



Answer ALL the questions in Section A and Section B.

**SECTION A**

Answer ALL the 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.

Products	Tick <b>two</b> boxes below
Carbon fibre	
Ketchup	
13A plug	
Apple juice	
Neoprene glove	
MP3 player	

(2)

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

Products	Tick <b>two</b> boxes below
Mobile phone	
Walking boots	
Toilet bleach	
Hydraulic pump	
Garden fertiliser	
Assembly robot	

(2)

Q1

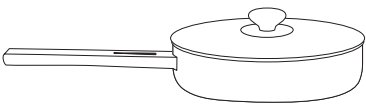
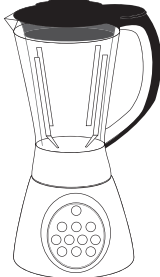
(Total 4 marks)



2. The two tables below show some equipment used in the manufacture of products.

(a) Complete **Table 1** by naming each piece of equipment.

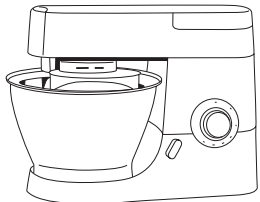
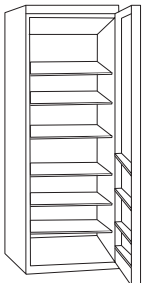
**Table 1**

Equipment	Equipment name	Use
		To hold raw ingredients, such as meats, fish or vegetables, whilst they are being cooked, for example boiled, fried, poached, etc.
		To make fruits, vegetables, soups, meats, etc. into smooth liquids.

(2)

(b) Complete **Table 2** by explaining what each piece of equipment is used for.

**Table 2**

Equipment	Equipment name	Use
	Mixing machine	
	Refrigerator	

(4)

(Total 6 marks)

Q2



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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**

Assembly robot

(1)

Information and  
Communications Technology  
(ICT)

Enzymes

(1)

Spreadsheet

(1)

Control technology

Acidity regulator

(1)

Programmable logic  
controllers (PLCs)

(1)

Modern materials

Word processing

(1)

Q3

(Total 6 marks)



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4. Chocolate chip muffins belong to the food and drink sector.

(a) (i) Name **one** other product from this sector, apart from a **chocolate chip muffin**, that utilises in its manufacture a modern material and process control.

.....  
(1)

(ii) Explain the purpose of this product.

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

(b) (i) State **one** stage in the manufacture of the product you named in 4(a)(i) where control technology is used.

.....  
(1)

(ii) Explain **one** advantage to the **manufacturer** of using control 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 key features of the product.

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

(Total 9 marks)

Q4



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5. Information and Communications Technology (ICT) is used by manufacturers of food and drink, biological and chemical products.

(a) (i) Give **one** example of **where** a database could be used by a manufacturer.

.....  
(1)

(ii) Explain **one** benefit to the manufacturer of using a database relating to this example.

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

(b) (i) Give **one** example of communications technology as used by a manufacturer.

.....  
(1)

(ii) Explain **one** benefit to the manufacturer of using communications technology relating to this example.

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

(c) Explain **one** benefit to the **retailer** of the manufacturer using ICT.

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

(Total 8 marks)

Q5



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6. Systems and control technology is now used by manufacturers to organise, monitor and control production.

- (a) Name **two** different examples of systems and control technology.
- (b) Describe the traditional method each has replaced.
- (c) Explain **one** benefit to the manufacturer of using each replacement systems and control technology.

**Example 1**

Systems and control technology 1 .....  
.....  
(1)

Method it has replaced .....  
.....  
(1)

Benefit of replacement .....  
.....  
.....  
(2)

**Example 2**

Systems and control technology 2 .....  
.....  
(1)

Method it has replaced .....  
.....  
(1)

Benefit of replacement .....  
.....  
.....  
(2)

(Total 8 marks)

Q6



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7. Computer-aided manufacture (CAM) is an essential feature in food and drink, biological and chemical manufacturing companies.

Explain **one** benefit CAM has for the:

(a) Manufacturer .....

.....

.....

.....

.....

(2)

(b) Consumer .....

.....

.....

.....

.....

