



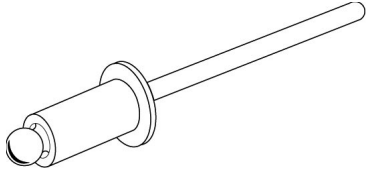
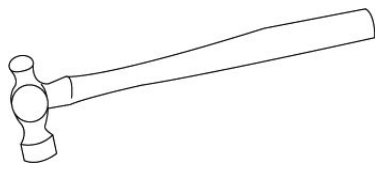
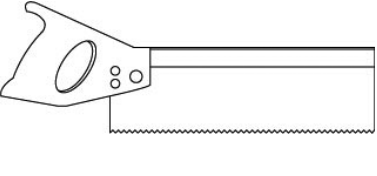
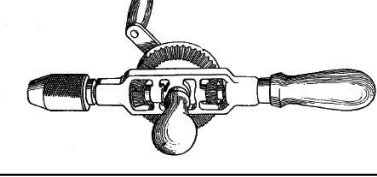
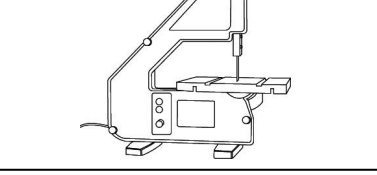
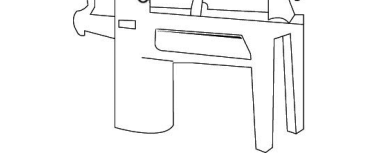
**Answer ALL the questions. Write your answers in the spaces provided.**

1. The table below shows some tools, components and equipment.

(a) Complete the table below by:

- (i) naming each tool, component or piece of equipment
- (ii) describing its use.

The first one has been done for you.

Tool/Component/ Equipment	Name	Use
	Pop rivet	Joining thin metal sheets
		
		
		
		
		

**(10)**



Leave  
blank

(b) Pop rivets are used to join (rivet) together two pieces of metal.

Name **two** other methods of joining metal.

1 .....

2 .....

(2)

(c) When using adhesives to join materials it is important to use the most suitable adhesive for the materials being joined.

Mark with a cross (☒) the most suitable adhesive for joining:

(i) MDF to MDF.

PVA ☒ Contact adhesive ☒ Tensol cement ☒ Epoxy resin ☒

(1)

(ii) acrylic to acrylic.

PVA ☒ Contact adhesive ☒ Tensol cement ☒ Epoxy resin ☒

(1)

(d) Tensol cement is a hazardous product.

Give **one** safety precaution that has to be taken when using tensol cement.

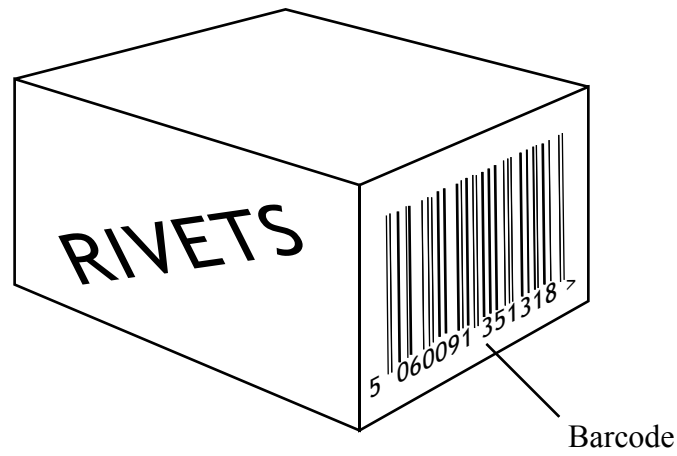
.....

(1)



Leave blank

(e) Pop rivets are often sold in boxes of 100.



Each box is marked with a barcode.

Describe **two** advantages for the manufacturer of using an EPOS machine that reads the barcode.

- 1 .....
- .....
- 2 .....
- .....
- (4)**

(f) (i) ICT and electronic links are used by the manufacturer for communication with retailers.

Name **one** method of electronic communication.

.....

**(1)**

(ii) Describe **one** advantage for the manufacturer of using ICT and electronic links for communication with retailers.

.....

.....

