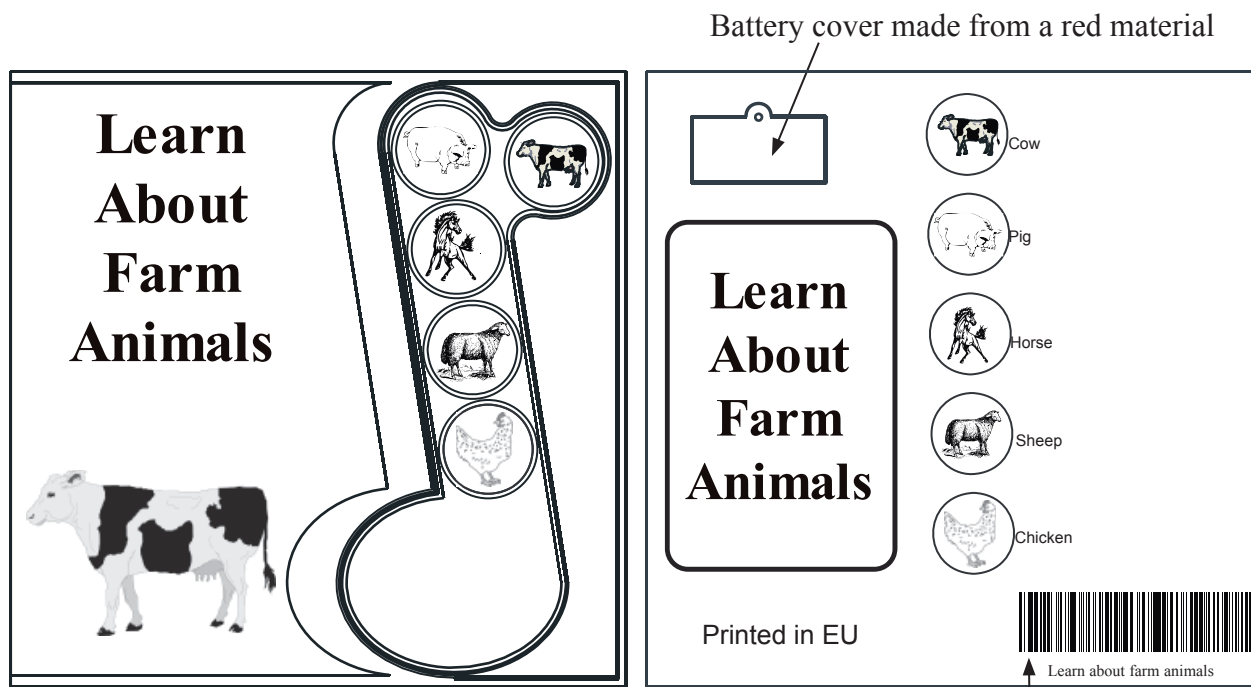


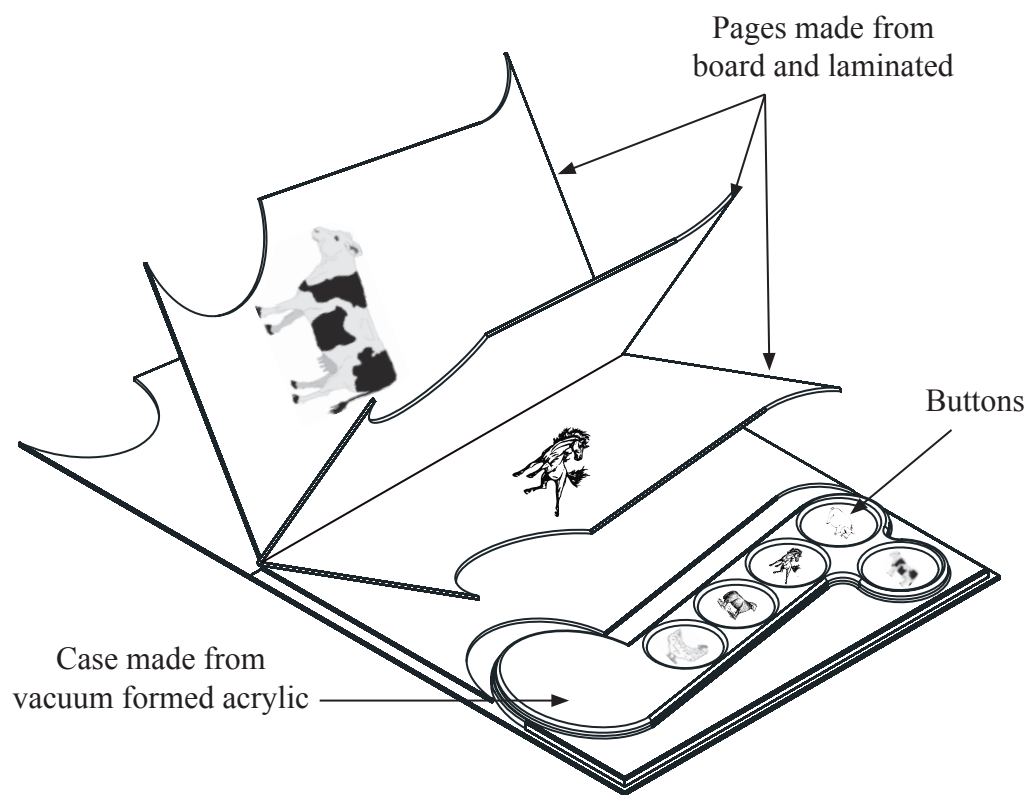
Answer ALL the questions. Write your answers in the spaces provided.

