

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number					
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Candidate Number				
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Pearson Edexcel

Level 1/Level 2 GCSE (9-1)

Friday 24 May 2019

Afternoon (Time: 1 hour 45 minutes) plus your additional time allowance)

Paper Reference 1DT0/1E

**Design and Technology
Component 1: Textiles**

YOU MUST HAVE: Calculator, ruler HB pencil, protractor, compass A diagram booklet	Total Marks
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INSTRUCTIONS

- **Use BLACK ink, ball-point pen or your usual method.**
- **FILL IN THE BOXES at the top of the previous page with your name, centre number and candidate number.**
- **Answer ALL questions.**
- **Answer the questions in the spaces provided – there may be more space than you need.**
- **Calculators may be used.**
- **Any diagrams may NOT be accurately drawn, unless otherwise indicated.**
- **You must SHOW ALL YOUR WORKING OUT with YOUR ANSWER CLEARLY IDENTIFIED at the END OF YOUR SOLUTION.**

INFORMATION

- **The total mark for this paper is 100.**
- **The marks for EACH question are shown in brackets**
 - **use this as a guide as to how much time to spend on each question.**

ADVICE

- **Read each question carefully before you start to answer it.**
- **Try to answer every question.**
- **Check your answers if you have time at the end.**

SECTION A – CORE

ANSWER ALL QUESTIONS. WRITE YOUR ANSWERS IN THE SPACES PROVIDED.

- 1 (a) The materials that products are made from are chosen because of their properties.**

Figure 1 in the diagram booklet shows a table of products.

For each of the products shown, give a property of the material it is made from that makes the material suitable for the product.

The first one has been done for you.

- 1 (b) Figure 2 in the diagram booklet shows a table with the number of plastic bags given away in England.

Calculate the percentage reduction in the number of plastic bags given away between 2014 and 2015.

Give your answer to the nearest whole number. (2)

Percentage reduction _____

- 1 (c) In 2015 charging for carrier bags was introduced resulting in a reduction in the number of bags being manufactured.**

Explain ONE negative effect of this reduction for the manufacturer. (2)

(TOTAL FOR QUESTION 1 = 8 MARKS)

- 2 Figure 3 in the diagram booklet shows a drawing of a fabric play cube for young children.**

The fabric play cube has a side length of 60 mm.

- (a) Name the communication technique that has been used to produce the drawing shown in Figure 3.**

(1)

- (b) A prototype play cube was made from calico.**

Explain ONE reason for using calico for the prototype play cube. (2)

- 1 (c) The pattern for the prototype play cube was made from a single net.**

Draw a net for the play cube on the grid provided in the diagram booklet.

Do not include any seam allowance.

Use a thick dashed line — — — — to show where the net would be folded. (4)

- 1 (d) Tracing paper was used to design the prototype play cube.

Explain ONE reason why designers use tracing paper. (2)

(TOTAL FOR QUESTION 2 = 9 MARKS)

- 3 Figure 4 in the diagram booklet shows part of a solar powered garden light.**

The outer case is made from acrylic.

- (a) Give ONE property of acrylic that makes it an appropriate material from which to make the outer case. (1)**

- (b) The solar powered garden light is held off the ground by a stainless steel support.**

Explain ONE reason for using stainless steel for the support. (2)

- 3 (c) The manufacturer of the solar powered garden light wants to reduce its carbon footprint.**

Explain ONE way new and emerging technologies could be used to reduce the manufacturer's carbon footprint. (2)

- 3 (d) The solar cell used in the solar powered garden light costs $\frac{1}{12}$ th of the total cost of the product.

Calculate the cost of the solar cell if each light costs £4.97 to make.

Give your answer to two significant figures.

(2)

£

- 3 (e) The manufacturer of the solar powered garden light employs different groups of people including apprentices.**

Explain TWO ways that the use of new and emerging technologies could affect the apprentices. (4)

1. _____

2. _____

(TOTAL FOR QUESTION 3 = 11 MARKS)

- 4 Figure 5 in the diagram booklet shows a drawing of a jewellery box made from mahogany.**

The electronic component shown in Figure 6 in the diagram booklet is used in the jewellery box.

- (a)(i) Name the electronic component shown in Figure 6. (1)**
-

4 (a)(ii)

The jewellery box uses a programmable component to turn on a musical tune when the lid is opened, that stays on until the lid is closed.

Figure 7 in the diagram booklet shows a partly completed flowchart for the programmable component.

