



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 **engineering fabrication** sector.

Product	Tick <b>two</b> boxes below
Train ticket	
Bathroom taps	
GCSE certificate	
Pasta sauce	
Games console	
Metal curtain rail	

(2)

- (b) Tick the **two** boxes below where the products belong to the **engineering fabrication** sector.

Product	Tick <b>two</b> boxes below
Satellite navigation system	
Wrought iron fence	
Windsurfing sail	
Household radiator	
Beach sandals	
Welders' curtains	

(2)

Q1

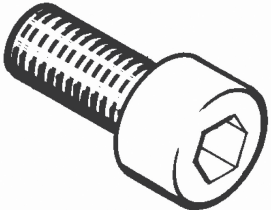

(Total 4 marks)



2. The tables below show some components used in the manufacture of engineered products.

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



**Table 1**

Component	Component name	Use
		Semi permanent fastener, used with a key to join two parts together.
		Used to provide flexible support and movement between parts. They stretch when loaded.

(2)

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

**Table 2**

Component	Component name	Use
	Gear	
	Circlip	

(4)

Q2

(Total 6 marks)



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**

Copper

(1)

Information and communications technology (ICT)

Embedded computers

(1)

Presentation software

(1)

Control technology

Tungsten

(1)

Thermostat

(1)

Modern materials

Voice over internet protocol (VoIP)

(1)

Q3

(Total 6 marks)



4. Mass produced golf trolleys belong to the engineering fabrication sector.

(a) (i) Name **one** other product from this sector, apart from a golf trolley, 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.

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

(Total 9 marks)

Q4



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5. Computer-aided design (CAD) and communications technology are used by manufacturers of engineering fabrication 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)

Q5

(Total 8 marks)



Leave  
blank

6. (a) Smart materials are used in some engineering fabrication products.

Explain the term 'smart material'.

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.....  
.....

(2)

(b) Computer-aided manufacture (CAM) is used by manufacturers of engineering fabrication products.

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

Benefit 1 .....

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(2)

Benefit 2 .....

.....

(2)

Benefit 3 .....

.....

(2)

Q6

(Total 8 marks)

7

Turn over



Leave  
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7. (a) Control technology is an essential feature in engineering fabrication product manufacture.

Explain the impact of control technology on safety when manufacturing.

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

(2)

(b) Handling information and data is an essential feature of engineering fabrication manufacturers.

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

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(2)

(Total 4 marks)

Q7

**TOTAL FOR SECTION A: 45 MARKS**





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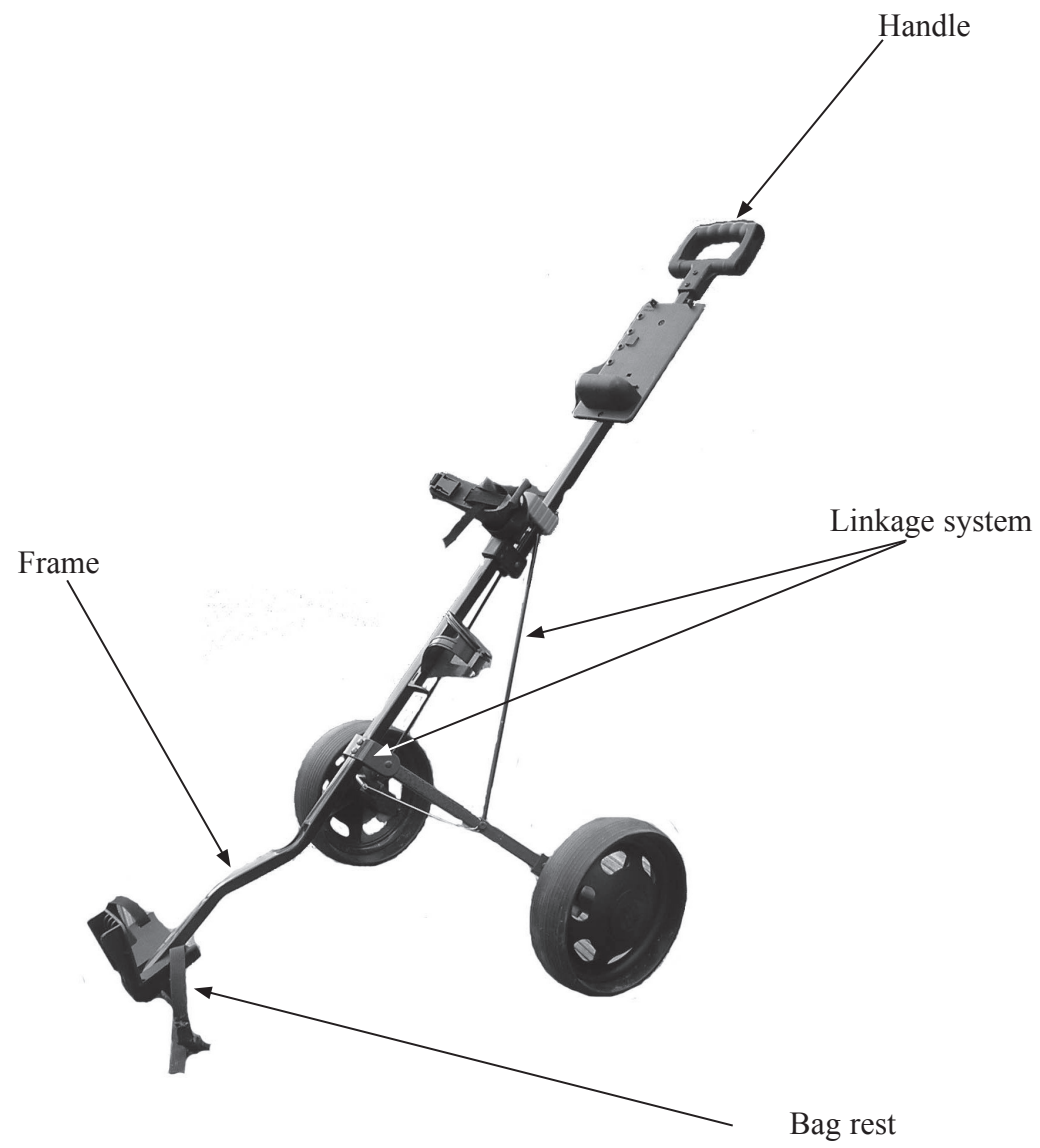
**TURN OVER FOR SECTION B**



**SECTION B**

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

The diagram below shows a mass produced golf trolley.



