

Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						5	3	1	8	/	0	2	Signature	

Paper Reference(s)

5318/02

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Manufacturing (Double Award) (2351)

Engineering (Double Award) (2316)

Unit 3: Application of Technology

Sector 02: Food and Drink,

Biological and Chemical

Monday 17 May 2010 – Afternoon

Time: 1 hour 30 minutes

Question Number	Leave Blank
1	
2	
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11	
12	
13	
14	
Total	

Materials required for examination

Notes and sketches collected during your pre-release research
Ruler, pen, pencil, rubber

Items included with question papers

Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature. Check that you have the correct question paper. You should attempt ALL questions in Section A and ALL questions in Section B. Write your answers in the spaces provided in this question paper.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2). There are 14 questions in this question paper. The total mark for this paper is 100. The total mark for Section A is 45 and the total mark for Section B is 55. There are 16 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

You are reminded of the importance of clear English and careful presentation in your answers. You may take your researched notes and sketches into the examination room and use these as reference material. NONE of this material should be sent to Edexcel and pre-release work will not be marked.

Do NOT attach your notes and sketches collected during your pre-release research.

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Turn over

Answer ALL questions in Section A and Section B.

SECTION A

Answer ALL questions in this section. Write your answers in the spaces provided.

1. All of the products listed below belong to a manufacturing sector.

(a) Tick the **two** boxes below where the products belong to the **food and drink** sector.

Product	Tick two boxes below
Pasta sauce	
Windscreen wiper	
Ginger beer	
Pencil sharpener	
Games console	
Metal curtain rail	

(2)

(b) Tick the **two** boxes below where the products belong to the **biological and chemical** sector.

Product	Tick two boxes below
Wooden spoon	
Soap dispenser	
Gas hob	
Toilet bleach	
Digital thermometer	
Insect spray	

(2)

Q1


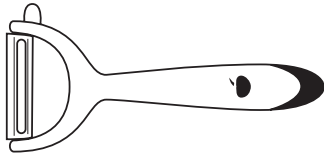
(Total 4 marks)



2. The tables below show some equipment used in the manufacture of food and drink products.

(a) Complete **Table 1** by naming the equipment.


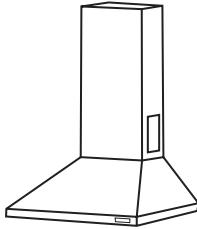
Table 1

Equipment	Equipment name	Use
		Used to remove any lumps from, for example, flour, sugar, soups, sauces or gravy.
		Used to remove the skin from, for example, potatoes or carrots.

(2)

(b) Complete **Table 2** by explaining the use of the equipment.

Table 2

Equipment	Equipment name	Use
	Colander	
	Cooker hood	

(4)

(Total 6 marks)

Q2



3. Draw a straight line to link each term listed below to the correct key area.

Each key area can be used more than once.

Term

Key area

Preservatives

(1)

Information and communications technology (ICT)

Embedded computers

(1)

Presentation software

(1)

Control technology

Raising agents

(1)

Thermostat

(1)

Modern materials

Voice over internet protocol (VoIP)

(1)

(Total 6 marks)

Q3



4. Mass produced small apple pies belong to the food and drink sector.

(a) (i) Name **one** other product from this sector, apart from a small apple pie, that utilises, in its manufacture, information and communications technology and a modern material.

..... (1)

(ii) Explain the purpose of the product.

.....
.....
..... (2)

(b) (i) Name **one** stage in the manufacture of the product you gave in 4(a)(i) where information and communications technology is used.

..... (1)

(ii) Explain **one** advantage to the **manufacturer** of using information and communications technology at this stage.

.....
.....
..... (2)

(c) (i) State **one** modern material used in the manufacture of the product you named in 4(a)(i).

..... (1)

(ii) Describe how this modern material improves the characteristics of the product.

.....
.....
..... (2)

(Total 9 marks)

Q4



5. Computer-aided design (CAD) and communications technology are used by manufacturers of food and drink, biological and chemical products.

(a) (i) Give **two** examples of **how** CAD is used by a manufacturer.

Example 1

Example 2

(2)

(ii) Using an example from 5(a)(i), explain **one** benefit to the **manufacturer** of using CAD.

.....

.....

.....

