

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 **electrical** and **electronic** sector.

Products	Tick two boxes below
Electric toothbrush	
Plastic ruler	
Baseball cap	
China mug	
Paperback book	
DVD player	

(2)

(b) Tick the **two** boxes below where the products belong to the **computer** sector.

Products	Tick two boxes below
Carrier bag	
Nylon socks	
Microprocessor	
Oven mitt	
Light bulb	
Laptop	

(2)

Q1

(Total 4 marks)



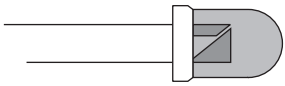
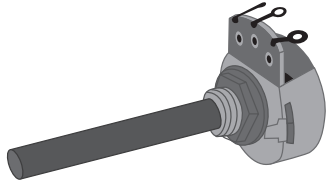
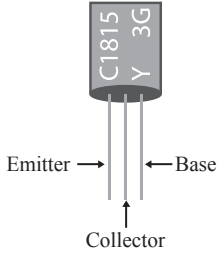
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2. The table shows some components used in the manufacture of products.

Complete the table by:

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

The first one is done for you.

Component	Component name	Use
	LED	Gives off light when current passes through. Current flows in one direction.
		
		

(3)

(3)

Q2

(Total 6 marks)



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)

Polyvinyl

Modern materials

Process control

Silicon

Internet sites

Control technology

Databases

Q3

(Total 6 marks)



Leave blank

4. Digital multimeters belong to the electrical and electronics, process control, computers, telecommunications sector.

(a) (i) Name **one** other product from this sector, apart from **digital multimeters**, 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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5. Computer-aided manufacture (CAM) and Computer-aided design (CAD) are both used by manufacturers of electrical and electronics, process control, computers, telecommunications 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 **retailer** 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



<p>7. Handling information and data is an essential feature in electrical and electronics, process control, computers and telecommunications companies.</p> <p>Explain the benefits information and data handling systems have on:</p> <p>(a) production efficiency</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(2)</p> <p>(b) marketing</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(2)</p> <p style="text-align: right;">(Total 4 marks)</p>	<p>Leave blank</p> <p style="text-align: center;">Q7</p> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>
<p>TOTAL FOR SECTION A: 45 MARKS</p>	



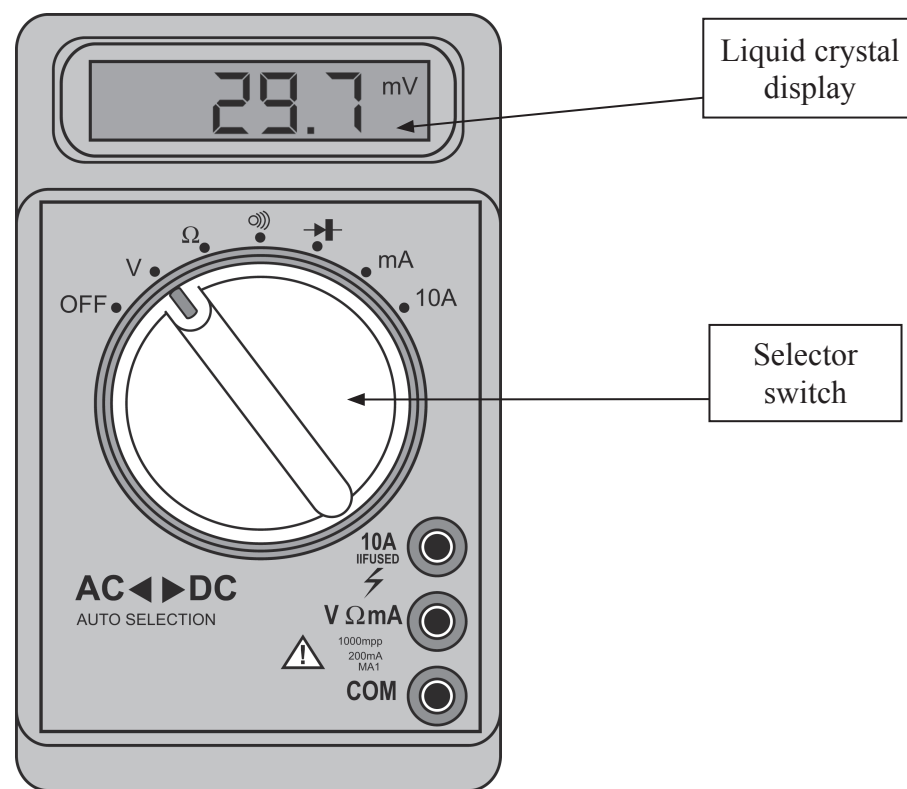
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SECTION B

