



General Certificate of Secondary Education

Design and Technology: Product Design 3544/H

Higher Tier

Mark Scheme

2007 examination - June series

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Question 1**(a)** Specifically named materials such as:

Type of Material		Material name possible responses
Paper Card	⇒	Sugar paper, Cartridge paper, Tracing paper, Corrugated card, and Mounting board, Solid white board, layout paper, foil lined board, tissue paper, crepe paper, carton board.
Timber	⇒	Beech, Ash, Cedar, Yew, Teak, MDF, Plywood, Pine and Mahogany, MDF, chipboard, plywood, hardboard, blockboard, Laminboard, Parana pine, Scots pine (red deal). Any named timber.
Metal	⇒	Aluminium, Brass, Lead, Mild Steel, Cast Iron and High Carbon steel, Stainless steel, High speed steel, Tool steel, Tin, Zinc, pewter, casting alloy (LM4), Guilding metal, Bronze.
Plastic	⇒	Acrylic, PVC, PET, ABS, Vinyl, Polythene, Melamine, Formaldehyde, Polystyrene, Urea Formaldehyde, Polypropylene, Polyester resin, PETE, HIPS, GRP, HDPE, LDPE, PF, UF, Polyurethane (PU), fibreglass, epoxy resin, nylon.
Ceramic	⇒	Porcelain, Bone china, Plaster of Paris, Terracotta and Earthenware, Slip, oxides, concrete, cement.
Food	⇒	Cheese, Fruit, Fish, Vegetables, Pasta and Meat, Potatoes, milk and dairy products, fats, sugar, eggs, bread.
Textiles	⇒	Silk, cotton, Nylon, Elastane, Polyester and Linen, Acetate, polyamide (nylon), Acrylic, Aramid (Kevlar), felt, Tactel.

If candidates have completed the whole table the two rows with the highest number of correct answers will be taken.

*(6 × 1 mark)***(b)** (i) A suitable material matched to a suitable product.*(1 mark)*

(ii) See Appendix A for suggested list of possible methods of preventing degradation of materials – this is not exhaustive.

