



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

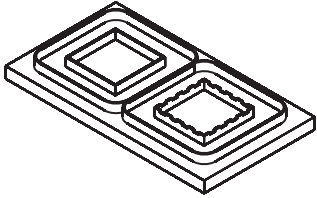
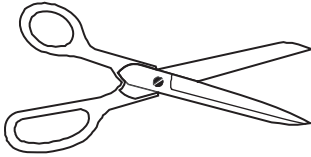

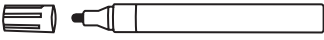

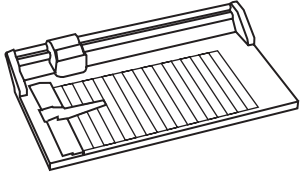
1. The table below shows some tools and equipment.

(a) Complete the table by:

(i) naming each tool or item of equipment

(ii) describing its use

The first one has been done for you.

Tool/Equipment	Name	Use
	Die cutter	Cutting card
		
		
		
		
		

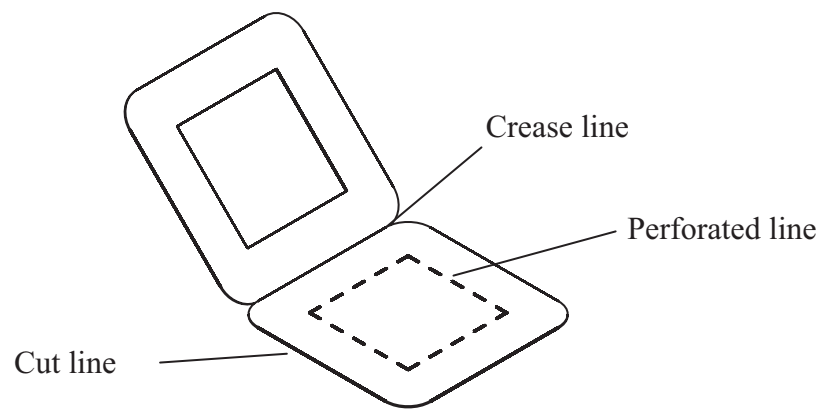
(10)



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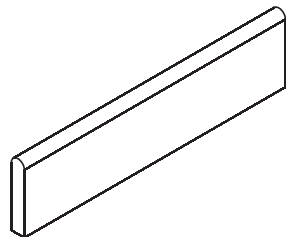
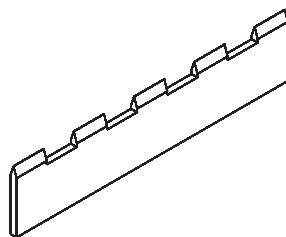
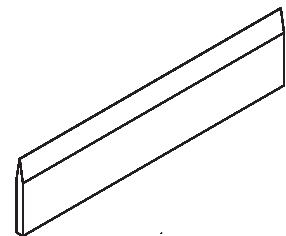
(b) (i) The drawing below shows a package made from card.

It is produced in volume using a die cutter.



The die cutter uses three different types of blade to produce the lines.

In the table below, mark with a cross (☒) the correct name of each type of blade.

Type of blade	Name
	Cutting blade <input checked="" type="checkbox"/> Creasing blade <input checked="" type="checkbox"/> Perforating blade <input checked="" type="checkbox"/>
	Cutting blade <input checked="" type="checkbox"/> Creasing blade <input checked="" type="checkbox"/> Perforating blade <input checked="" type="checkbox"/>
	Cutting blade <input checked="" type="checkbox"/> Creasing blade <input checked="" type="checkbox"/> Perforating blade <input checked="" type="checkbox"/>

(3)



Leave blank

(ii) State **two** reasons for using the die cutter to make the card package.

1 .....

2 .....

(2)

(c) The shape of the card package has been designed to allow efficient lay planning.

Give **two** advantages, to the manufacturer, of efficient lay planning.

1 .....

2 .....

(2)

(d) Some manufacturers use ICT to manage their stock control.

Give **two** advantages, to the manufacturer, of using ICT to manage their stock control.

1 .....

2 .....

(2)

(e) The drawing below shows a business card. It is produced in batches.



State **three** advantages of producing business cards in batches rather than one-off production.

1 .....

2 .....

3 .....

