OCR
Oxford Cambridge and RSA

AS Level in Design and Technology: Fashion and Textiles

H005/01 Principles of Fashion and Textiles

Monday 14 May 2018 – Afternoon

Time allowed: 1 hour 45 minutes

6997598213

You may use:
- a scientific calculator
- a ruler
- pencils/pens
- geometrical instruments

H00501

First name									
Last name									
Centre number						Candidate number				

INSTRUCTIONS
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided. If additional space is required, use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.
- Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.
- Do **not** write in the barcodes.

INFORMATION
- The total mark for this paper is **90**.
- 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 **24** pages.

Answer **all** the questions.

1 Sun protection is a very important consideration today for all ages.

Fig. 1.1 shows a unisex swim top for the age range 2 to 5 years.

Fig. 1.2 shows the crab motif on the swim top.

Fig. 1.1

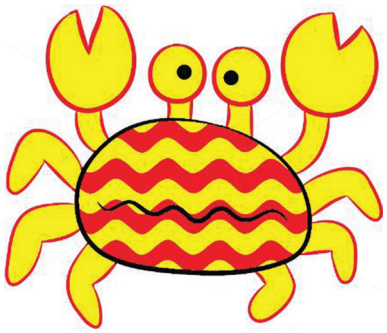

Fig. 1.2

(a) The swim top has been made from knitted jersey that is 90% polyester and 10% elastane.

Give **two** examples of how the designer could have used smart materials in the design of the swim top to ensure protection from the sun. Justify your response.

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[4]

(b) The crab motif on the swim top has been created by appliqué. However, following tests, the stitching around the motif weakens the UV protective qualities of the fabric. The manufacturer has been asked to create the same effect using a screen printing method.

Use annotated sketches and/or notes to show how a textile print manufacturer would use an industrial screen printing method to complete the three-colour screen print as shown in **Fig. 1.2**.

[6]

(c) The wholesale cost of the original appliqué swim top is £18.50. The redesigned swim top using the screen printing method cost 15% less than the original version.

Calculate the cost of the redesigned swim top. Give your answer correct to the nearest penny.

Cost £ .....

[1]

(d) The swim top crab motif is a screen printed placement print. A placement print is a design that has been strategically placed onto a garment in a desired position.

Explain **two** disadvantages to the manufacturer of adding a placement screen print to fashion products.

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[4]

(e)* The swim top in **Fig. 1.1** has been made from knitted fabric. Many manufacturers today use whole garment knitting to produce knitted fabric.

Discuss the advantages to the manufacturer of whole garment knitting.

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2 **Fig. 2.1** shows a child's educational toy. Each of the body segments is made from different fabrics to enhance sensory learning.

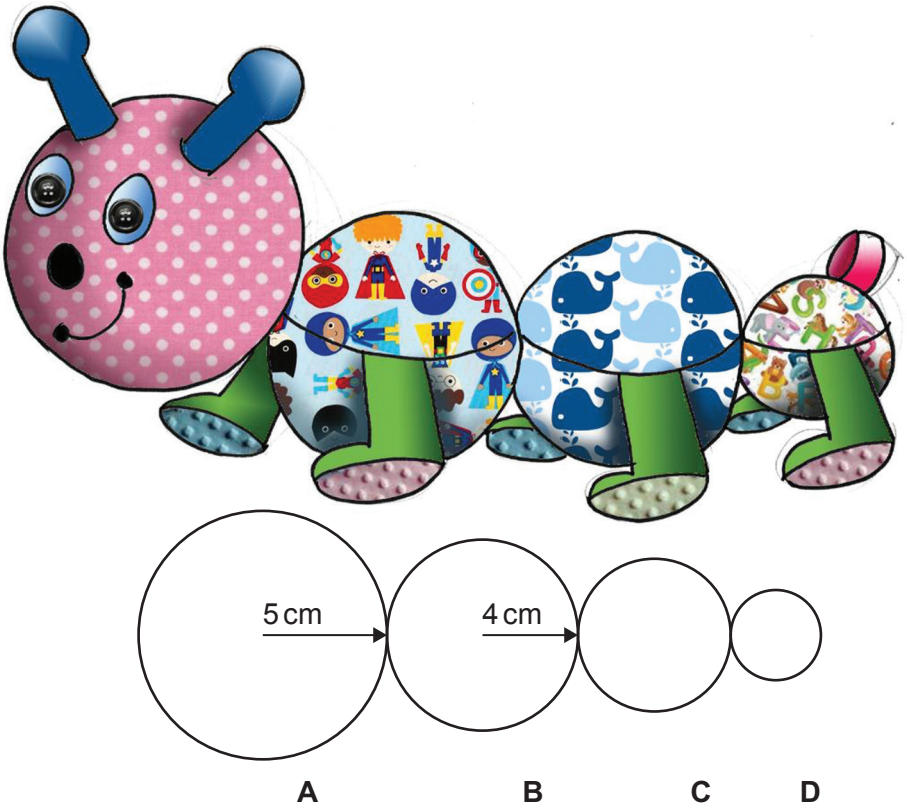


Fig. 2.1
(not to scale)

The educational toy shown in **Fig. 2.1** has four body segments labelled **A**, **B**, **C** and **D**. Each of these body sections is made in the shape of a perfect sphere.