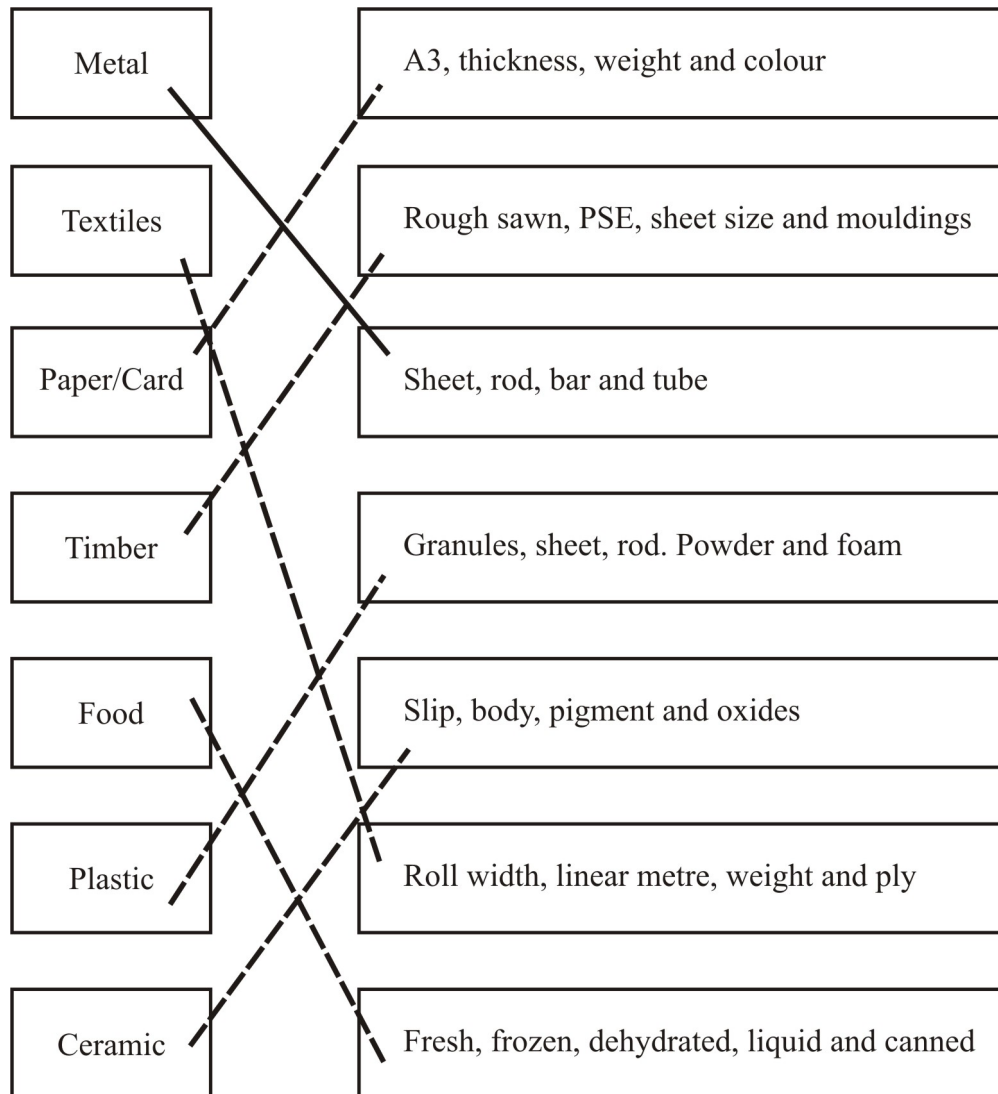
Name of method stated but not explained

(1 mark)

An explanation that describes a method of preventing the material from degrading e.g. varnishing, painting, glazing etc.

*(2 marks)**(2 marks)*

(c) If candidates have correctly connected the correct material with the descriptions.



(2 marks)

Accept any two correct answers.

Total marks: 11

Question 2

- (a) (i) A simple statement or drawing e.g. “put the toy in the bin”
(1 mark)

An answer that displays a fuller understanding, e.g. “the material will be either put in a landfill site or incinerated”.

(2 marks)

(2 marks)

- (ii) A simple statement or drawing, e.g. “melt the plastic down”
(1 mark)

An answer that displays a fuller understanding e.g. ‘the plastic could be re-cycled i.e. melted down, refined and re-used to make other plastic objects’

(2 marks)

(2 marks)

- (b) (i) Possible responses.

Shampoo containers, motor car alternators, glass milk bottles, PET bottles as mini cloches, plastic veg trays for seedlings, jam/sauce jars for storage, clothing to 2nd hand shops, shoes/spectacles for developing world, furniture for charities

A suitable product named

(1 mark)

- (ii) A simple statement e.g. “it saves money”
(1 mark)

An explanation that shows some insight and makes two specific points e.g. “by re-using a product less energy is used and this will help the environment by being less polluting and saving natural resources”.

(2 marks)

A detailed explained answer e.g.

As an example when a glass milk bottle is re-used it saves materials manufacturing costs and energy costs. It is also beneficial to the environment by not producing harmful emissions such as carbon dioxide.

(3 marks)

(3 marks)

- (c) Include single use cameras, disposable pens/razors, food products (sell by dates) etc.

A simple statement e.g. “they wear out”

(1 mark)

An explanation that displays an understanding of why a product has a limited life span e.g. “fresh milk has a limited lifespan as it goes sour particularly in warm weather, but will last longer if kept cool.

(2 marks)

A detailed explanation e.g. “some products have built in obsolescence, for example an electric kettle. It is designed to last a few years and is then disposed of as it would be uneconomical to repair”

(3 marks)

(3 marks)

Total marks: 11

Question 3

- (a) (i) Only one advantage mentioned.

(1 mark)

Two advantages stated.

(2 marks)

Three or more advantages mentioned
or two advantages well explained

(3 marks)

Possible responses relating to:

No batteries required, vibrating brush head, effective cleaning teeth/gums, more than one person could use it by changing the head, smaller head, consistent action, when head is worn only this part of the unit needs replacement, hygienic materials used.

(3 marks)

- (ii) Only one disadvantage mentioned.

(1 mark)

Two disadvantages stated.

(2 marks)

Three or more disadvantages mentioned
or two disadvantages well explained

(3 marks)

Possible responses relating to:

Requires recharging, heavier than a normal toothbrush, expensive to replace if damaged, could run out of power when in use, bulky, storage problems.

(3 marks)

- (b)** Stage 1 – Reasonable diagram but does not clearly illustrate the action required.

(1 mark)

Diagram clearly illustrates the actions required
(2 marks)

(2 marks)

- Stage 2 – Reasonable diagram but does not clearly illustrate the action required.