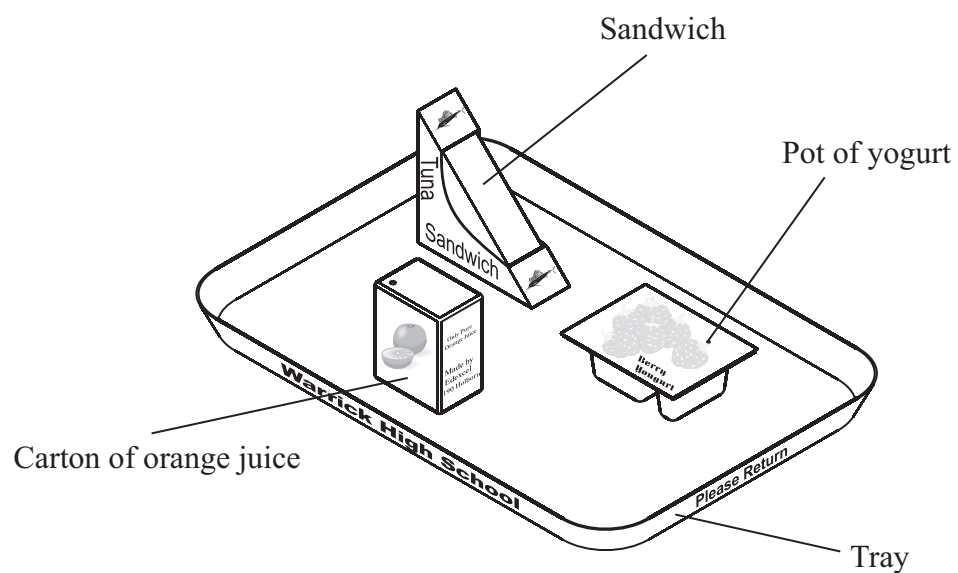
(3)

Q1

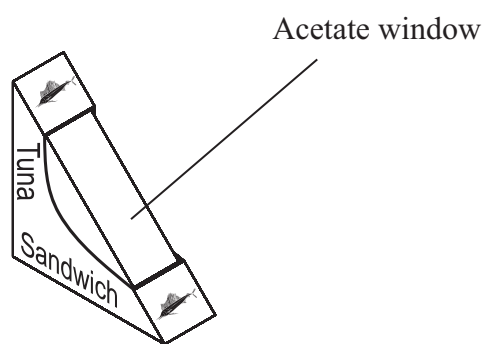
(Total 22 marks)



2. The drawings below show a meal served in a school cafeteria.



(a) The drawing below shows the package for the sandwich.



(i) The window of the sandwich package is made from acetate.

State **one** property of acetate that makes it suitable for the window of the sandwich package.

.....  
(1)

(ii) The sandwich package is made from cardboard.

Give **three** reasons why cardboard is a suitable material for making the sandwich package.

1 .....

2 .....

3 .....

(3)



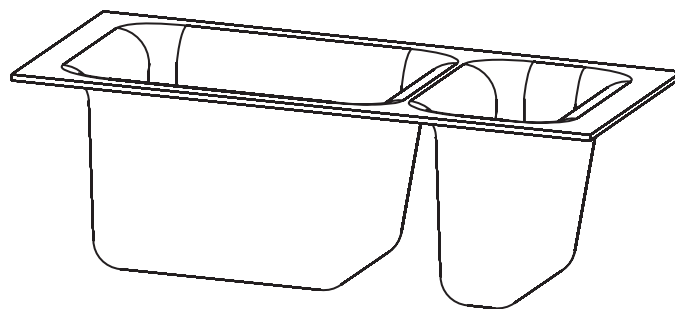
(iii) The manufacturer increases the thickness of the card used to make the sandwich package.

Explain **one** advantage, to the consumer, of increasing the thickness of the card.

.....  
.....

(2)

(b) The drawing below shows an empty yogurt pot. It is made from a thermoplastic.



(i) Name a suitable thermoplastic from which to make the yogurt pot.

.....

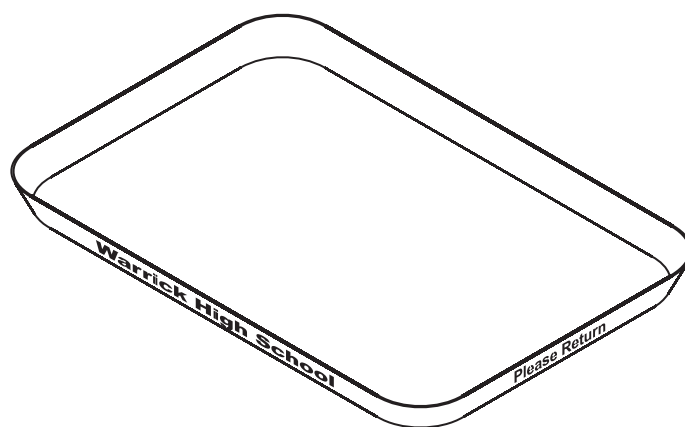
(1)

(ii) Describe what will happen to the **shape** of the yogurt pot if it is heated.

