

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 **engineering fabrication** sector.

Products	Tick two boxes below
Soy sauce	
Plastic ruler	
Baseball cap	
Hanging basket bracket	
Paperback book	
Metal shelving system	

(2)

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

Products	Tick two boxes below
Skateboard	
In-line skates	
BMX bike	
Surfboard	
Power-kite buggy	
Snowboard	

(2)

Q1

(Total 4 marks)



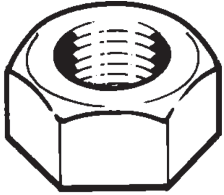
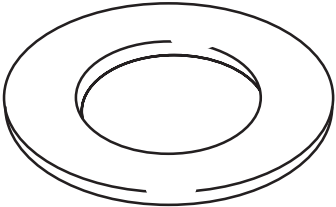
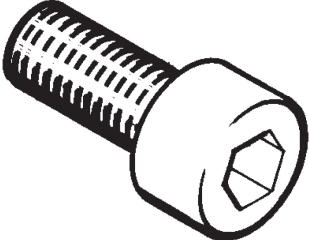
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2. The table shows some components used in the fabrication of products.

Complete the table by:

- (a) Naming each component;
- (b) Explaining what each component is used for.

The first one is done for you.

Components	Component name	Use
	Nut	Used with a bolt as a temporary fastening.
		
		

(3)

(3)

(Total 6 marks)

Q2

3

Turn over



Leave blank

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

Each key area can be used more than once.

Term

Key area

Computer Integrated Manufacturing (CIM)

Information and Communications Technology (ICT)

Titanium

Process control

Modern materials

Carbon fibre

Internet sites

Control technology

Databases

Q3

(Total 6 marks)



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4. Metal cantilever tool boxes belong to the engineering fabrication sector.

(a) (i) Name **one** other product from this sector, apart from **metal cantilever tool boxes**, that utilises in its manufacture control technology and modern materials.

.....
(1)

(ii) Explain how the product can be used.

.....
.....
.....
(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 characteristics of the product.

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

(Total 9 marks)

Q4



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blank

5. Computer-aided manufacture (CAM) and Computer-aided design (CAD) are both used by manufacturers of fabricated products.

(a) (i) Give **one** example of where Computer-aided manufacture (CAM) is used by a manufacturer.

.....
(1)

(ii) Explain the benefits to the **manufacturer** of using Computer-aided manufacture (CAM) relating to the example given in 5(a)(i).

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

(b) (i) Give **one** example of how Computer-aided design (CAD) is used by a manufacturer.

.....
(1)

(ii) Explain the benefits to the **manufacturer** of using the Computer-aided design (CAD) relating to the example given in 5(b)(i).

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

(c) Explain **one** benefit to the **distributor** of the manufacturer using Computer-aided manufacture (CAM).

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

(Total 8 marks)

Q5



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6. Communications technology is now widely used by manufacturers.

- (a) Name **two** examples of communications technology.
- (b) Describe the traditional communications method it has replaced.
- (c) Explain **one** benefit to the manufacturer of using this replacement new technology.

Example 1

Communications technology 1
..... (1)

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

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

Example 2

Communications technology 2
..... (1)

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

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

(Total 8 marks)

Q6



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7. Handling information and data is an essential feature in engineering fabrication companies.

Explain the benefits information and data handling systems have on:

(a) production efficiency

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.....

(2)

(b) marketing

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.....

(2)

Q7

(Total 4 marks)