(1 mark)

Diagram clearly illustrates the actions required
(2 marks)

(2 marks)

- Stage 3 – Reasonable diagram but does not clearly illustrate the action required.

(1 mark)

Diagram clearly illustrates the actions required
(2 marks)

(2 marks)

(c) A method of hanging the package has been incorporated into the design.

(1 mark)

An effective/practical method of hanging the package has been incorporated into the design.

(2 marks)

(2 marks)

An area where the company name and logo will be printed can be identified within the design.

(1 mark)

An area where the instructions will be printed is large enough and has been identified within the design.

(1 mark)

Some mention of specialist materials in general terms e.g. "See through plastic window".

(1 mark)

Specific specialist materials mentioned e.g. clear rigid polystyrene. Window materials might include Acetate, PVC, PET.

(2 marks)

(2 marks)

Unclear sketch / notes explaining how the heads will be visible.

(1 mark)

Clear sketch / notes explaining how the heads will be visible, e.g vacuum formed blister or window bonded onto card.

(2 marks)

(2 marks)

Note: Markers should refer to part (d) for evidence of achievement in part (c) and reward accordingly.

(d) An effective sealing method adequately illustrated.

(1 mark)

A recognised printing method given e.g. flexography, gravure, lithography.

(1 mark)

The cutting method described would not be suitable for large scale production e.g. Craft knife, lasers and safety rule.

(1 mark)

The cutting method describes industrial methods of cutting using dies or stamps.

(2 marks)

(2 marks)

Note: Markers should refer to part (c) for evidence of achievement in part (d) and reward accordingly.

Total Marks: 24

Question 4

Choose any two items of footwear.

(a) A – Wellington boot

Type of consumer:

Male or female age range 3 to 80 plus years. Works or walks outdoors in wet and possibly muddy conditions.

(2 marks)

Reason:

Functional footwear to keep the feet and bottom of the leg dry, the heavy tread helps to prevent slipping.

(2 marks)

B - Beach shoe

Type of consumer:

Female 3-60 plus years enjoys going to the beach to swim and sunbathe.

(2 marks)

Reason:

The shoe is lightweight, easy to slip on and off, any water will easily drain off, materials suitable for wet conditions.

(2 marks)

C - Evening shoe

Type of consumer:

Female, age range 12+ years enjoys dances, clubbing, looking trendy.

(2 marks)

Reason:

More of a fashion statement, elegant and eye catching rather than a functional item.

(2 marks)

D - Sports shoe

Type of consumer:

Male or female styles would vary depending on gender, 10-30 years, sporty and fashion conscious.

(2 marks)

Reasons:

The shoe is both a fashionable item that also has support, grip and comfort when participating in sporting activities.

(2 marks)

Mark Breakdown

Type of consumer:

A simple consumer profile e.g. gardener, holiday maker, clubber, or sportswomen.
(1 mark)

A consumer profile identifying two or more specific areas e.g. gender, age range, interests, environment.
(2 marks)

No marks awarded for choice and name of each item of footwear.

Reasons

One reason given.
(1 mark)

Two or more reasons
(2 marks)

- (b) An explanation that is simplistic, with limited understanding of anthropometrical data.
e.g. “so that the footwear will fit properly”.

(1 mark)

An explanation that shows some understanding of anthropometrics e.g.

“Measurements are taken of the foot and used to calculate the size of footwear so that they are comfortable”.

(2 marks)

A detailed explanation that displays a good understanding of the use of anthropometrical data e.g.
“Several measurements are taken on a wide sample of consumers feet used to calculate the shape and size of footwear that would comfortably fit standard sizes e.g. 6,7,8,9 etc.

Mention of 5th -95thile though not specifically relevant to shoe design might be used to calculate how many of each size are manufactured and whether some styles are only manufactured in limited sizes for either commercial or functional reasons.

(3 marks)

(3 marks)

- (c) Answers might also include advantages with exchange rates, making use of specialised manufacture/standard components which can utilise economies of scale, reliability of supply, matching changes in world markets/local preferences/fashions, manufacturing skills with specific materials/processes such as beading

- (i) An explanation that is lacking in detail e.g. “it keeps the price down”

(1 mark)

An explanation that shows some understanding e.g.

“labour costs can be kept to a minimum so that the price of the product becomes more competitive”.

