OCR
Oxford Cambridge and RSA

Friday 14 June 2019 – Morning

A Level in Design and Technology: Fashion and Textiles

H405/02 Problem Solving in Fashion and Textiles

Time allowed: 1 hour 45 minutes

You must have:
- Resource Booklet

You may use:
- a scientific calculator
- a ruler
- 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. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- The recommended reading time for the Resource Booklet is **35 minutes**.
- Write your answer to each question in the space provided. Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.

INFORMATION
- The total mark for this paper is **70**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended responses will be assessed in the questions marked with an asterisk (*).
- This document consists of **12** pages.

Answer **all** the questions.

Before responding to the questions in the paper you must spend time reading and familiarising yourself with the Resource Booklet.

1 There are many products on the market that meet the needs of users who want to engage in physical activity.

Critically examine how the jacket shown in **Fig. 1** meets the requirements of a user whilst running.

Refer to information on **pages 2 and 3** of the Resource Booklet. **[12]**

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2 The sportswear design team has been asked to present technical solutions that address the issue of wind resistance highlighted on **page 4** of the Resource Booklet.

Use sketches and/or notes to determine suitable technical solutions that could be incorporated within the jacket shown in **Fig. 2** of the Resource Booklet to overcome this issue.

In your response you should include details of:

- technical and smart materials;
- construction techniques;
- design features. **[12]**

3* The design team has carried out market research into current available running accessories to enable hands free carrying of identified essential items. This research is shown on **pages 5 and 6** of the Resource Booklet.

Based on this market research, the design team has developed a concept jacket design to address these issues as shown in **Fig. 5** of the Resource Booklet.

Compare the jacket design in **Fig. 5** with the product information in **Fig. 4** to discuss how the jacket design addresses the issues identified from the market research. **[16]**

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4 Trials have been carried out on the 'stuff sack' pocket on the inside back of the jacket shown in **Fig. 5**.

Feedback highlighted the following issues:

- The jacket didn't fit in the pocket.
- When carried using the arm strap, the jacket started to fall out.

Using the information in **Fig. 5** of the Resource Booklet, use sketches and/or notes to show suitable technical solutions for how the 'stuff sack' pocket could be modified to address these issues whilst still retaining the original dimensions and arm strap function of the jacket.

Your answer must include a construction method for incorporating a suitable stuff sack fastening.

[12]

5 Design 'C' as shown in **Fig. 6** of the Resource Booklet has been sent to the embroidery company to establish the cost of producing one logo.

Using the two images below and the supplementary information provided, calculate the cost of one logo in £. Show your working.

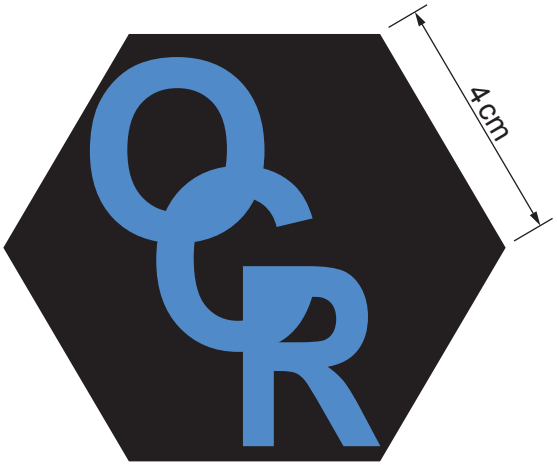

Image A
(not to scale)

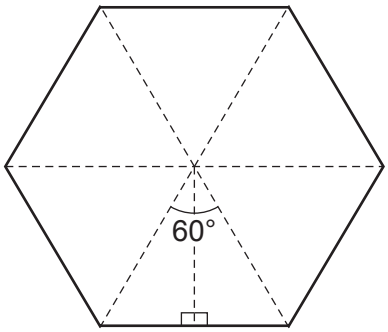

Image B

- The design is to be embroidered onto a regular hexagon.
- There are 5000 embroidered stitches for each 4 cm^2 of the logo.
- The cost per 5000 stitches is £1.20.
- Any stitches over a complete 5000 costs £0.20 per 500 stitches.

Cost of one logo £ .....

[6]

6* The jacket design with the chosen embroidered logo is to go into production.

Fig. 7 of the Resource Booklet shows a five year sales forecast for the jacket.

Using the information from **Fig. 7** of the Resource Booklet, critically evaluate the lifecycle of the jacket and recommend possible methods that could be used to ensure the longevity of sales of the product. **[12]**

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END OF QUESTION PAPER