(2)

(b) (i) Give **two** examples of a communications technology as used by a manufacturer.

Example 1

Example 2

(2)

(ii) Using an example from 5(b)(i), explain **one** benefit to the **manufacturer** of using communications technology.

.....

.....

.....

(2)

(Total 8 marks)

Q5



6. (a) Smart materials are used by some food and drink, biological and chemical manufacturers.

Explain the term 'smart material'.

.....
.....
.....

(2)

(b) Computer-aided manufacture (CAM) is used by manufacturers of food and drink, biological and chemical products.

Explain **three** benefits to a manufacturer of using CAM.

Benefit 1

.....

(2)

Benefit 2

.....

(2)

Benefit 3

.....

(2)

(Total 8 marks)

Q6



7. (a) Control technology is an essential feature in food and drink, biological and chemical product manufacture.

Explain the impact of control technology on safety when manufacturing.

.....
.....
.....
.....

(2)

(b) Handling information and data is an essential feature of food and drink, biological and chemical product manufacturers.

Explain how the use of information and data handling systems benefit the manufacturer, when marketing products.

.....
.....
.....
.....

(2)

(Total 4 marks)

Q7

TOTAL FOR SECTION A: 45 MARKS



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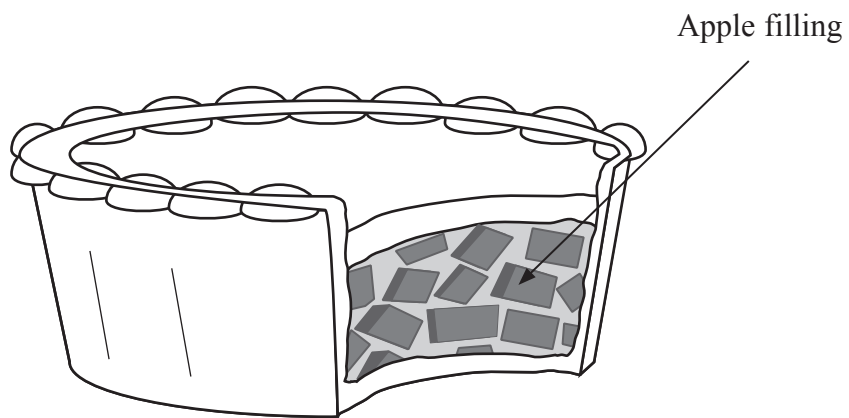
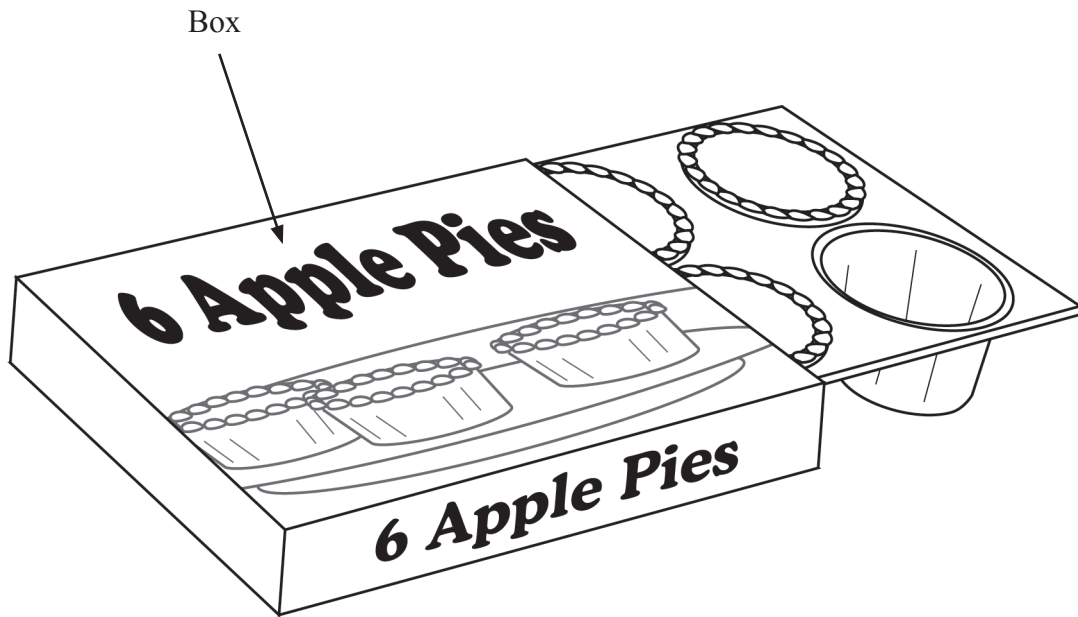
TURN OVER FOR SECTION B



SECTION B

Answer ALL questions in this section with reference to the manufacture of mass market, mass produced boxes of small apple pies. Write your answers in the spaces provided.

