

DESIGN AND MANUFACTURE

SQA recommended Past Paper Questions

SG 2012 Q5.

A child's desk is shown below



- a) Describe one idea generation technique that could have been used in the design of the desk. 2
- b) State two secondary functions of the desk. 2

SG 2013 Q3.

A salt and pepper set is shown below



- a) Describe one idea generation technique that could have been used in the design of the salt and pepper set. 2
- b) The base was manufactured from a hardwood.
State the name of a suitable hardwood. 1
- (c) State why softwood could be considered more environmentally friendly than hardwood. 1

SG 2013 Q5.

3. A shelving unit is shown below

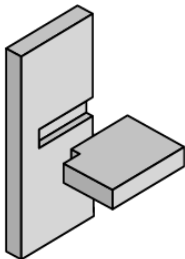


- a) Describe why market research would be carried out during the design of the shelving unit.

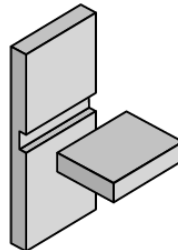
2

The following joints were considered for the shelving unit.

Stopped housing



Through housing



- b) With reference to hand tools, describe how one of the joints could be manufactured. 2

SG 2012 Q1.

The stools shown below can be assembled to form a cube.

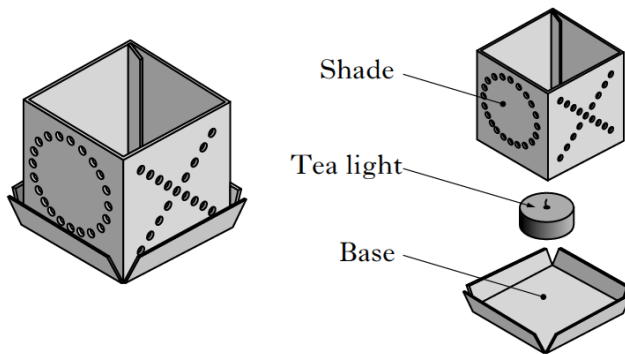


- a) State a functional reason for the square hole on the top of each stool

1

SG 2012 Q2.

A tea light holder is shown below



- a) Manufacturing and aesthetics were considered during the design of the tea light holder.

- (i) State a manufacturing reason for using aluminium.

1

- (ii) State an aesthetic reason for using aluminium.

1

SG 2013 Q4.

An acrylic stool is shown below.



The primary function of the stool is seating.

- a) State a secondary function of this stool. 1
- b) During the design of the stool, models were produced.
State two reasons for producing models. 2
- c) The designer chose to make the stool from thermoplastic for aesthetic reasons.
State two disadvantages of using thermoplastic. 2

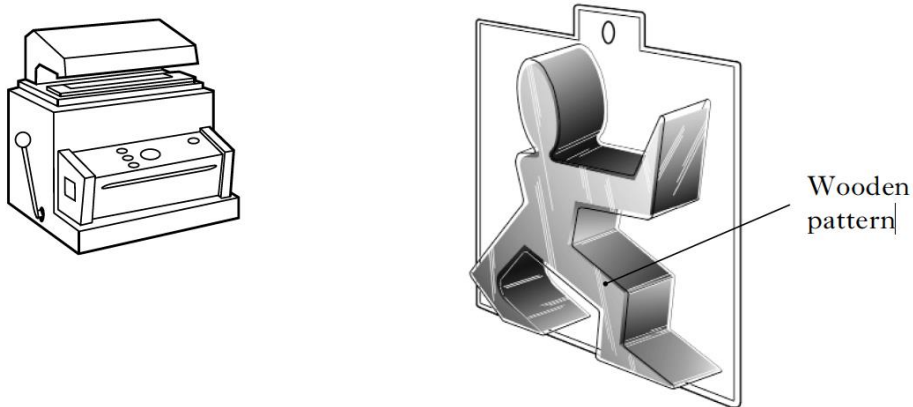
SG 2011 Q5.

A metal door stop is shown below.



- a) Products are designed with a target market in mind.
State what is meant by target market 1

- (e) Thin clear plastic packaging was manufactured using the vacuum forming machine shown below.



- (i) State two reasons for packaging this product in this way. 2
- (iii) When testing it was difficult to remove the pattern from the plastic.
State a modification to the pattern to make removal easier. 1
- (iv) Tearing appeared at the corners of the packaging.
State a reason for the tearing. 1

SG 2011 Q1.

