1 8** Describe how fringing, piping and diamantés can be used in a range of home furnishing products.

**[9 marks]**

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**Turn over ▶**

**1 9** A designer needs to work out fabric and component requirements for the shape of the tent panel in **Figure 3**.

**Figure 3**

Not drawn to scale

B

40.8 cm

A

68.9 cm
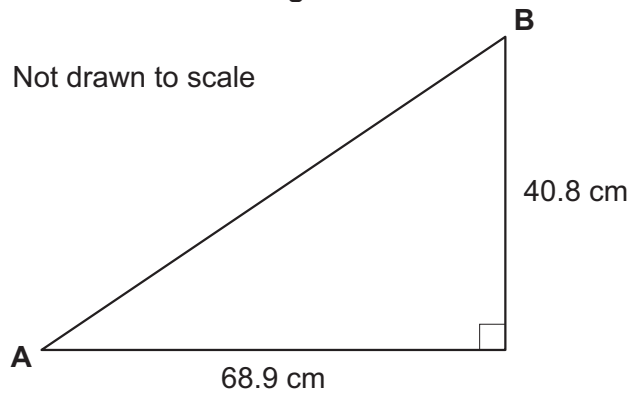
**1 9 . 1** Calculate the area of the panel.

Show your working.

**[2 marks]**

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Answer _____

**1 9 . 2** Calculate the length of zip required, from point **A** to point **B**. Give your answer to the nearest cm.

Show your working.

**[3 marks]**

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Answer _____

**5**

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**2 0** | Special occasion wear often has a lustre. Explain how fibres and fabrics contribute to the lustrous qualities of special occasion wear.

[6 marks]

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**Turn over for the next question**

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**2 1** Analyse and evaluate the use of natural and synthetic fibres in textiles.

Consider how the sourcing, care and disposal of products affects sustainability.

**[12 marks]**

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**12**

**END OF QUESTIONS**

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