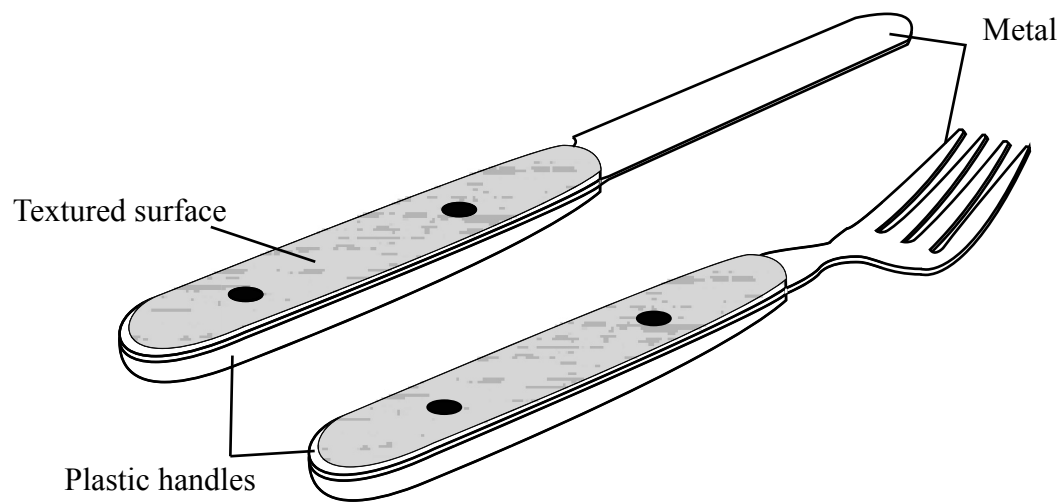
**(2)**

**(Total 22 marks)**

**Q1**



2. The drawing below shows a knife and fork. They are made from metal and have plastic handles.



(a) The metal used for the knife and fork is a ferrous metal.

Mark with a cross (☒) **one** ferrous metal in the list below.

**Stainless steel** ☒ **Copper** ☒ **Brass** ☒ **Tin** ☒

(1)

(b) One property of the metal used for the knife and fork is that it must not rust.

(i) Name **two** other properties the metal must have.

1 .....

2 .....

(2)

(ii) Give **two** reasons why the metal must not rust.

1 .....

2 .....

(2)

(c) Polyester resin is used for the plastic handles of the knife and fork.

Give **two** properties of polyester resin that make it suitable for the plastic handles.

1 .....

2 .....

(2)



Leave  
blank

(d) The plastic handles of the knife and fork have a textured surface.

(i) Give **two** reasons why the plastic handles have a textured surface.

1 .....

2 .....

(2)

(ii) The surface texture is moulded into the plastic handles.

Explain **one** reason for moulding the surface texture into the plastic handles rather than cutting the surface texture by hand.

.....

.....

(2)

(e) The manufacturer has to consider environmental issues when manufacturing the knives and forks in high volume.

(i) Give **two** advantages for the environment of being able to recycle the waste metal from the manufacture of the knives and forks.

1 .....

2 .....

(2)

(ii) Give **two** reasons why the manufacturer should control the fumes given off during the manufacturing of the knives and forks.

1 .....

2 .....

(2)



Leave  
blank

(f) The knives and forks are manufactured using CAM instead of manual processes.

(i) Give **three** ways in which manufacturing using CAM will benefit the consumer.

1 .....

2 .....

3 .....

(3)

(ii) Explain **two** effects on the workforce of introducing CAM for the manufacture of the knives and forks.

1 .....

.....

2 .....

.....

(4)

Q2

(Total 22 marks)

7

Turn over



Leave  
blank

3. A trophy for an inter-schools swimming competition is required.

The specification for the trophy is that it must

- clearly indicate that the trophy is for the winners of a swimming competition
- provide space for the name of the winning school and allow the name to be fixed to the trophy
- have a base that will not damage the surface it is placed on and that will help to prevent the trophy from falling over
- be made using materials and processes suitable for a school workshop

(a) In the spaces opposite, use sketches and, where necessary, brief notes to show **two different** design ideas for the trophy that meet this specification.

Do **not** evaluate your designs in part (a).

Candidates are reminded that if pencil is used for diagrams/sketches, it must be dark (HB or B). Coloured pens, pencils and highlighter pens must **not** be used.