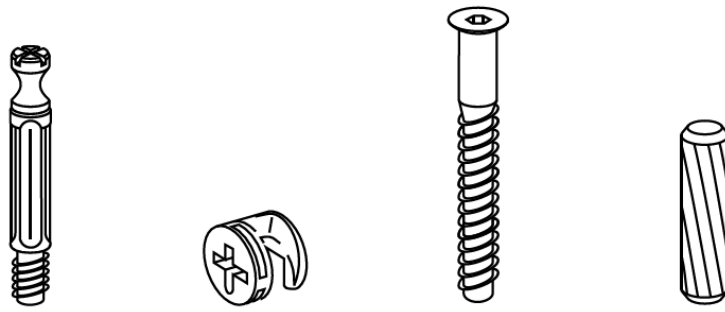
A wooden chair is shown below.



During the design process a model of the chair was produced.

- a) State two reasons for producing a model of the chair. 2

b) The fixings shown are used in the assembly of the chair.

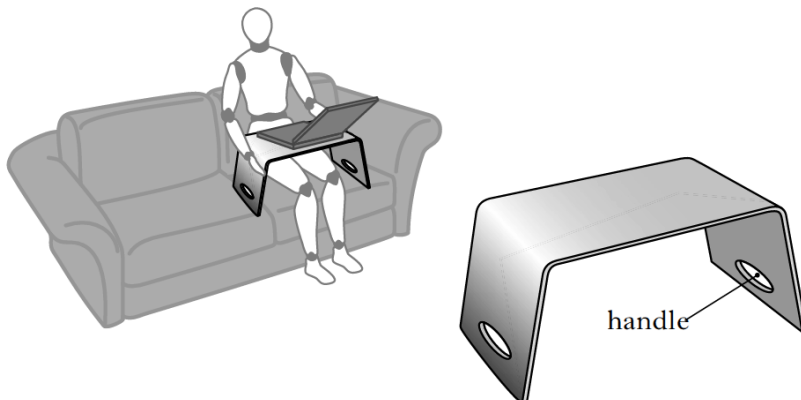


b) State the collective name of these fixings and the advantage of using these fixings to manufacturer.

2

SG 2012 Q4.

A portable laptop table made from acrylic is shown below.



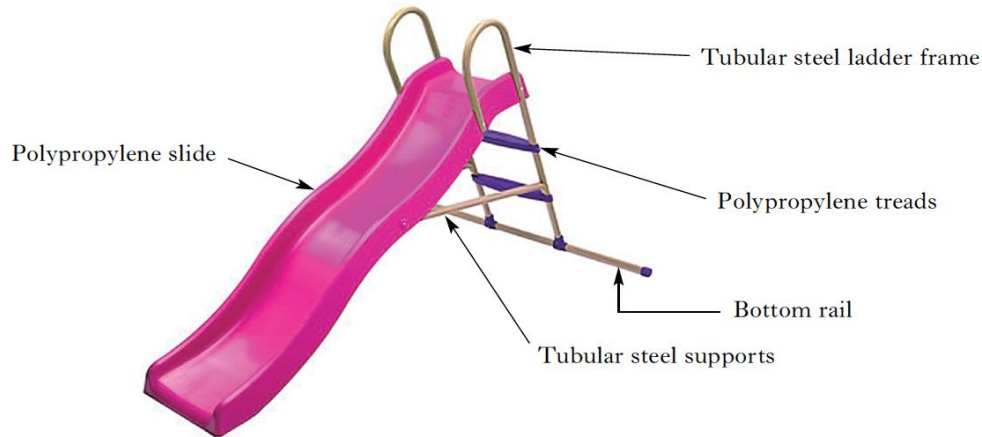
During the design process a model of the laptop table was produced.

a) Explain the benefits to designers of modelling.

2

INT 2 2011 Q1

A child's activity toy is shown below.