The radius of the largest sphere, **A**, is 5 cm and the radius of sphere **B** is 4 cm. The radius of sphere **C** is 20% smaller than the radius of sphere **B** and the radius of sphere **D** is 20% smaller than the radius of sphere **C**.

(a) Show how the radius of sphere **C** is 3.2 cm and the radius of sphere **D** is 2.56 cm.

C = ...

D = ...

[2]

(b) The volumes of spheres **A** and **B** are shown below, each correct to the nearest whole number. Calculate the volume of spheres **C** and **D**. Give your answers correct to the nearest whole number.
[The volume, V, of a sphere with radius, r, is $V = \frac{4}{3}\pi r^3$]

A = 524 cm^3

B = 268 cm^3

C ..... cm^3

D ..... cm^3

[2]

(c) Each sphere is filled to exactly $\frac{3}{4}$ of its volume with polystyrene beads. They are not filled to full capacity to allow for movement. The polystyrene beads are sold in bags and cost 35p per 100 cubic centimetres.

Calculate the total cost to $\frac{3}{4}$ fill all four spheres with these beads. Give your answer in pounds. Show your working.

Total cost £ .....

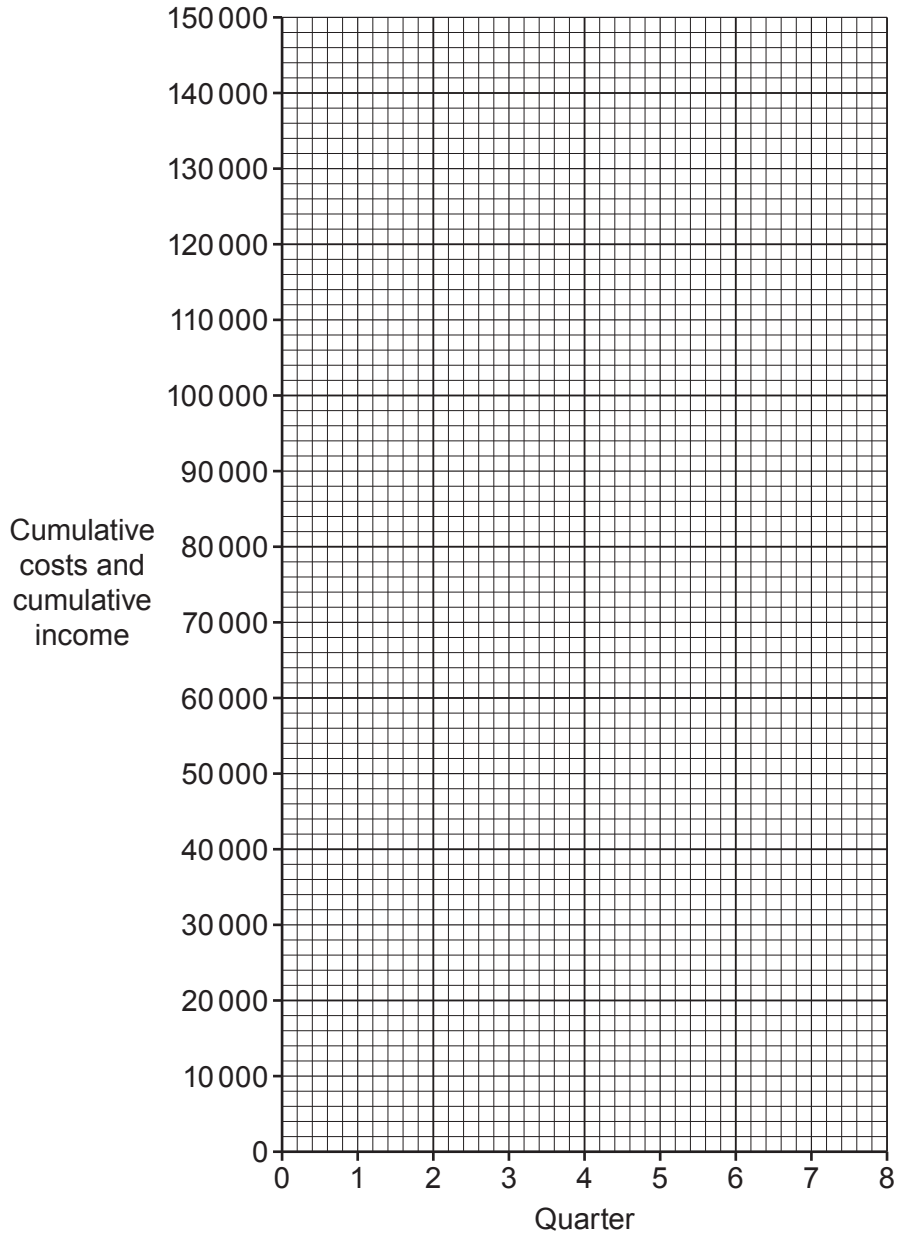
[3]