The diagram below shows a mass produced box of small apple pies.



8. (a) Give **three** functions of the box.

Function 1

.....

Function 2

.....

Function 3

.....

(3)

(b) Give **three** functions of the apple filling.

Function 1

.....

Function 2

.....

Function 3

.....

(3)

Q8

(Total 6 marks)



9. (a) The following table indicates some of the main stages in manufacturing mass produced boxes of small apple pies.

(i) Complete the table below by giving the **two** missing stages in manufacturing mass produced boxes of small apple pies.

Stages in manufacturing	
1	Design
2	Marketing
3	
4	
5	Production
6	Assembly and Finishing
7	Packaging and Dispatch

(2)

(ii) State the stage in manufacturing where the mass produced boxes of small apple pies are delivered to **retailers**.

Stage

(1)

(b) Describe the following **two** stages in the manufacture of mass produced boxes of small apple pies.

(i) Design

.....
.....
.....
.....

(3)

(ii) Production

.....
.....
.....
.....

(3)

(Total 9 marks)

Q9



10. (a) Name an ingredient commonly used to make the gel to thicken the apple pie filling.

..... (1)

(b) (i) State **three** processes, other than weighing and measuring, used during the making of mass produced small apple pies.

Process 1

Process 2

Process 3

(3)

(ii) Explain why semi-automated weighing and measuring of ingredients is a suitable process for mass producing small apple pies.

.....
.....
.....
.....
.....

(3)

(c) Explain how the use of modern materials has made mass produced boxes of small apple pies appeal to the **consumer**.

.....
.....
.....
.....
.....
.....

(3)

(Total 10 marks)

Q10

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11. (a) Describe **two** quality control procedures used at the production stage when manufacturing mass produced boxes of small apple pies.

(i) Quality control procedure 1

.....
.....
(2)

(ii) Quality control procedure 2

.....
.....
(2)

(b) Explain **one** benefit of applying each quality control procedure, described in 11(a), to the **manufacturer**.

(i) Benefit of procedure 1

.....
.....
(2)

(ii) Benefit of procedure 2

.....
.....
(2)

(c) Explain **one** benefit of applying each quality control procedure, described in 11(a), to the **retailer**.

(i) Benefit of procedure 1

.....
.....
(2)

(ii) Benefit of procedure 2

.....
.....
(2)

(Total 12 marks)

Q11

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12. The utilisation of modern technology in the manufacture of mass produced boxes of small apple pies has brought changes.

(a) (i) State **one** change the use of modern technology has had on the workforce.

.....
(1)

(ii) Explain **two** different effects this change has had on the workforce.

Effect 1

.....
(2)

Effect 2

.....
(2)

(b) State **one** change the use of modern technology has had on the working environment.

.....
(1)

(c) Explain **two** benefits the use of modern technology has had on the global environment.

Benefit 1

.....
(2)

Benefit 2

.....
(2)

(Total 10 marks)

Q12

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TURN OVER FOR QUESTIONS 13 AND 14



13. Modern materials are used in the manufacture of mass produced boxes of small apple pies.

Explain how the use of modern materials has impacted on development and final product costs.

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.....

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.....

.....

.....

(Total 4 marks)

Q13

14. Manufacturing of mass produced boxes of small apple pies uses energy. Modern food manufacturing processes operate more efficiently than traditional processes.

Explain why the use of modern food manufacturing processes may lead to **increased** energy consumption.

.....

.....

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.....

.....

.....

.....

.....

.....

.....

.....

(Total 4 marks)

Q14

TOTAL FOR SECTION B: 55 MARKS
TOTAL FOR PAPER: 100 MARKS

END