**PLEASE DO NOT WRITE OR DRAW IN THIS SPACE.**

**PLEASE USE THE SPACES OPPOSITE FOR YOUR DESIGNS.**







Leave  
blank

(b) Three of the original specification points are repeated below.

Evaluate how **one** of your design ideas succeeds or fails to meet each of these specification points.

Write the number of your chosen design idea (1 or 2) here: .....

(i) The trophy must clearly indicate that it is for the winners of a swimming competition.

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

(2)

(ii) The trophy must provide space for the name of the winning school and allow the name to be fixed to the trophy.

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

(2)

(iii) The trophy must have a base that will not damage the surface it is placed on and that will help to prevent the trophy from falling over.

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

(2)

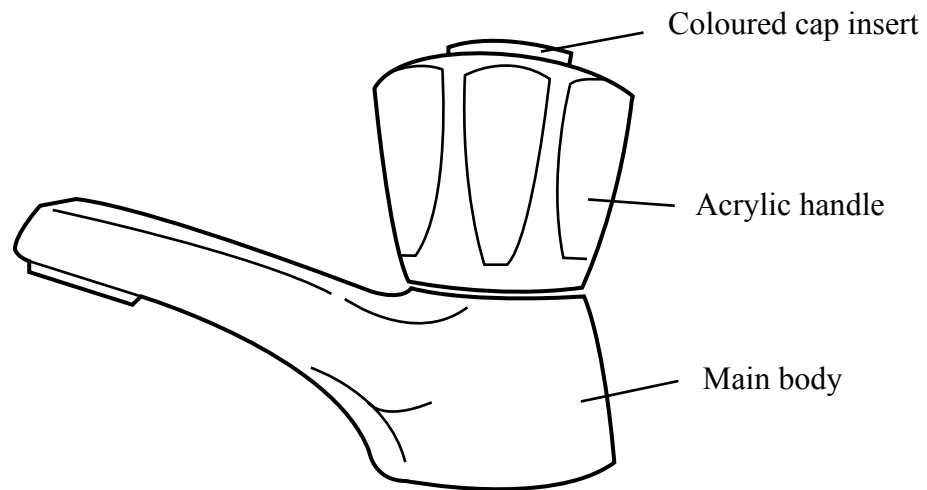
(Total 22 marks)

Q3

--	--



4. The drawing below shows a bathroom tap.



(a) Two specification points for the bathroom tap are that it must

- be easy to grip with wet hands
- show if the tap will be used for hot or cold water.

Under each of the following headings, give **one** more point that should be included in the specification for the bathroom tap.

For each point, give **one** reason why it should be included.

(i) **Market**

Point .....

Reason .....

(2)

(ii) **Environment**

Point .....

Reason .....

(2)

(iii) **Quality**

Point .....

Reason .....

(2)



(b) The main body of the bathroom tap is made from brass which is then plated.

One reason why the main body of the bathroom tap is made from brass is that brass can be finished by being plated.

(i) Give **two** other reasons why brass is a suitable material from which to make the main body of the bathroom tap.

1 .....

2 .....

(2)

(ii) Give **two** reasons why plating is a suitable finish for the main body of the bathroom tap.

1 .....

2 .....

(2)

(c) The handle of the bathroom tap is made from acrylic.

Give **two** properties of acrylic that make it suitable for the handle of the bathroom tap.

For each property give **one** reason why acrylic is suitable.

Property .....

Reason .....

Property .....

Reason .....

(4)

(d) Quality control checks are carried out on the coloured cap insert at important stages during the manufacture.

Name **two** important quality control checks that should be made during the manufacture of the coloured cap insert.

1 .....

2 .....

(2)



Leave blank

(e) The acrylic handle is suitable for high volume production using the injection moulding process.

Describe **one** way in which the shape of the handle makes it suitable for high volume production by the injection moulding process.

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

(f) Two purposes of the bathroom tap are that it must

- be easy to grip with wet hands
- show if the tap will be used for hot or cold water.

Explain, under the following headings, how the bathroom tap achieves these purposes.

(i) Be easy to grip with wet hands.

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

(ii) Show if the tap will be used for hot or cold water.

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

Q4

(Total 22 marks)

**TOTAL FOR PAPER: 88 MARKS**

**END**





**BLANK PAGE**





**BLANK PAGE**



N 3 1 1 8 1 A 0 1 5 1 6





**BLANK PAGE**