(d) The information in **Fig. 2.2** provides the predicted costs and income of the educational toy for the next 32 months in quarterly intervals.

Predicted costs and income for the educational toy

Quarters	Cost	Income	Cumulative Costs	Cumulative Income
1	25000	2000		
2	10000	5000		
3	8000	12000	43000	
4	8000	25000		
5	5000	35000		79000
6	5000	45000		
7	10000	15000	71000	
8	10000	8000		147000

Fig. 2.2



(i) Complete **Fig. 2.2** to show the cumulative costs and cumulative income. **[1]**

(ii) Using the information in **Fig. 2.2**, plot the cumulative costs and cumulative income on the graph. **[2]**

(iii) Use the graph to predict in which quarter the lines cross.

..... **[1]**

3 **Fig. 3.1** shows a storage item hanging from the front passenger seat of a car.

Fig. 3.1

Fig. 3.2 shows the catalogue image and details of the product.

Product Specification

Dimensions (cm) – H × W: 58 × 38
Fabric – bonded polyester
Folds flat for compact storage when not in use
After care – wipe clean

Customer Reviews

1. 'The quality of the fabric used in the construction of this item is very poor. It feels very thin and papery and I doubt it would hold anything of substance'.

2. 'The velcro fastening at the top of the strap is not strong enough'.

3. 'Really flimsy, the binding around the edge of the pockets started to come apart'.

4. 'The fabric became dirty after a very short time'.

Fig. 3.2

(a) Use **Figs. 3.1** and **3.2** to recommend **two** improvements that could be made to enhance the quality of the storage item before the next production run. Justify your response.

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[4]

(b) The manufacturer is offering consumers the option to add customised embroidery to their storage item using a computer-controlled sewing machine. An example of this is shown in **Fig. 3.3**. The lettering has been uploaded onto a computer-controlled sewing machine.

Fig. 3.3

Use annotated sketches and/or notes to show how the customised embroidery would be applied to the pocket of the storage item.

[6]

(c) The designer of the storage item wants to attract a younger target market by introducing customised products.

Explain **one** impact that this would have on the production process for the manufacturer.

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(d) The use of non-woven fabrics (as used in the storage item) is increasingly used in the medical sector.

Give **two** reasons why the medical sector would use these fabrics. Justify your response.

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[4]

4 **Fig. 4.1** shows a designer shirt manufactured by a fashion company.

Fig. 4.1

(a) **(i)** Prior to the manufacture of the designer shirt in **Fig. 4.1** the fashion company must carry out stakeholder analysis. Identify **two** methods that could be used for investigating stakeholder requirements.

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(ii) Describe **one** way designers use forecasting to identify fashion trends.

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(b) Last season, the fashion company launched the designer shirt, as featured in **Fig. 4.1**, in a bespoke range. This season the fashion company will adapt the designer shirt for mass production.

Discuss how the shirt might be modified for mass production.

In your answer, you could make reference to:

- cost
- fabric
- components
- finishes.

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(c) The designer has created working drawings for the new mass produced shirt.