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

The diagram below shows a digital multimeter.

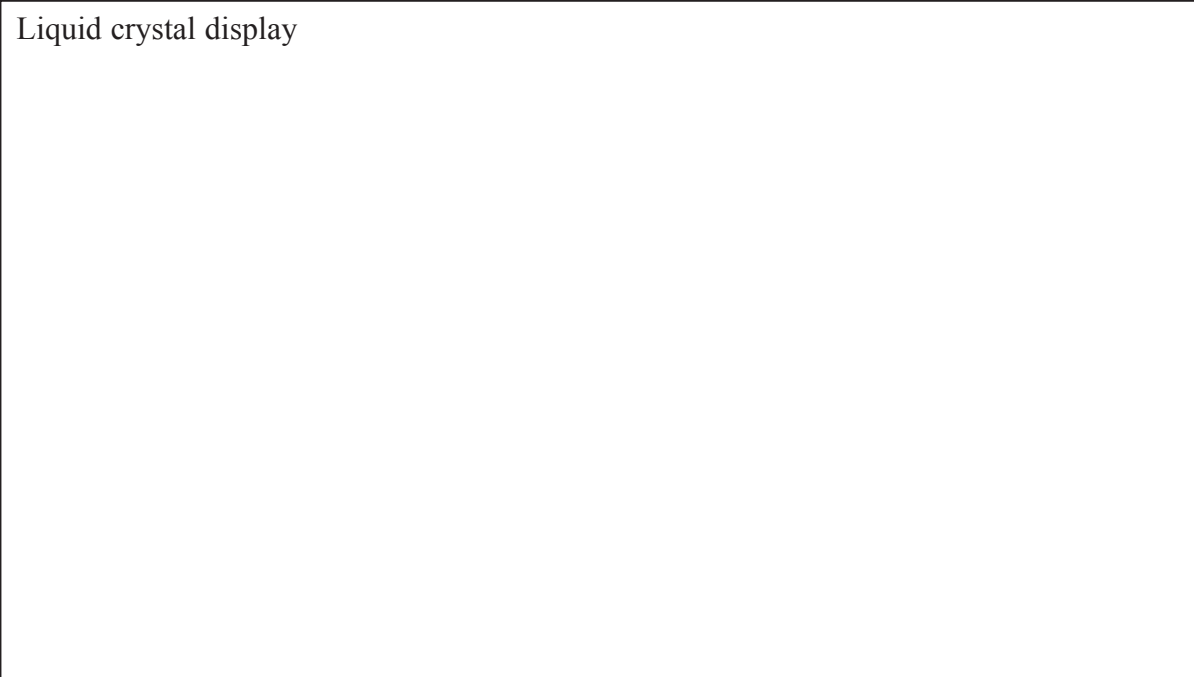


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8. In the boxes below, explain, using notes and sketches:

(a) the function of the liquid crystal display

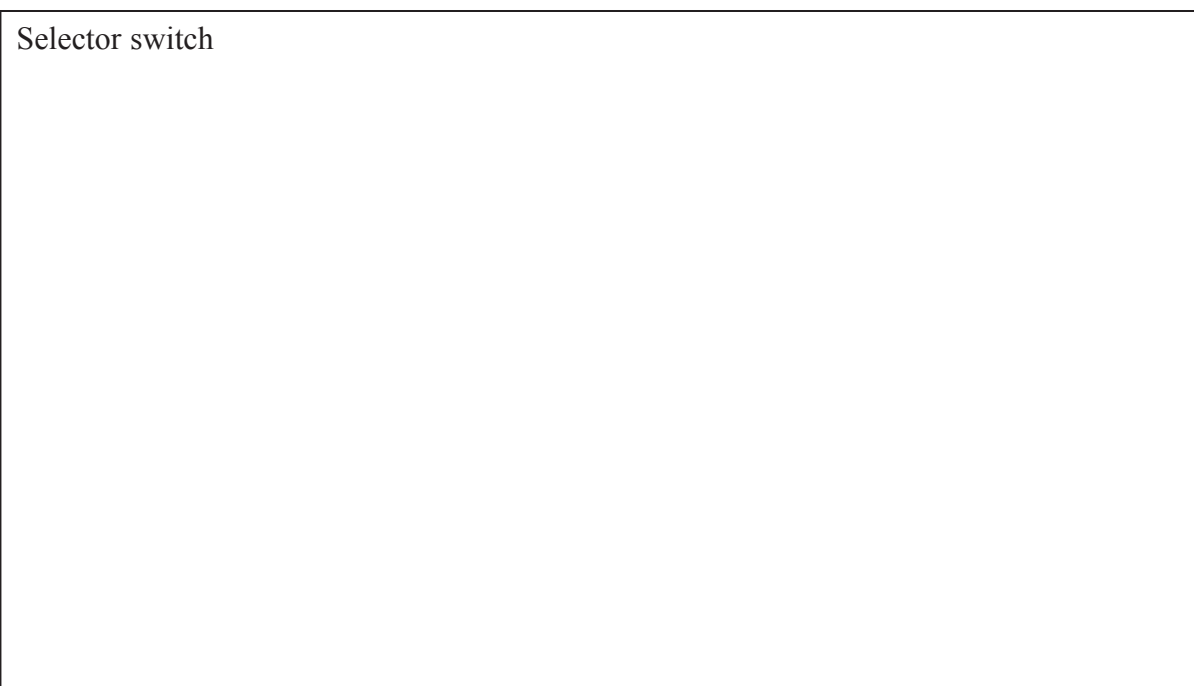
Liquid crystal display



(3)

(b) the function of the selector switch.

Selector switch



(3)

(Total 6 marks)

Q8



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9. (a) The following table indicates the main stages in manufacturing digital multimeters.

Design
Production planning
Materials supply and control
Assembly and finishing
Packaging and dispatch

(i) Write in the table above the **two** missing stages in manufacturing digital multimeters. (2)

(ii) State the stage where the electronic components are placed and soldered.

Stage (1)

(b) Describe the following **two** stages in the manufacture of digital multimeters.

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

(ii) Packaging and dispatch
.....
.....
..... (3)

(Total 9 marks) **Q9**



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10. (a) Name the electronic component commonly found in electronic circuits as used in a digital multimeter to:

(i) limit current flow

..... (1)

(ii) store electric charge.

..... (1)

(b) Solder can be used in the manufacture of digital multimeters.

(i) Name **two** materials that are used to make up solder.

1

2

(2)

(ii) Explain the functions of solder.

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

(3)

(c) Explain how the use of modern materials has helped the **manufacturer** of digital multimeter develop new products.

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.....
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(3)

(Total 10 marks)

Q10

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11. (a) Describe **two** quality control procedures used at the **packaging stage** of the manufacture of digital multimeters 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

.....
.....

(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 digital multimeters has brought changes. Explain these changes in:

(i) the type and size of the workforce

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.....
.....

(2)

(ii) the working environment

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

(2)

(iii) the global environment

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.....
.....

(2)



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blank

(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.

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

(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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