(2)

Q7

(Total 4 marks)

**TOTAL FOR SECTION A: 45 MARKS**





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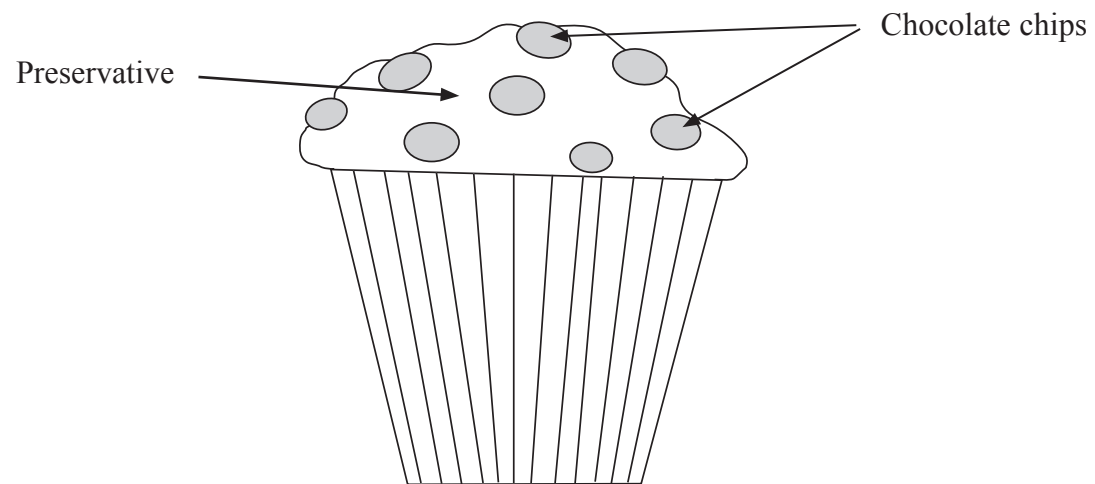


N 3 3 1 1 6 R A 0 9 2 0

**SECTION B**

**Answer ALL the questions in this section with reference to the manufacture of mass produced chocolate chip muffins. Write your answers in the spaces provided.**

The diagram below shows a chocolate chip muffin.



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8. (a) Explain **three** functions of the preservative.

1 .....

.....

2 .....

.....

3 .....

.....

(3)

(b) Explain **three** functions of the chocolate chips.

1 .....

.....

2 .....

.....

3 .....

.....

(3)

Q8

(Total 6 marks)

11

Turn over



9. (a) The following table shows some of the main stages in manufacturing chocolate chip muffins.

(i) Complete the table below by giving the **two** missing stages in manufacturing chocolate chip muffins.

Stages in manufacturing	
1	
2	Marketing
3	Production planning
4	
5	Processing - Production
6	Finishing
7	Packaging and dispatch

(2)

(ii) State the stage in manufacturing where the chocolate chip muffins would be advertised.

Stage .....

(1)

(b) Describe the following **two** stages in the manufacture of chocolate chip muffins.

(i) Processing - Production .....

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

(3)

(ii) Packaging and dispatch .....

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

(3)

(Total 9 marks)

Q9



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10. (a) Mass produced chocolate chip muffins are manufactured using modern materials and processes.

(i) Name **one** specific material, other than preservatives, chocolate chips or humectants, commonly used in the production of chocolate chip muffins.

.....  
(1)

(ii) Explain how this material has helped to improve the characteristics of chocolate chip muffins.

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

(b) Humectants can be an ingredient in chocolate chip muffins.

Explain **two** functions of a humectant.

Function 1 .....

.....

Function 2 .....

.....

(2)

(c) Describe **one** safety precaution that should be taken when handling ingredients used in the manufacture of chocolate chip muffins.

.....

.....

(2)



(d) Explain how the use of modern materials has helped the **manufacturer** of chocolate chip muffins to increase sales.

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.....

.....

(3)

(Total 10 marks)

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Q10

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11. Automation is used in the manufacture of chocolate chip muffins.

- (a) Describe **two** examples of automation used at the **production** stage of the manufacture of chocolate chip muffins.
- (b) Explain **one** benefit to the **manufacturer** of applying each type of automation.
- (c) Explain **one** benefit to the **consumer** of applying each type of automation.

**Example 1**

Automation Example 1 .....  
.....  
..... (2)

Benefit to manufacturer .....  
.....  
..... (2)

Benefit to consumer .....  
.....  
..... (2)

**Example 2**

Automation Example 2 .....  
.....  
..... (2)

Benefit to manufacturer .....  
.....  
..... (2)

Benefit to consumer .....  
.....  
..... (2)

(Total 12 marks)

Q11





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**12.** The use of computer-aided manufacture (CAM) and control technology in the manufacture of chocolate chip muffins has brought changes.

(a) (i) State **one** change CAM has had on the type and size of the workforce.

Change .....  
(1)

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

Effect 1 .....  
.....  
(2)

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

(b) (i) State **one** change control technology has had on the global environment.

Change .....  
(1)

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

Effect 1 .....  
.....  
(2)

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

**Q12**

**(Total 10 marks)**



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13. Modern materials are used in the manufacture of chocolate chip muffins.

(a) Explain how modern materials have impacted environmentally in terms of waste product disposal.

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(4)





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