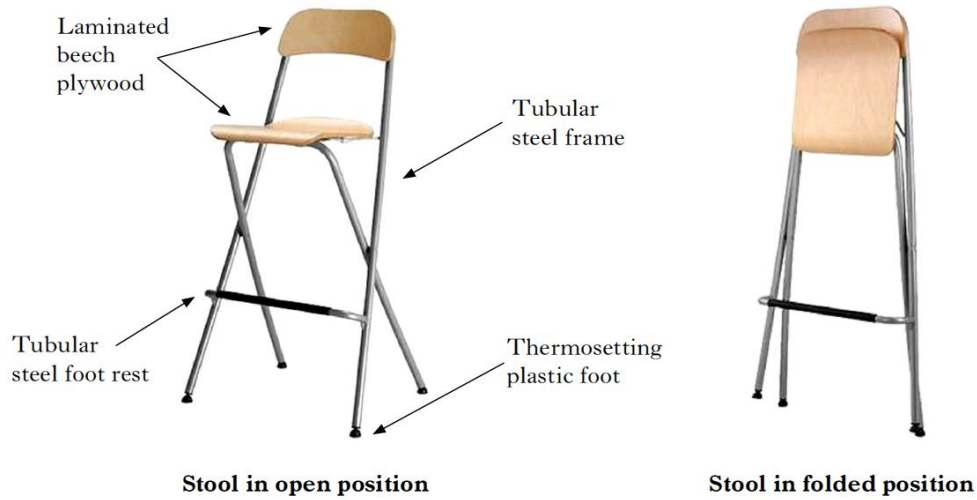


- a) (i) State two reasons why a thermoplastic is a suitable material for the slide 2
(ii) State two reasons why tubular steel is a suitable material for the frame of the stool. 2
- b) Describe how the design of the activity toy shown above has been influenced by ergonomics 6
- c) Describe two ways in which the design of the activity toy shown above has been influenced by each of the following design issues:
 - (i) durability 2
 - (ii) contrast 2

(Note: different descriptions should be given for each design issue.)

INT 2 2011 Q1

A folding kitchen stool is shown below.



- a) State two reasons why a tubular ferrous metal is a suitable material for the frame of the stool. 2
- b) Describe how the design of the stool has been influenced by ergonomics 6
- c) State two reasons why each of the following is important in the design of the stool:
 - (i) safety; 2
 - (ii) economics. 2

INT 2 2011 Q1

An electric toaster is shown below.



- a) (i) A ferrous metal was used for the inner shell of the toaster, state two reasons why this material is suitable. 2
- (ii) A thermoplastic was used for the body of the toaster, state two reasons why this material is suitable. 2
- (iii) State a suitable manufacturing process for the plastic control dial and state a reason why this process is suitable. 2
- b) Describe how the design of the toaster has been influenced by ergonomics 6
- c) State two reasons why ease of maintenance is important in the design of the toaster 2
- d) State two reasons sustainability is important in the design of the toaster 2

INT 2 2012 Q5

A hand held game is shown below.



The manufacturer wishes to carry out an evaluation of the hand held game.

Describe an evaluation technique that could be used for each of the following aspects of the hand held game:

(Note: a different technique must be used for each aspect.)

- a) Ease of use; 2
- b) Aesthetics; 2
- c) Battery life. 2

INT 2 2013 Q4.

Images of an iPad are shown below.



During the design of the iPad, research would have been carried out into the following:

- (i) fingertip size;
- (ii) battery life;
- (iii) aesthetics.

Describe how each of the issues above could be researched to assist the designer in the development of the iPad

INT 2 2013 Q2.

A cordless iron and its stand are shown below.



A consumer magazine wishes to carry out an evaluation of the cordless iron.

a) Describe how each of the following aspects of the cordless iron could be Evaluated.

- (i) ease of use; 2
- (ii) time to reach a correct ironing temperature. 2

(Note: a different evaluation technique must be used for each aspect and sketches may be used to illustrate your answers.)

INT 2 2011 Q6

Children's cutlery is shown below.



During the design of children's cutlery, the designer would consider the following areas:

- Ergonomics Aesthetics Materials.

a) Explain why each of these areas is important in the design of children's cutlery. 3

INT 2 2011 Q4

A selection of plastic trays from the inside of chocolate boxes is shown below.



- a) The plastic trays have been manufactured by vacuum forming.
Explain why the following features are found on vacuum formed products:

- (i) thinning;
 - (ii) rounded internal corners;
 - (iii) tapered surfaces.
- (Sketches may be used to illustrate your answers.)

3

- b) Standard components are used in the manufacture of products such as microwave ovens and toasters. Explain the advantages of using “standard components”.