1. The drawings below show a child's book that plays sounds when the buttons on the side are pushed.
The book is aimed at children aged between two and four years.



Front cover of book in full colour

Back cover of book in full colour



Open pages of book



Leave
blank

(a) Two specification points for the book are that:

- the covers must attract the attention of potential purchasers
- the covers must allow the retailer to monitor sales easily

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

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

Market

Point

Reason

.....

.....

Environment

Point

Reason

.....

.....

Quality

Point

Reason

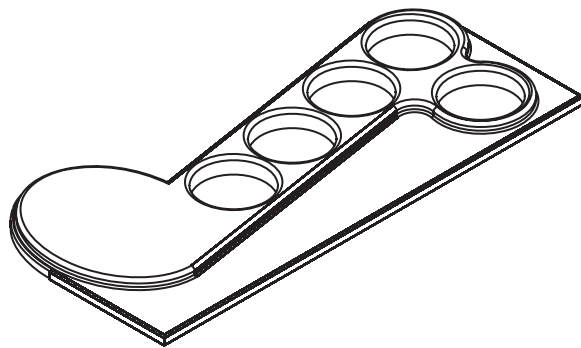
.....

.....

(6)



(b) The drawing below shows the case that surrounds the buttons. It is made from acrylic.



(i) One reason why the case is made from acrylic is that it can be vacuum formed to the required shape.

Give **two** other reasons why acrylic is a suitable material from which to make the case.

1

2

(2)

(ii) One reason why the case is vacuum formed is that it is cost effective.

Give **two** other reasons why the acrylic case is made by vacuum forming.

1

2

(2)

(c) The pages of the book are made from solid board.

Give **two** properties of solid board that make it suitable for the pages of the book. For each property, give **one** reason why it makes solid board suitable for the pages of the book.

Property 1

Reason

.....

Property 2

Reason

.....

(4)



Leave
blank

(d) The battery cover is made from a red material.

Explain **one** reason why the battery cover is made from a red material.

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

(e) The pages of the book are finished using laminating.

Explain **one** reason why laminating is used for finishing the pages.

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

(f) Two purposes of the covers of the book are:

- to attract the attention of potential purchasers
- to allow the retailer to easily monitor sales of the book.

Explain under the following headings, how the covers of the book achieve these purposes.

(i) Attract the attention of potential purchasers.

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

(ii) Allow the retailer to easily monitor sales of the book.

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

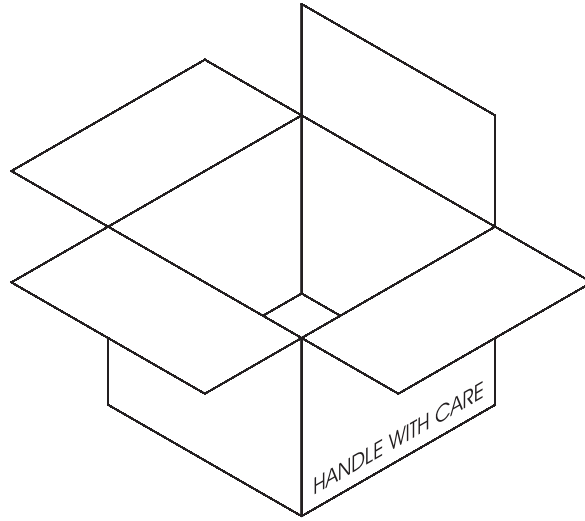
(Total 22 marks)

Q1

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2. The drawing below shows a box made from corrugated card.



(a) (i) Draw a sketch to show what the corrugations on the edge of the card look like.

(1)

(ii) The box will be used to package electronic equipment for transport.

Give **two** advantages of making the box from corrugated card instead of solid board.

1

2

(2)



(b) The designer of the prototype of the box collected data relating to its design from a CD ROM instead of using a printed catalogue.

Give **two** advantages to the designer of using CD ROMs to access data.