.....  
.....

(2)

(c) The drawing below shows the tray used to carry the meal.



(i) The tray is made from steel.

State **two** disadvantages of the tray being made from steel instead of plastic.

1 .....

2 .....

(2)

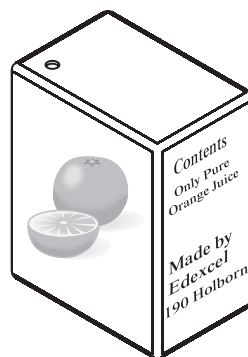
(ii) Some trays are made from composite materials, such as fibreglass.

State **one** disadvantage of manufacturing products from composite materials.

.....

(1)

(d) The drawing below shows the carton of orange juice.



Important information is printed on the orange juice carton.

(i) Give **one** advantage, to the consumer, of a list of ingredients being printed on the orange juice carton.

.....

(1)

(ii) Give **one** advantage, to the consumer, of the address of the manufacturer being printed on the orange juice carton.

.....

(1)

(iii) The orange juice carton is printed using thermo-chromic ink.

Describe **one** benefit, to the consumer, of using thermo-chromic ink to print the orange juice carton.

.....

.....

(2)



Leave  
blank

(e) (i) The drawing below shows a symbol printed on the orange juice carton.



The symbol shows that the orange juice carton can be recycled.

Give **two** advantages to society of recycling materials.

1 .....

2 .....

(2)

(ii) The recycling symbol on the carton is important when the orange juice is sold in different countries.

Explain **one** reason why the recycling symbol on the carton is important when the orange juice is sold in different countries.

.....

.....

(2)

(f) Many packages are designed using Computer Aided Design (CAD).

Give **two** ways in which the use of CAD can reduce the cost of designing packages.

1 .....

2 .....

(2)

Q2

(Total 22 marks)



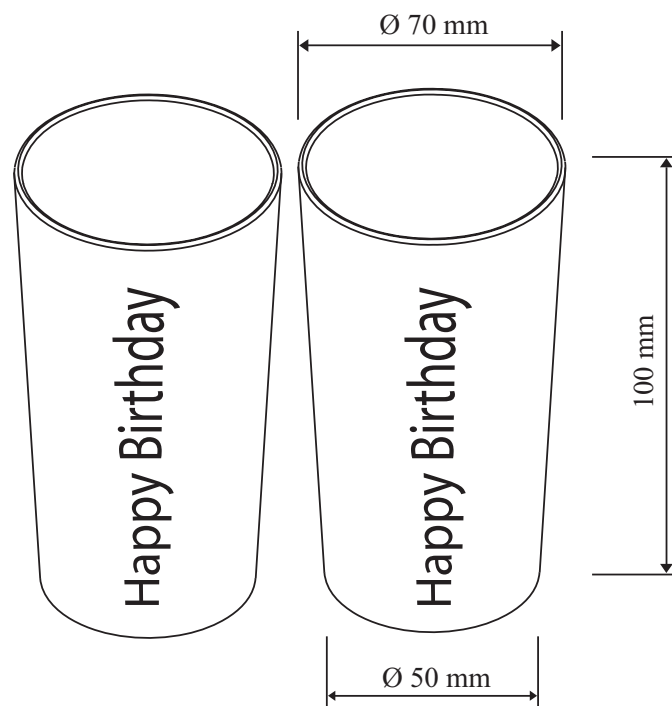


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3. The drawing below shows two drinking glasses.

A package is required to allow the two drinking glasses to be sent through the post without them getting broken.



The specification for the package is that it must

- protect the glasses from being damaged in the post and from damaging each other
- be capable of being closed and sealed securely
- have space to display a postal address and a postage stamp
- be suitable for production using school workshop materials and processes

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





**Design Idea 1**

Leave  
blank

**(8)**

**Design Idea 2**

**(8)**



N 3 1 1 9 3 A 0 1 1 2 0



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) Protect the glasses from being damaged in the post and from damaging each other.

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

(2)

(ii) Be capable of being closed and sealed securely.