2

INT 2 2012 Q2

The computer desk shown below was supplied as a flat-pack.



State two advantages of using hardwood veneered chipboard for the computer desk rather than using solid hardwood.

2

INT 2 2013 Q4.

Three products are shown below with a list of manufacturing processes.
Match each product or part of product with the most suitable manufacturing process from the list.



A Thermoplastic oil tank



B Pine table leg



C Metal parasol stand

- Rotational moulding
- Press-forming
- Extrusion
- Compression moulding
- Injection moulding
- Sand casting
- Laminating
- Turning

INT 2 2012 Q6

A claw hammer is shown below.

Head: Forged alloy steel



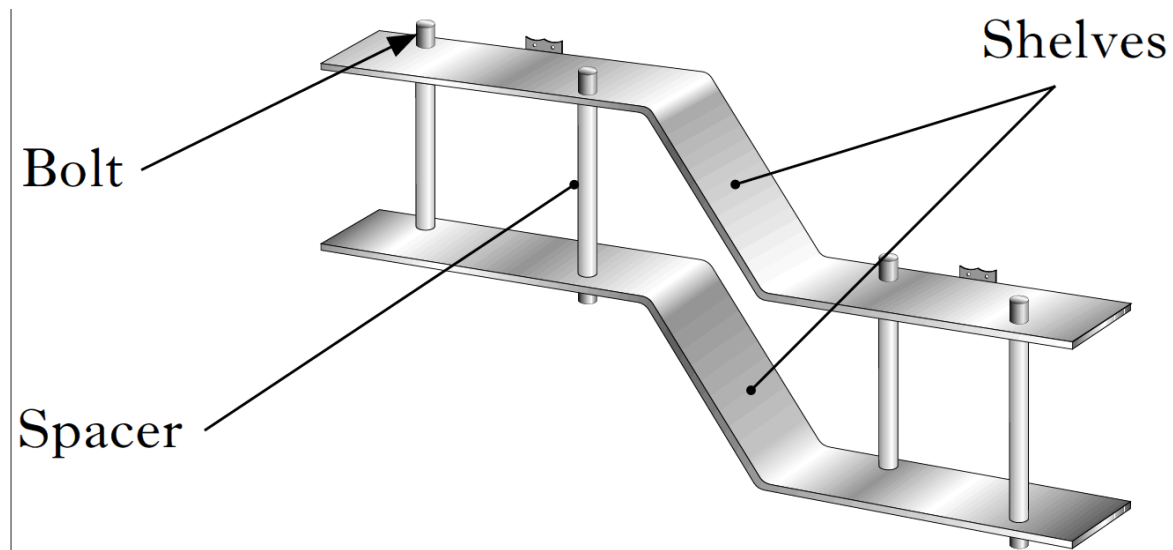
Shaft: GRP (Glass Reinforced Plastic)

- (a) State two reasons why a hardened ferrous metal is suitable for the head of the claw hammer.

2

SG 2011 Q3

A shelving unit manufactured from aluminium is shown below.



- c) The two aluminium shelves are identical.
State a method of ensuring the shelves are bent to the same shape.