(2 marks)

(2 marks)

- (ii) A simple statement e.g.

“The workers don’t get paid very much”.

(1 mark)

An explanation with at least two specific disadvantages e.g.

“The workers in the factory are paid a lower wage than they would be in the UK and the health and safety standards are unlikely to be as good as in the UK.

(2 marks)

(2 marks)

Total marks: 15

Question 5

- (a) A basic shape drawn

(1 mark)

A shape adequately drawn with a hole in an appropriate place.

(2 marks)

The shape is well drawn and is in proportion to the two other shapes with a hole in an appropriate place.

(3 marks)

(3 marks)

- (b) (i) A suitable material that is specifically named. E.g. plywood, MDF, aluminium, polystyrene, acrylic, felt, clay, card, biscuit mix, pastry etc.

(1 mark)

- (ii) The reason is vague and lacking in understanding of the properties or the materials.

(1 mark)

The reason shows a good understanding or the working properties of the chosen material.

(2 marks)

(2 marks)

- (iii) Finishing method named with no explanation given

(1 mark)

Explanation of finishing must be appropriate and relevant to the chosen materials.

(2 marks)

(2 marks)

- (c) Some suggestions to aid makers with processes are shown at appendix A

- (i) Some stages of production identified with little explanation.

(1 mark)

The most important stages identified with some explanation

(2 marks)

Most of the stages of production have been identified and are adequately explained.

(3 marks)

Every stage of production has been identified and are fully explained.

(4 marks)

(4 marks)

- (ii) The list of tools and equipment contains few items some of which are incorrectly named or would not be required.

(1 mark)

The list does not contain all the necessary tools and equipment but those that are, are correctly named and appropriate.

(2 marks)

The list of tools and equipment is complete and correctly named.

(3 marks)

(3 marks)

- (iii) Little regard has been taken to ensure that all of the 500 shapes will always be the same.

(1 mark)

Some evidence within the notes/sketches that thought has been given to cutting out/forming the shapes so that they stand a good chance of them being a consistent shape.

(2 marks)

Evidence within the notes and sketches shows that every stage will be cut out accurately each and every time.

(3 marks)

(3 marks)

- (iv) The sketches and or notes are difficult to follow or understand and do not convey all the necessary information.

(1 mark)

The sketches and notes convey most of the information required but are unclear in places.

(2 marks)

The sketches and notes are well presented and convey all the necessary information in a clear coherent manner.

(3 marks)

(3 marks)

- (d) The notes and or sketches shows an adequate solution to the problem but with no explanation.

(1 mark)

The notes and sketches shows an appropriate solution to the problem but not explained in any great detail.

(2 marks)

The notes and sketches display a good solution to the problem and are clear and well explained.

(3 marks)

(3 marks)

- (e) A single statement e.g. “check each one for damage”.
(1 mark)

An explanation with some checking procedure mentioned e.g. ‘get one person in the team to check the materials, shape and attachment before they are packaged’ or two superficial statements.

(2 marks)

An explanation that displays a good understanding of quality assurance

Procedures to manage all functions which affect quality

QA checks the systems that are in place

Monitors processes continuously

Applies standards to all aspects of the manufacturing not just the product

Such as e.g.

“Everyone in the team must be properly trained, the materials must be of consistent quality the use of go/no go gauges used, and someone is made responsible for checking each stage before packaging takes place”

(3 marks)

(3 marks)

- (f) A simple statement related to **one** of the processes used to manufacture the product
e.g. training, supervision, protective clothing, safety rules / procedures, dangers such as heat, fumes, sharp edges, etc.

(1 mark)

A full explanation of a single process from the list above

(2 marks)

A full explanation of more than one process from the list above.

(3 marks)

(3 marks)

Total marks: 30

Question 6

- (a) Style leaders, innovative technology, miniaturisation, innovative use of materials, innovative manufacturing techniques, strong product identity, etc.

A simple statement “because it looks good”

(1 mark)

A statement with more insight e.g.

“the product is both stylish and uses materials imaginatively and with flair.”

(2 marks)

A good explanation, relating to more than one of the above aspects or a single aspect covered in detail, e.g. “the product uses materials in an innovative and stylish way. Clean lines strong colours and functionality all play their part in making some products design classics”

(3 marks)

(3 marks)

- (b) (i) Qualities such as; nostalgic styling, modern materials and manufacturing techniques, modern performance, etc.

A simple statement e.g.

‘The product is based on something that was made in the past.’