1

2

(2)

(c) (i) During the design of the prototype for the box CAD was used.

Explain **one** way in which the use of CAD can make the design process quicker.

.....

.....

(2)

(ii) A model of the prototype of the box was made using a scalpel.

Name **two** other tools, or items of equipment, that would be required to safely use the scalpel.

1

2

(2)

(d) Screen printing is used to print the graphics "Handle with care" on the outside of the box.

Explain **one** economic reason for using screen printing.

.....

.....

(2)



(e) When packages are printed in shades of grey, a control strip is often printed on the package.

A control strip is shown below.



(i) State what the control strip is used to measure.

.....
(1)

(ii) Some packages are printed in full colour.
When printing in full colour it is important that the image-register is correct.

Describe **one** way to achieve correct image-registration.

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

(f) The manufacturer uses ICT to simulate a production line.

Give **two** reasons why a manufacturer would simulate a production line.

1
2
(2)

(g) The manufacturer uses lay planning when producing the boxes.

Give **two** advantages to the manufacturer of using lay planning when producing the boxes.

1
2
(2)



Leave
blank

(h) The manufacturer uses Computer Integrated Manufacture (CIM) to produce the box.

Explain **two** advantages for the manufacturer of using CIM to produce the box.

1

.....

.....

2

.....

.....

(4)

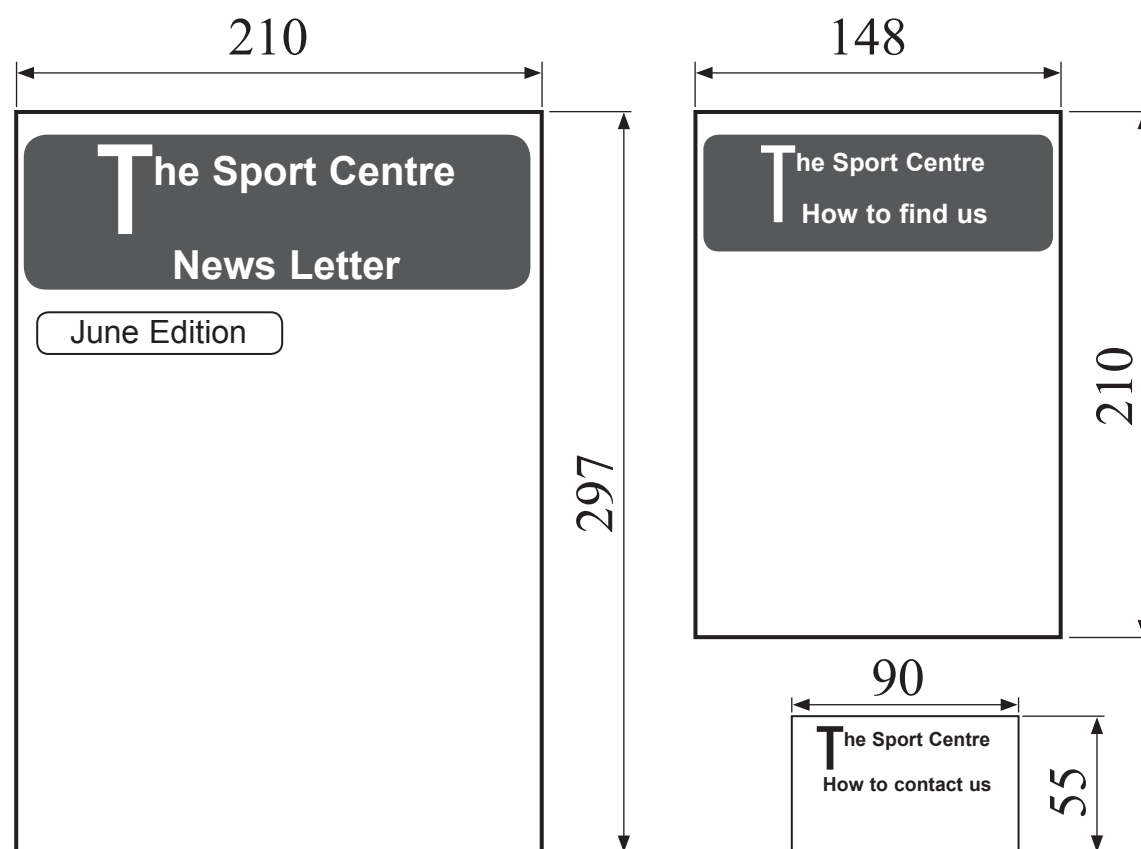
Q2

(Total 22 marks)

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3. A sports centre requires a stand to display its publicity leaflets on shop counters. The drawings below show the set of publicity leaflets.



Each pack of 100 leaflets is 15mm thick.