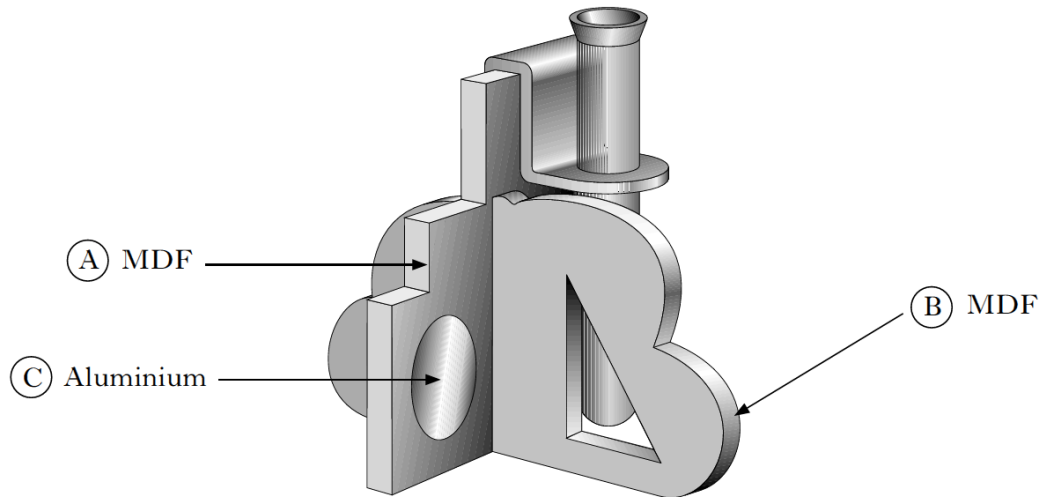
1

- d) Aluminium can be shaped and bent by hammering.
State the name of the property of aluminium that allows it to be shaped and bent

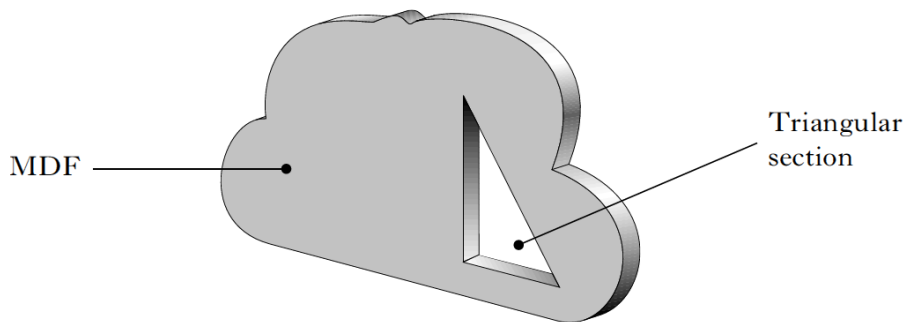
1

SG 2011 Q4

A vase is shown below.



Part of the vase is shown below.



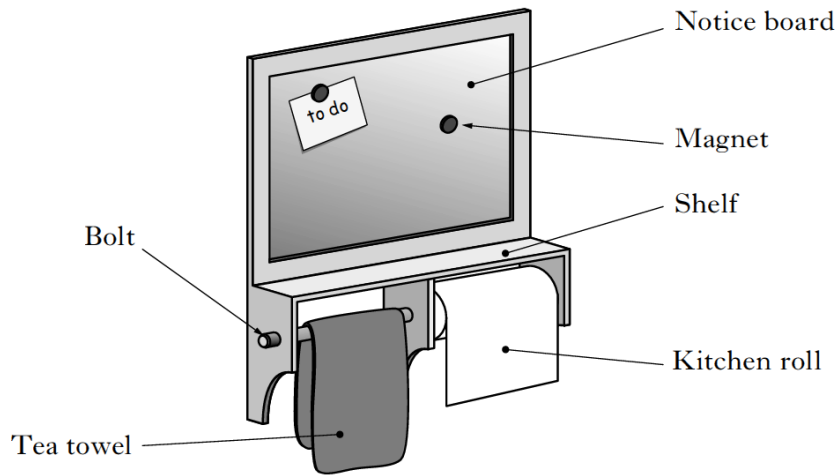
- a) The triangular section was removed.
Describe in detail how this section of material could be removed.
- b) Part A and part B shown above are joined.
State the name of a suitable joint.

2

1

SG 2012 Q3

A kitchen unit is shown below.



a) The notice board is magnetic.

(i) State the name of a metal that could be used for the notice board.

1

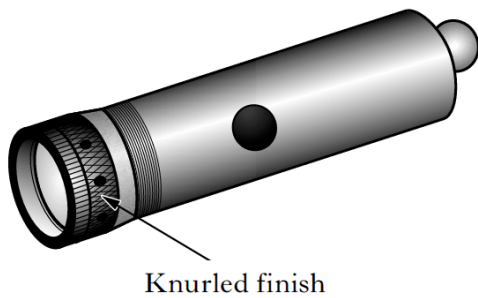
(ii) The shelf was made from a hardwood.

State the name of a suitable hardwood.

1

SG 2013 Q1

A torch is shown below.