(1 mark)

A detailed explanation of a single quality with some insight e.g.

‘A retro product should be based on a design classic from the past’.

(2 marks)

A detailed explanation that demonstrates a good understanding of more than one quality e.g.

‘A retro product must be based on a past successful design. The product will use contemporary materials and its performance. Its main selling points is nostalgia and a rose tinted view of the past.’

(3 marks)

(3 marks)

- (ii) A classic design or design movement stated with a subjective statement of its qualities, with no qualification, e.g. "Levi jeans are cool to wear".

(1 mark)

A classic design or design movement with a full explanation of a single quality e.g.
'James Dyson developed and put into production the Dyson vacuum cleaner. The product is modern and very stylish.'

(2 marks)

A good understanding of a design classic or a design movement or the development of design through the advance of technologies e.g.
William Morris who was a main character in the Arts and Crafts movement and had links with the Pre – Raphaelites. The romantic theme and natural forms used in the designs are still popular today e.g. wallpaper designs.'

(3 marks)

(3 marks)

Total marks: 9

Question 7

- (a) (i) A simple statement e.g.
“A product is put together by a number of people spread out along a conveyor belt”.
(1 mark)

A good explanation e.g.
“The principle behind the system is that as the product moves along the line, robots or people carry out a particular task until at the end of the line the product is completed (e.g. a motor car).
(2 marks)

(2 marks)

- (ii) Possible responses: The work can be rather repetitive, noisy, unsocial hours shifts, promotional prospects limited, the workers have to keep up to speed with the assembly line.

A single disadvantage given e.g. “the work is boring”.
(1 mark)

Two or more distinct disadvantages given e.g. “The assembly line workers are only trained to carry out one particular task when building the product, this could lead to boredom and lack of motivation.

(2 marks)

(2 marks)

- (b) (i) A rudimentary sketch of the product that does not show or describe in notes the separate parts clearly
(1 mark)

The notes and sketches convey most of the information but some elements are not clearly explained.

(2 marks)

The notes and sketches are easy to follow. All the required information is included.
(3 marks)

(3 marks)

If product chosen is not in list then award mark of zero but credit can be given in b(ii).

- (ii) At each stage:

The notes and sketches are rudimentary and do not fully explain the assembly process.
(1 mark)

The notes and sketches clearly convey the assembly process.
(2 marks)

(4 × 2 marks)

- (c) **Just in Time** – The parts for the assembly line arrive as they are needed. This saves money being tied up in stock and does away with warehouse space. This is made possible because of ICT – data is shared with suppliers as soon as an order is finalised.

Batch production – This is where a specific quantity is produced e.g. loaves of bread. The quantity can be anything from 100 to 1000 plus. Machines and labour can be quite flexible and minor changes to the product made reasonably easily. Makes use of generalised machinery which can be used to make other products

Continuous production – This type of production is non-stop uninterrupted production. The equipment tends to be expensive so maximum use is made of it. Machines are often automated. the plant has been designed for a single product line so flexibility is minimal. Is only used where the volume is extremely large and justifies the investment, such as Coca Cola.

Quality assurance – Is about setting standards and always meeting them. Tests and checks for constant quality are put into place and workers properly trained. Procedures to manage all functions which affect quality

- QA checks the systems that are in place
- Monitors processes continuously
- Applies standards to all aspects of the manufacturing not just the product

Tolerances – Some items need to be within a specified weight, size or shape etc. Some variation may be permitted + or – e.g. the diameter of a shaft. Use of go/ no-go gauges are employed. Acceptable range of difference from standard. No product manufactured in quantity can be considered to be perfect in every detail. The tolerance describes exactly what those acceptable differences are.

H.A.C.C.P. – Hazard Analysis and Critical Control Point: Used in the food industry to produce a list of stages that a food item will require to be produced safely. All stages of the product will be looked at and monitored from the ingredients through to the final product.