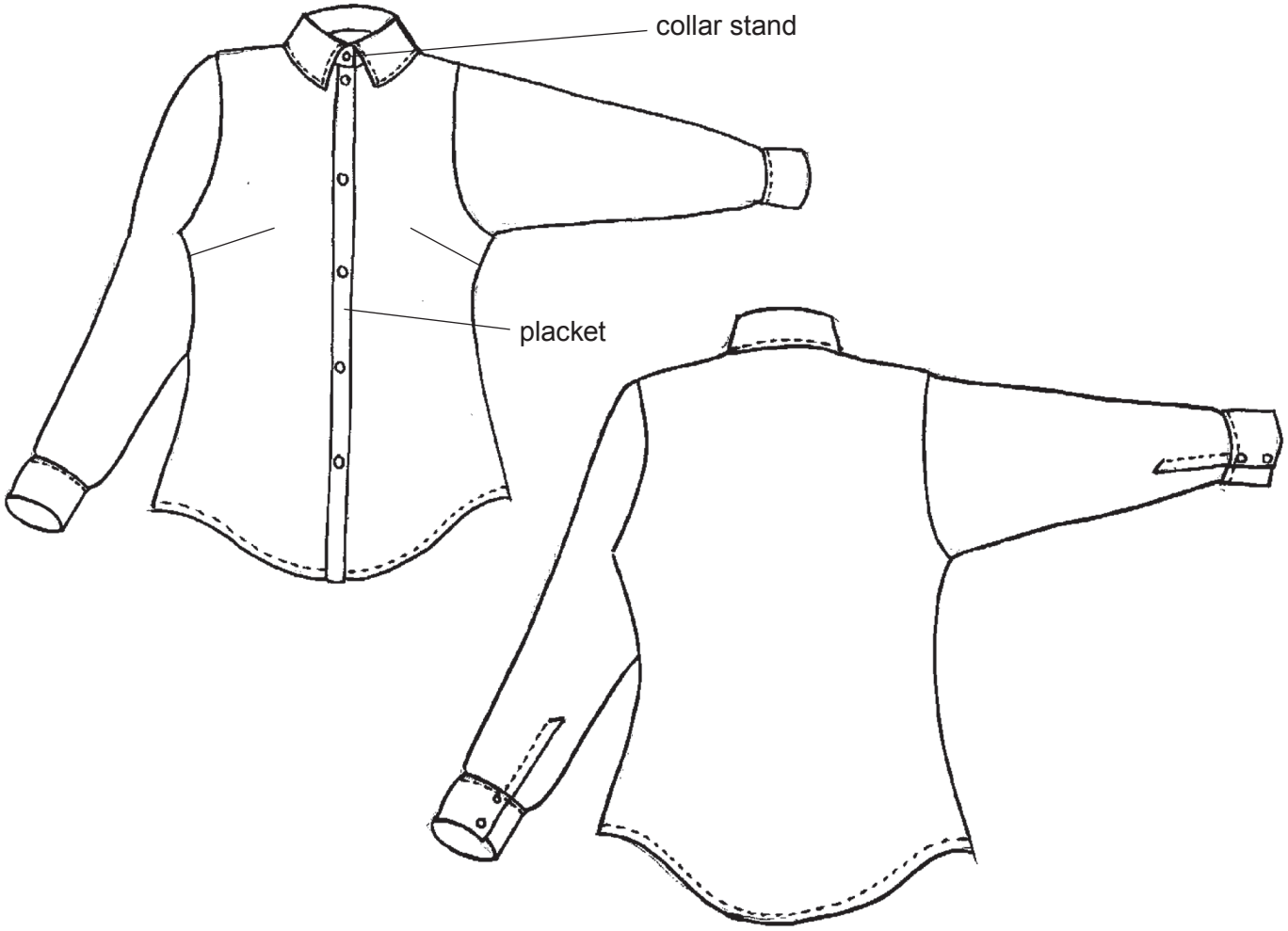

Fig. 4.2
(not to scale)

Use the working drawings in **Fig. 4.2** to draft the pattern templates that would be required for the mass produced shirt. The pattern templates must show all relevant pattern markings.

[6]

(d) The first button is on the collar stand and the remaining five buttons are on the shirt placket.

The finished length of the placket is 63 cm.

The top button on the placket is positioned 1 cm from the top. The bottom button on the placket is positioned 14 cm from the hem. What distance apart should the remaining buttons be positioned on the placket? Show your working.

Distance apart ..... cm

[2]

(e) The fashion company is moving to a new premises and wants to take the opportunity to invest in new technology to support its design and manufacturing processes.

Evaluate possible ways CAD technology can deliver efficiencies in the design of fashion products.

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5 It is important that fashion and textile designers consider wider issues when launching a new product.

(a) Describe **one** way cultural influences impact on the launch of a new product. Give an example to support your answer.

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(b) When launching a new fashion or textiles product, marketing activity has an increasing influence on its success.

Describe **two** marketing activities that could be used to extend the lifecycle of an existing product.

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(c)* One-off fashion is often only accessible to a small target market.

Discuss the social and ethical issues associated with the design and manufacture of one-off fashion.

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END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

PLEASE DO NOT WRITE ON THIS PAGE