The specification for the display stand is that it must:

- hold all three sizes of leaflet without falling over
- hold at least 100 of each leaflet in such a way that leaflets can be removed individually
- have space to clearly display the graphic “Please take one” while the leaflets are in place
- be made using materials and processes suitable for batch production

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

Do not evaluate your designs in part (a).

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

Please do not write in the space below. Please write in the spaces provided opposite.



Design Idea 1

Leave
blank

(8)

Design Idea 2

(8)



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 display stand must hold all three sizes of leaflet without falling over.

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

(2)

(ii) The display stand must hold at least 100 of each leaflet in such a way that leaflets can be removed individually.

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

(2)

(iii) The display stand must be made using materials and processes suitable for batch production.

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

(2)

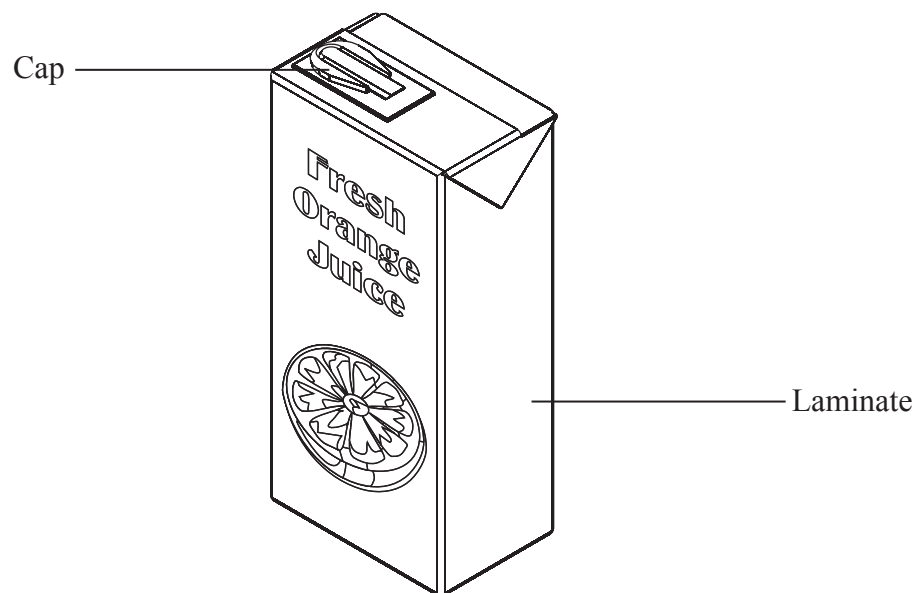
(Total 22 marks)

Q3

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4. The drawing below shows a fruit juice carton.



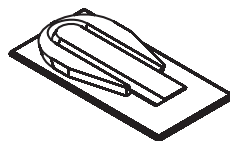
(a) (i) The carton is made from a laminate of three different materials. The table below lists the materials used in the laminate.

Fill in **one** reason for using each material. Each reason must be different.

Material	Reason for use
Polyethylene (PE)	
Aluminium	
Paper	

(3)

(ii) The drawing below shows the cap of the carton.



The cap is made from PVC. It is a one piece moulding made by an injection moulding process.

Give **two** reasons why PVC is a suitable material for the cap.

1

2

(2)



(b) (i) An airbrush was used to create an image for the carton design.

Explain **one** advantage of using an airbrush instead of colouring pencils to create an image.

.....
.....

(2)

(ii) A scanner was used to import the airbrushed image into a desktop publishing (DTP) package.

Give **two** advantages to the designer of scanning the airbrushed image into a DTP package.

1
2

(2)

(iii) DTP packages have a number of tools that can help the designer.

Name **two** tools that help with the accurate layout of designs in DTP packages.

1
2

(2)

(c) Manufacturers frequently use CAD/CAM to reduce the cost of production.

Give **one** way in which CAD/CAM can reduce the cost of production.

.....

(1)

(d) During the design of the carton, the designer used email for communication.

Explain **two** disadvantages for the designer of using email for communication.

1
.....
2
.....

(4)



Leave
blank

- (e) Some of the materials used to make the carton are produced by sustainable technologies.

Explain **one** advantage for society of using materials produced by sustainable technologies.

.....

.....

(2)

- (f) Packaging regulations require that the address of the product manufacturer is given.

Explain **one** advantage for the consumer of knowing the address of the product manufacturer.

.....

.....

(2)

- (g) The drawing below shows an international symbol on a product manufactured in Europe. The product is to be sold in Japan.



Explain **one** reason why the use of international symbols is important when a product is sold in a country with a different culture to the country where it was manufactured.

.....

.....

(2)

Q4

(Total 22 marks)

TOTAL FOR PAPER: 88 MARKS

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