A simple statement. e.g. Tolerance “the parts can be bigger or smaller”
(1 mark)

A statement that shows some insight e.g. Just in Time – the parts for the assembly line arrive just as they are needed.
(2 marks)

A full explanation see definition.
(3 marks)

(2 × 3 marks)

(d) (i) Computer Numerical Control *(1 mark)*

(ii) A single statement e.g. “To control a lathe”.
(1 mark)

An explanation that links the machine to a computer/ micro-controller e.g. “CNC could be used to operate a lathe via a computer”.
(2 marks)

A full explanation machine programming language could be used. The program is compiled and entered into a controlling computer. The computer sends the codes to the moving parts of the machine e.g. a lathe. The system generates the numerical data which drive computer controlled machinery. Might form part of an automated manufacturing system.
(3 marks)

(3 marks)

Total mark: 25

TOTAL MARKS FOR PAPER = 125

Appendix A

For use with Question 1 (b) (ii)

Not an exhaustive list but might help markers

Plating with another metal eg. Chromium through electrolysis

Galvanising – dipped into molten zinc

Painting – spray or brush application

Varnishing - spray or brush application (but printed onto paper/card using roller)

Polishing /waxing – by hand or machine

Pressure treated timbers

Soaking – creosote for example and some anti-rot systems

Waterproofing of fabrics – dipping or spraying

Stain prevention (Scotchguarding) dipped or sprayed

Laminating papers/fabrics – bonding on thin plastic layer(s)

Wet rot/dry rot treatments usually sprayed on

Decking treatments (DIY) often applied using foam pad

Powder coating – spraying fine plastic powder onto hot metals and oven baking

Stove enamels - spraying onto metals and oven baking

Enamelling & glazing – melting fine chemical powders onto metal/ceramics in kiln to get glassy coating

Icing on wedding cake to keep moist - applied as layer and sealed around baseboard

Vacuum packing – sealed plastic bag with air removed

Sealing in plastic bags to control moisture content

Freezing food

Drying food

Cooking food

Salting food

Pickling food in vinegar & spices/alcohol

Canning/bottling food

For use with Question 5

Some suggestions to aid markers with processes

Laser cutting - Draw in suitable software (Corel, 2D Design Tools, ProDESKTOP), nominate different colours for cutting and engraving (typically red for cut, black for engrave but do vary), place material in laser and adjust setting. Send single design to print so that quality can be checked. If ok, copy and paste ensuring maximum use of material (nesting). Send to print, replace material until required number achieved. Unlikely any edge finishing is required in most materials.

Milling/routing – Draw in suitable software (Corel, 2D Design Tools, ProDESKTOP), nominate different colours for different size cutters or, place material in machine and adjust setting (typically referred to as offsets, may include feeds and speeds relative to material). Send single design to plot so that quality can be checked. If ok, copy and paste ensuring maximum use of material (nesting). Send to plot, replace material until required number achieved. Edges are likely to be rough so some form of sanding and polishing/painting/varnishing might be specified.

Pewter casting- Draw in suitable software (Corel, 2D Design Tools, ProDESKTOP), nominate different colours for different size cutters or, place material (typically MDF or Necuron) in milling machine/router and adjust setting (typically referred to as offsets, may include feeds and speeds relative to material). Send single design to plot so that quality can be checked. If ok, repeat to get a number of moulds. Heat pewter (variety of methods used) until molten and pour into moulds. Once cool, remove from mould and trim excess material. Polishing is likely, maybe application of colour.

Die-cutting – Make a cutter by fastening dieflex bade around MDF/plywood shape (double sided tape or screws). Use this in press to stamp out shapes. Likely to be linked to some form of printing eg. Laser printing is likely for card, sublimation printing/transfer printing for fabrics. Latter involves a heat transfer system – press or iron. Reference might be made to crop marks for alignment. Fabric parts might be sewn together and filled with wadding.

Chocolate moulding – First issue is to manufacture moulds in large quantity. Any system can be used for making formers although CAM system (laser/milling) is most likely. Vacuum form moulds (most likely from HIPS or PET – food quality needed) in trays. Trim and clean/disinfect. Heat chocolate in bain marie or microwave, pour into moulds, scrape off surplus chocolate and put in fridge to set. A protective cover will be needed (foil, polythene).

Pastry/biscuit/salt-dough/clay cutting – a cutter will need to be made. A simple vacuum formed HIPS cutter can be made over any rigid former and trimmed to make an effective stamping tool. Alternatively, a strip of sheet metal could be shaped and joined to form a cutter. Material will need to be rolled out into even sheets and stamped. Excess material rolled out again and process repeated. Cooking or kiln firing should be noted. Decoration might include icing or edible printing onto rice paper, painting, glazing etc. Edible decorations likely to be covered (cellophane wrapping for example).