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

(2)

(iii) Be suitable for production using school workshop materials and processes.

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

(2)

(Total 22 marks)

Q3

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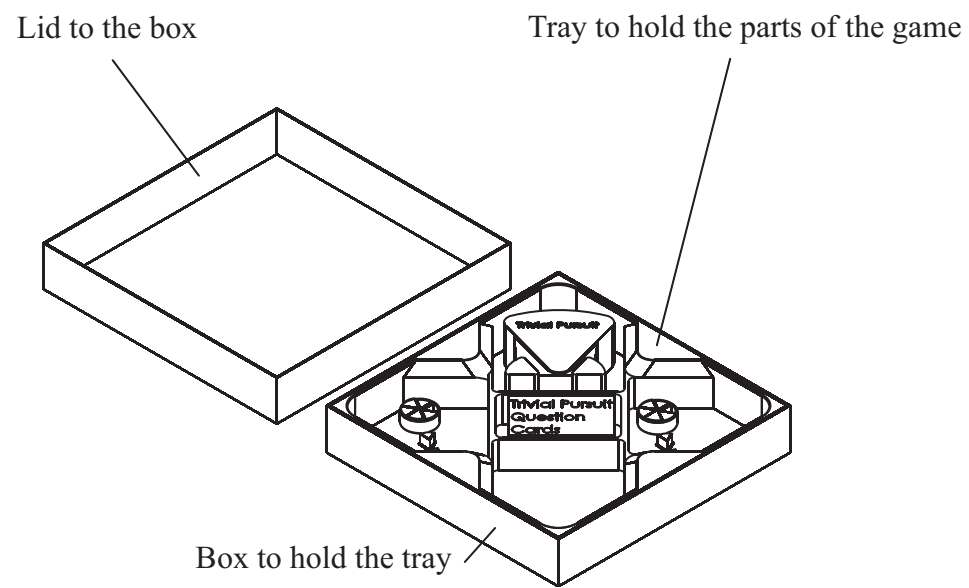
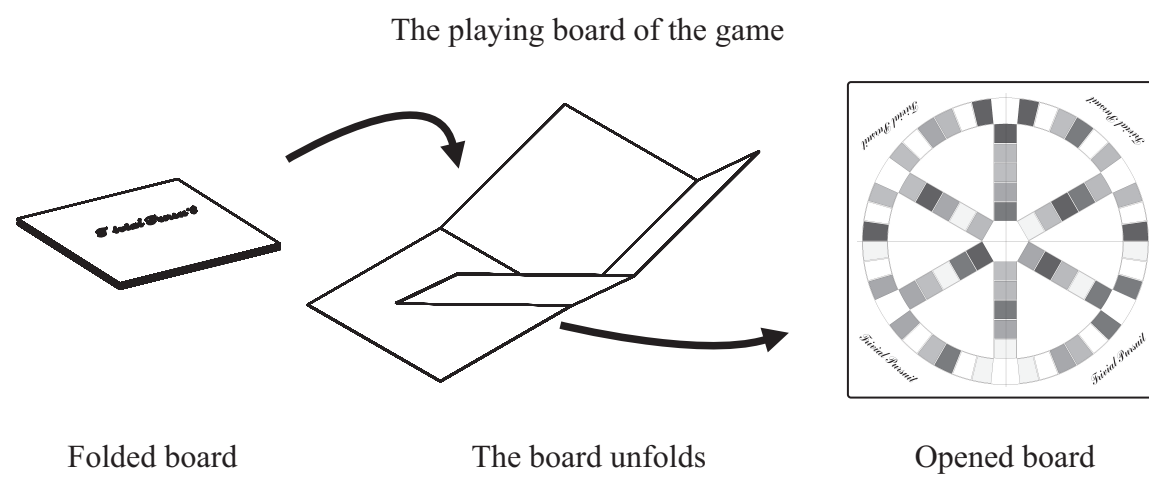


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4. The pictures below show a board game.



Leave  
blank

(a) Two specification points for the board game are that it must be

- safe for users
- easy to store

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

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)



Leave blank

(b) The picture below shows part of the printed playing board of the game.



© 2007 Hom Abbot International Limited. Trivial Pursuit™ is a registered trademark of Hom Abbot International Limited. Used with permission.

(i) The playing board is made from a card base and covered with a layer of printed paper.

One reason why the playing board is covered with paper is so it can be finished with varnish.