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8. In the boxes below, describe, using notes and sketches:

(a) the function of the linkage system

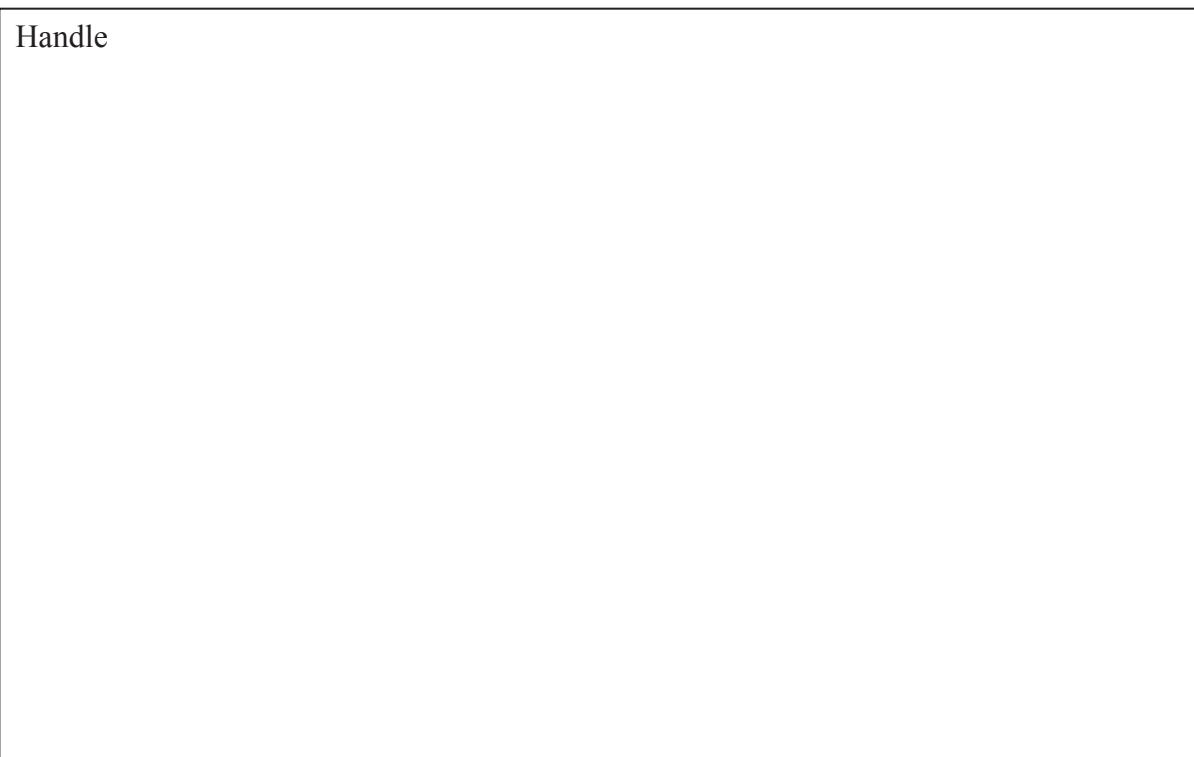
Linkage system



(3)

(b) the function of the handle.

Handle



(3)

Q8

(Total 6 marks)

11

Turn over



9. (a) The following table indicates some of the main stages in manufacturing mass produced golf trolleys.

(i) Complete the table below by giving the **two** missing stages in manufacturing mass produced golf trolleys.

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 golf trolleys are delivered to **distributors**.

Stage .....

(1)

(b) Describe the following **two** stages in the manufacture of mass produced golf trolleys.

(i) Design .....

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

(3)

(ii) Production .....

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

(3)

(Total 9 marks)

Q9



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10. (a) Name a specific metal, apart from steel, commonly used to manufacture the frame of the golf trolley.

.....  
(1)

(b) Injection moulding is a process used to produce the bag rest for mass produced golf trolleys.

(i) State **three** processes, other than injection moulding, used during the making of mass produced golf trolleys.

Process 1 .....

Process 2 .....

Process 3 .....

(3)

(ii) Explain why injection moulding is a suitable process when producing the bag rest.

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(3)

(c) Explain how the use of modern materials has made mass produced golf trolleys appeal to the **consumer**.

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(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 golf trolleys.

(i) Quality control procedure 1

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.....

(2)

(ii) Quality control procedure 2

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.....

(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 **distributor**.

(i) Benefit of procedure 1

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.....

(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 golf trolleys 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

**TURN OVER FOR QUESTIONS 13 AND 14**



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13. Modern materials are used in the manufacture of mass produced golf trolleys.

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

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Q13

(Total 4 marks)

14. Manufacturing mass produced golf trolleys uses energy. Modern engineering processes operate more efficiently than traditional processes.

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

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Q14

(Total 4 marks)

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

**END**