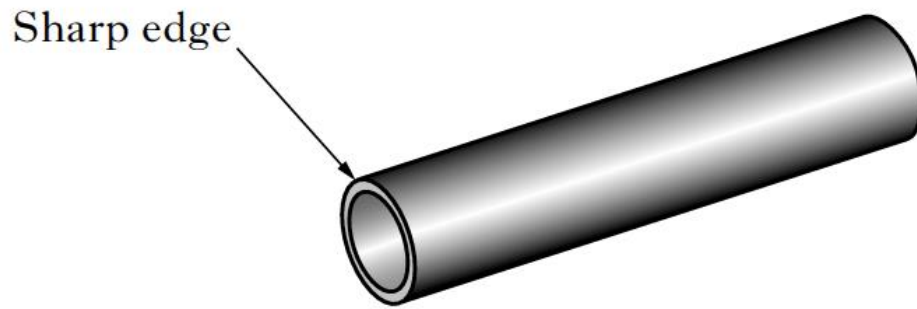
a) The torch body is made from aluminium.
State two properties of aluminium that makes it a suitable material.

2

b) State a functional reason for the knurled finish.

1

During testing it was found that the torch body had a sharp edge.

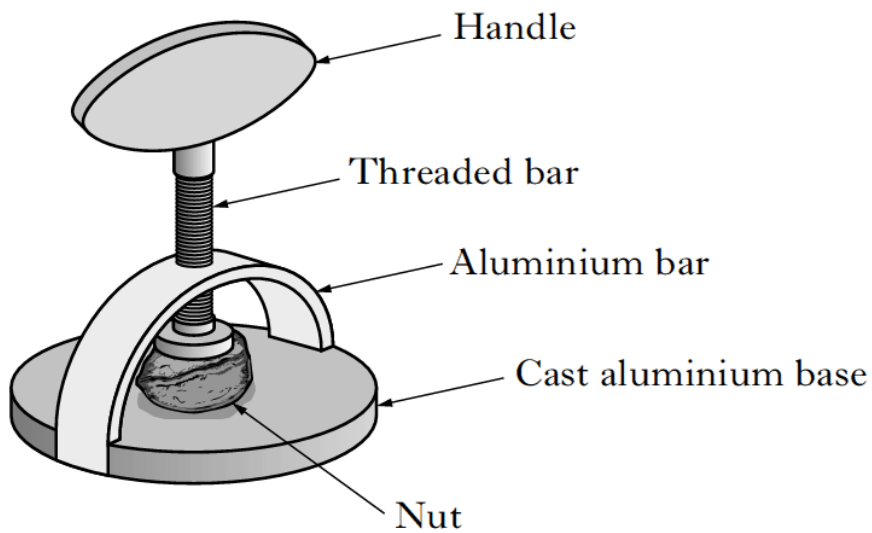


c) Describe how the sharp edge could be removed from the torch body

2

SG 2013 Q2

A nut cracker is shown below.



During the manufacture it was necessary to anneal the aluminium bar before bending.

a) State the reason for annealing aluminium.

1

b) State a reason why the base was made from aluminium

1

Design and Manufacture SQA Recommended Past Paper Questions—Marking Scheme

SG 2012 Q5.

- A) One mark for naming a suitable idea generation technique. One mark for describing how it is used.
- B) Secondary functions could include work surface or storage. Any other suitable answer.

SG 2013 Q3.

- A) One mark for naming a suitable idea generation technique. One mark for describing how it is used.
- B) Oak, Beech, Elm or any other suitable answer.
- C) Pine grows quickly. It can be grown in sustainable and managed forests.

SG 2013 Q5.

- A) To identify target market.
Cost– to price the item
To identify demand/ desire from customers
To see what other similar products there are
To make sure the product is designed correctly
To gather feedback for evaluation of the product
To improve the performance of the product
- B) Mark out the joint using a steel rule, try square and marking gauge
Cut the depth of the joint using a tenon saw
Chisel the waste wood using a bevel edged chisel

SG 2012 Q1.

- A) As a finger hole to ensure the stools can be lifted.
To help assemble or disassemble the cube.
Any answer that suggests lifting or gripping.

SG 2012 Q2.

- A) Aluminium is soft, easy to bend/ drill/ shape/ cut and it will not rust.
Any one of the above is an acceptable answer.
Do not accept cheap, lightweight or low melting point.

SG 2013 Q4.

- A) Storage/ magazine rack/ foot rest
- B) Any two reasons from:
Check aesthetics
Develop ideas
Make quick design changes
Show customers/ clients/ manufacturers
Check sizes—ergonomics
To check mistakes before making the final product
Evaluate the design
- C) Brittle/ weak/ scratches easily/ cost

SG 2011 Q5.