Give **two** other reasons why paper is a suitable material with which to cover the playing board.

1 .....

2 .....

(2)

(ii) Give **two** reasons why varnish is a suitable finish for the playing board.

1 .....

2 .....

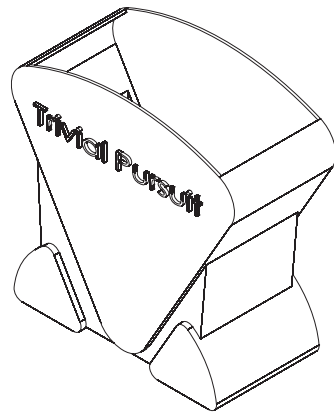
(2)





Leave blank

(c) The drawing below shows a question card holder from the board game.



The question card holder is made from PVC.

Give **two** properties of PVC that make it a suitable material for the question card holder.

For each property give **one** reason why it makes PVC suitable.

Property .....

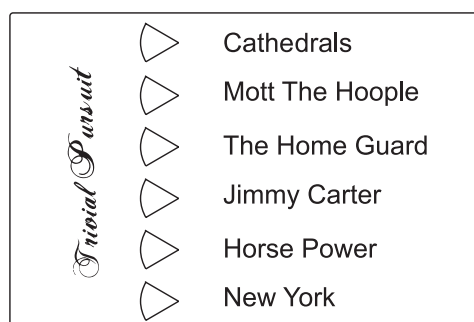
Reason .....

Property .....

Reason .....

(4)

(d) The drawing below shows one of the question cards used in the board game.



The question card is printed in full colour.

Quality control checks are carried out at important stages during the manufacture of the question card.

Name **two** important quality control checks that should be made during the manufacture of the question card.

1 .....

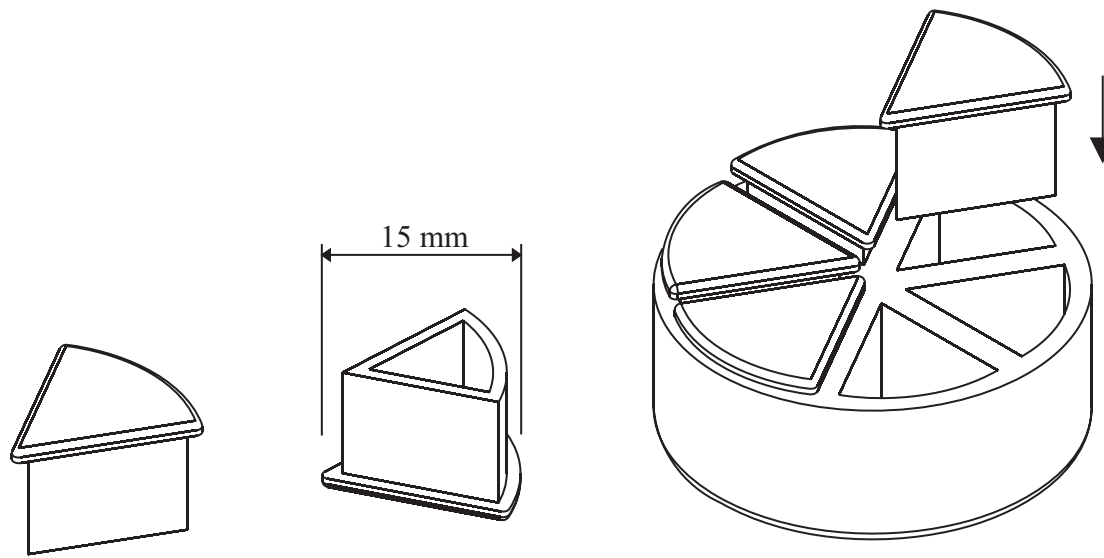
2 .....

(2)



Leave blank

(e) The drawings below show some of the playing parts used in the board game.



Top view of counter

Bottom view of counter

Counters in holder

The playing parts are made in high volume using the injection moulding process. The shapes of the playing parts make them suitable to be made using the injection moulding process.

Describe **one** way in which the shapes of the playing parts make them suitable to be made in high volume using the injection moulding process.

.....  
.....

(2)



Leave  
blank

(f) Two purposes of the board game are that it must be

- safe for users
- easy to store

Explain, under the following headings, how the board game achieves these purposes.

(i) Safe for users.

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

(2)

(ii) Easy to store.

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

(2)

(Total 22 marks)

Q4

**TOTAL FOR PAPER: 88 MARKS**

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