TOTAL FOR SECTION A: 45 MARKS



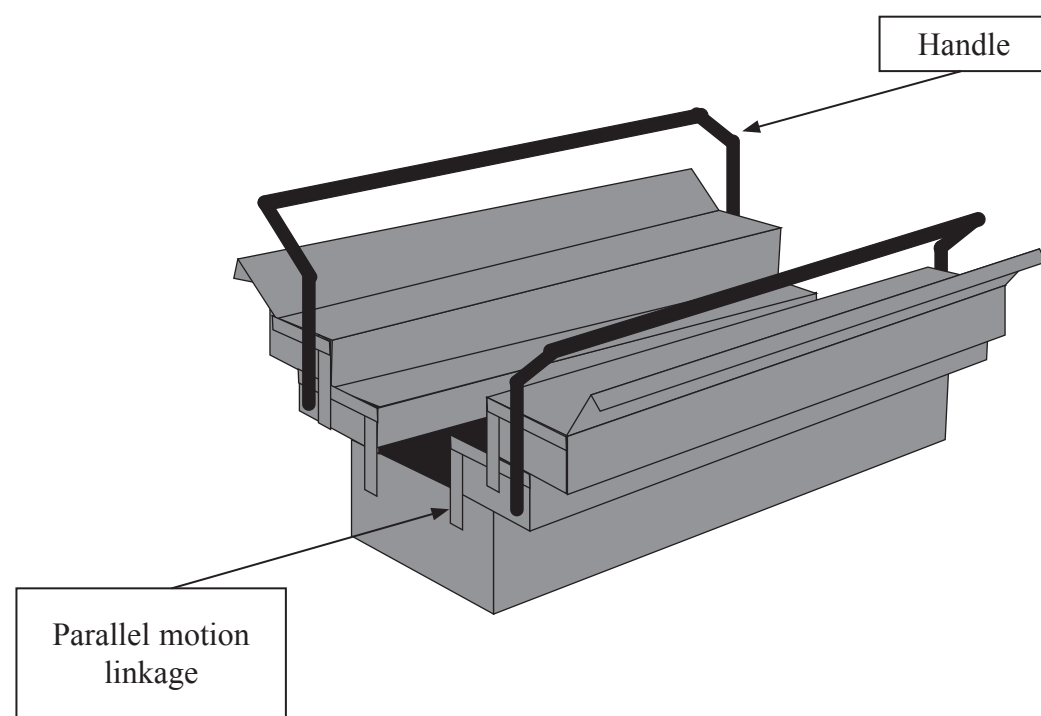
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SECTION B

Answer ALL the questions in this section with reference to the manufacture of mass produced metal cantilever tool boxes. Write your answers in the spaces provided.

The diagram below shows a metal cantilever tool box.



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

(a) the function of the handle

Handle

(3)

(b) the function of the parallel motion linkage.

Parallel motion linkage

(3)

Q8

(Total 6 marks)

11

Turn over



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9. (a) The following table indicates the main stages in manufacturing metal cantilever tool boxes.

Design
Production planning
Production
Assembly and finishing
Packaging and dispatch

(i) Write in the table above the **two** missing stages in manufacturing metal cantilever tool boxes. (2)

(ii) State the stage where the hinges are riveted to the main body of the tool box.

Stage (1)

(b) Describe the following **two** stages in the manufacture of the metal cantilever tool boxes.

(i) Production planning
.....
.....
.....
..... (3)

(ii) Production
.....
.....
.....
..... (3)

(Total 9 marks)

Q9



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10. (a) Name the specific material commonly used in metal cantilever tool boxes to make the:

(i) main body

..... (1)

(ii) rivets on parallel motion linkage.

..... (1)

(b) Powder coating is used as a surface finish on metal cantilever tool boxes.

(i) Name a specific material used for powder coating.

..... (1)

(ii) Explain **two** reasons for powder coating metal.

Reason 1

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.....

Reason 2

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.....

(4)

(c) Explain how the use of modern materials has helped the **manufacturer** of metal cantilever tool boxes develop new products.

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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** of the manufacture of the metal cantilever tool boxes that utilise monitoring control technology.

(i) Quality control procedure 1

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

(ii) Quality control procedure 2

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

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

(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. (a) The utilisation of modern technology in the manufacture of metal cantilever tool boxes has brought changes. Explain these changes in:

(i) the type and size of the workforce

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.....
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.....

(2)

(ii) the working environment

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

(2)

(iii) the global environment

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

(2)



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(b) Describe **one disadvantage** that modern technology has had on the workforce.

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(2)

(c) Describe **one advantage** that modern technology has had on the global environment.

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(2)

Q12

(Total 10 marks)

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(b) Describe how CAM is used to control manufacturing costs.

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(4)

Q13

(Total 8 marks)

TOTAL FOR SECTION B: 55 MARKS

TOTAL FOR PAPER: 100 MARKS

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