Correctly label the DECISION OUTPUTS and add the remaining LINES and ARROWS on the flowchart to show how the programmable component:

- **turns on the musical tune when the lid is opened**
- **turns off the musical tune when the lid is closed.**

(3)

- 4 (b) Analyse the information in Figure 8 about the sources of mahogany.

Figure 8

SOURCES OF MAHOGANY	PERCENTAGE GROWN IN EACH AREA (%)
Native forests	7
National parks	30
Other	63

Complete the bar chart in the diagram booklet to show the percentage grown in each area.

The first one has been done for you. (2)

- 4 (c) A film company is considering launching a range of musical jewellery boxes based on its animated characters.**

Discuss the different design strategies the company could use to generate initial ideas and to avoid design fixation. (6)

[illegible]

(TOTAL FOR QUESTION 4 = 12 MARKS)

TOTAL FOR SECTION A = 40 MARKS

SECTION B – TEXTILES

ANSWER ALL QUESTIONS. WRITE YOUR ANSWERS IN THE SPACES PROVIDED.

- 5 Figure 9 in the diagram booklet shows a design solution for an armchair organiser together with some additional information.**

continued on the following page

- 5 (a) The armchair organiser needs to be improved to include the following specification points.**

The armchair organiser must:

- **be able to be securely fitted to chair arms that are 200 mm to 240 mm wide**
- **provide a method to hold a coffee cup without the risk of it being tipped over**
- **store two remote controls so they are both separate and cannot fall out of the organiser.**

Use notes and sketches, on the outline in the diagram booklet, to show how the armchair organiser could be modified to include these specification points.

You will be marked on how you apply your understanding of design and technology, not your graphical skills. (6)

- 5 (b) Figure 10 in the diagram booklet shows a felt covered retail display unit for a pair of glasses.**

Explain TWO ways that the retail display unit meets, or fails to meet, the criteria of providing a secure way to display the glasses. (4)

- 1.** _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

continued on the following page

2.

(TOTAL FOR QUESTION 5 = 10 MARKS)

6 Figure 11 in the diagram booklet shows a book made from upcycled fabrics.

(a) Explain TWO advantages of manufacturing the book from upcycled fabrics. (4)

1. _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

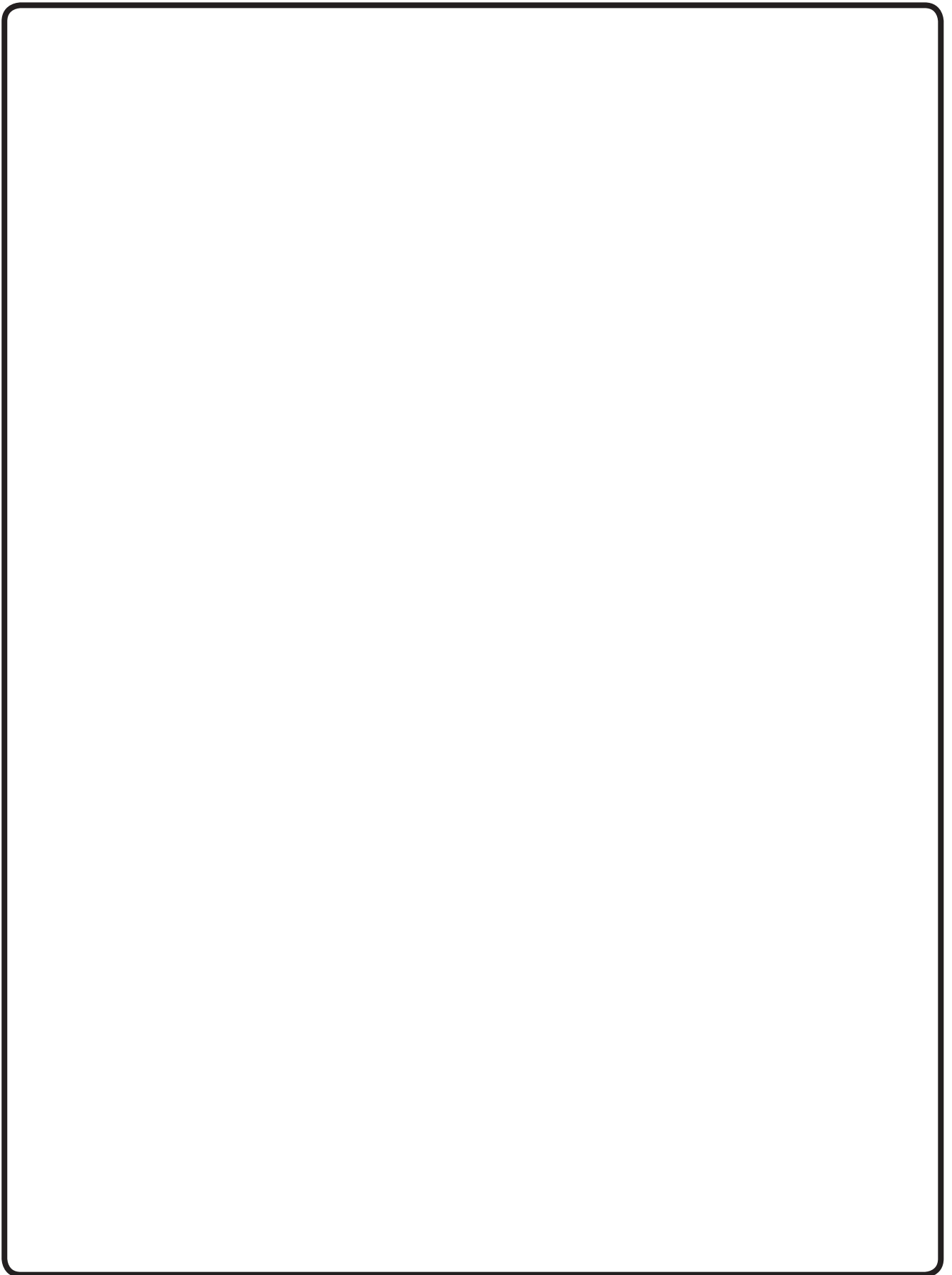
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2.