Injection moulding – could utilise an injection moulding machine or hot melt glue gun and coloured sticks. Mould could be made in acrylic layers (laser cutting most likely). Plastic injected into mould and allowed to cool (more than one mould would be needed). Once removed, excess plastic needs to be trimmed (fettling). No further work should be necessary.

CNC turning – as flat shape not specified this process might be suggested. Only suitable for forms made up cylinders, spheres, cones which are symmetrical around the length. Draw in suitable software (LatheCAM). Place material in lathe and ensure correct tools are in place. Length and diameter of material (billet) will need to be put into software. Send single design to machine so that quality can be

checked. If ok, repeat until required number achieved. Unlikely any finishing is required in most materials (aluminium or brass most common) although polishing on buffing wheel is possible.

Screen printing/block printing – Might be suggested onto a range of materials such as card or fabric. Screen/printing block will need to be prepared. A wide variety of methods are possible. Ink applied to block and pressed onto material or pressed through screen using a squeegee. There will be a considerable amount of drying time needed. A suitable cutting out method will need to be specified but scissors used to cut a simple outline might be regarded as suitable. Additional work such as sewing fabric pieces together will gain extra credit.

Machine embroidery – this would be a very slow production method but might be suggested. Design to be drawn in suitable software (Corel Draw, Paint) and pasted into the embroidery software (PE Design). Fabric fastened into frame with backing fabric attached. Coloured threads threaded into machine in correct sequence. Design sent to machine. Excess threads need to be trimmed afterwards. A suitable cutting out method will need to be specified but scissors used to cut a simple outline might be regarded as suitable. It would not be feasible to cut out shape prior to embroidering in this instance as fabric needs to be held in frame. Additional work such as sewing fabric pieces together will gain extra credit.

f Apart from good housekeeping rules the following additional safety issues are associated with the processes listed above:

Laser cutting – a fully guarded system. Fire and fume risk.

CNC milling/routing - a fully guarded system. Sharp tools so care needed when placing/removing materials. Dust risk, care needed when removing to avoid eye contact.

Pewter casting – burn risk. Wear gloves and face mask when pouring. Goggles and loose clothing/hair secured when drilling or polishing.

Die-cutting – sharp blades, handle with care. Slight risk of trapping hands in press.

Dye sublimation/transfer printing – burn risk, handle with care.

Chocolate moulding - burn risk, handle with care.

Pastry etc. - burn risk, handle with care. Oven gloves needed. Severe burn risk when emptying kiln, adult supervision needed.

Injection moulding - burn risk, handle with care. Wear gloves when using hot glue-gun system.

CNC turning - a fully guarded system. Sharp tools so care needed when placing/removing materials. Swarf risk, care needed when removing to avoid eye contact, metal swarf can be very sharp.

Printing – toxic materials. Fire/fume risk when using solvent based inks.

Machine embroidery – unguarded system. Danger from moving parts, especially needle.

For use with Question 6

This list is a brief summary of some of the more influential periods in design history during the 20th Century

Arts & Crafts Movement

Romantic ideal of hand crafted products based on strong natural forms and patterns. William Morris was key character.

Art Nouveau

Nature a strong influence, highly decorative period, especially with carved wooden furniture, metalwork, glass etc.

Art Deco

Geometry a strong influence – manufactured forms (lots of machined parts being used)
Period of high glamour – extravagance, wealth.

Bauhaus

First real attempt to train product designers
“Form follows function” - new innovative use of materials such as tubular steel used for furniture, usual modern forms without decoration.

De Stijl

Absolute abstraction - simple slabs of colour/form used in buildings and furniture
Primary colours, black & white (Mondrian's paintings)

40s/50s

Period dominated with advances in new materials, especially plastics. Space age/scientific influences used in both names (Nylon, Rayon etc.) and streamlined styling.

Modernism

Simple modern lines with no superfluous decoration. Often very rectangular, plain colours. Period of concrete and glass in architecture.

60s

Height of modernism and the start of a reaction to shock. Start of Youth Culture as a consumer group. Strong colours and patterns such as black & white squares. Very strong period for fashion design.

Pop Art

Fun, outrageous colour and form. Making everyday object precious (Campbell's Soups, comic strip characters, Marilyn Monroe images etc)

Memphis (80s)

Surface pattern & strong colours used on furniture, lighting, ceramics etc.
Unusual styling/forms based upon questioning previous ideas –rebellion against the Modernist movement – start of **Post Modernists** which diluted some of the elements of Memphis but in a more commercially viable route.