- 6 (b) Figure 12 in the diagram booklet shows two layers of fabric that will be used to construct a page for the book.**

Use notes and sketches, in the space on the following page, to show how the layers would be joined to make a page with no raw edges.

You will be marked on how you apply your understanding of design and technology, not your graphical skills. (4)



- 6 (c) Figure 13 in the diagram booklet shows the inside of the book. It has been decorated with different features.**

Explain ONE reason for using different fabrics for the tree and the pond. (2)

6 (d) Figure 14 in the diagram booklet shows the tree for the book.

The trees are to be manufactured from fleece fabric in a batch of 1000.

Name TWO different techniques that could be used to batch produce the tree.

Explain ONE advantage of using each technique.
(6)

Technique 1

Explanation

continued on the following page

Technique 2

Explanation

(TOTAL FOR QUESTION 6 = 16 MARKS)

- 7 Figure 15 in the diagram booklet shows some outdoor bunting that is made from a woven nylon fabric.**
- (a) Name ONE surface finish or surface treatment that could be used to apply the detail to each face. (1)**
-

- 7 (b) The figures are attached to stock-sized 25 mm wide bias binding.

Explain TWO reasons for using stock-sized bias binding. (4)

1. _____

2. _____

- 7 (c) Figure 16 in the diagram booklet shows the dimensions for the body of the bunting figures.**

Calculate the maximum number of whole bunting figure bodies that could be cut from a length of fabric measuring 1810 cm long by 40 cm wide.

Ignore the width of any cuts. (5)

Answer _____ whole bodies

- 7 (d) Explain TWO properties of woven nylon fabric that make it an appropriate choice of material for the figures on the outdoor bunting. (6)

1. _____

continued on the following page

2. _____

(TOTAL FOR QUESTION 7 = 16 MARKS)

8 Figure 17 in the diagram booklet shows a kitchen apron made from a woven twill cotton fabric.

(a)(i) Explain ONE reason for applying a fireproofing treatment to the kitchen apron. (2)

8 (a)(ii)

Explain ONE working property of a woven twill fabric that makes it suitable for the kitchen apron. (3)

8 (b) The apron is also dyed.

**Explain TWO negative effects on the
environment of dyeing cotton. (4)**

- 1.** _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

continued on the following page

2.

- 8 (c) The kitchen aprons are manufactured in Europe and transported worldwide.**

Figure 18 in the diagram booklet shows a table with information about the kitchen aprons.

Analyse the information in Figure 18.

Evaluate the kitchen aprons with reference to their social footprint including:

- trend forecasting**
- impact of farming on communities**
- ease and difficulty of recycling and disposal.**

(9)

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(TOTAL FOR QUESTION 8 = 18 MARKS)

TOTAL FOR SECTION B = 60 MARKS

TOTAL FOR PAPER = 100 MARKS