- A) The people the product is aimed at.
- B)
- (i) To protect the product
 - Display the product
 - Easy to package an irregular shape
 - Less packaging
 - Product can be seen
 - Product can be stored
 - The packaging does not take up much space
 - The packaging can be recycled
 - The product cannot be tampered with
- (ii) Taper the sides of the pattern (make them more sloped)
- (iv) The edges of the pattern were sharp (not rounded)

SG 2011 Q1.

- A) Any two of the following reasons:
- To check the ergonomics
 - To make quick changes
 - Show potential customers
 - Check the manufacture
 - Evaluate the product
 - Check sizes
 - Stability
 - See what it looks like
- B) Knockdown fittings.
- The advantage of these to the manufacturer is that the customer self assembles the product.
- The product can be sold as a flat pack.
- Knockdown fittings are standard components therefore cheap. Lower costs means more stock is available.

SG 2012 Q4.

- A) any two benefits from:
- Check aesthetics
 - Develop ideas
 - Make quick design changes
 - Show customers/ clients/ manufacturers
 - Check sizes—ergonomics
 - To check mistakes before making the final product
 - Evaluate the design

INT 2 2011 Q1.

A) (i) Any two reasons from:

- Smooth/ no splinters
- Hygienic
- Can be modified/ formed into required shape/ easy to shape, form, manufacture
- One piece manufacture
- Mould determines manufacture
- Colour choice/ in build colour
- Weatherproof/ waterproof
- Strong/ hardwearing/ robust/ tough/ sturdy
- Durable/ lasts a long time
- Inexpensive/ cheap
- Safe (must be justified)
- Easily cleaned
- No need to paint
- Maintenance free
- Good strength to weight ratio
- Ease of connecting/ joining

Candidates may refer to properties of the slide rather than properties of the material.

Where the candidate has given two contradicting reasons, these cancel each other out and the remainder of the candidate's response should be marked.

Only the first two responses are marked.

(ii) **Two possible routes of reasoning within this answer. Consumer and manufacturer.**

- Light in weight
- Good strength to weight ratio
- Strong in every direction/ not easy to bend (for the consumer)
- Strong/ hardwearing/ robust/ tough/ sturdy
- Easily formed (jigs formers etc) easy to bend (for the manufacturer)
- Inexpensive/ cheap
- Ease of construction/ connecting/ jointing/ assembly
- Can be painted/ easy to coat/ easy to finish
- Readily available

Where the candidate has given two contradicting reasons, these cancel each other out and the remainder of the candidate's response should be marked.

Only the first two responses are marked.

INT 2 2011 Q1 (cont.).

B) Anthropometrics—

- Width/ length of treads—body, foot, leg width
- Diameter of ladder frame—grip diameter
- Vertical distance between treads—leg stretch
- Height of handrail—arm reach/ stretch
- Width of ladder frame—body width

Physiology-

Eg the activity toy has been designed to be moved easily by an adult around the garden.

- Strength of components—relevant activity/ standing/ sliding/ gripping
- Tread spacing—leg raise, climbing
- The activity toy—moving, lifting, dragging, shifting
- Nuts/ bolts –tightening during construction

Psychology-

Eg the choice of bright/ warm / advancing coloured material on the slide will ensure that the user knows which part is the fun part.

- Bright colours—fun
- Coloured identification of parts—user friendliness
- Robust appearance—feeling of safety (for child/ parent/ carer)/ stability
- Curvy appearance—safety/ fun/ exciting
- Bumpy appearance—fun/ exciting
- Steep ladder/ excessive height—danger excitement
- High handrail—safety/ security

C) Durability

- Any material properties linked to durability
- Steel—will not bend or break
- Coating on tubular steel frame—will resist moisture/ prevent rusting
- Plastic slide—does not degrade over time/ weatherproof

Contrast

- Different components—contrasting colours
- Different components—contrasting materials
- Different components—contrasting manufacturing methods
- Different components—contrasting shape/ form/ straight—curvy
- Different components—contrasting textures (slip/grip)
- Different components—contrasting function (slip/ grip)
- Different components—contrasting structures (skeletal/ solid)
- Whole activity toy/ slide—contrast with its environment

INT 2 2012 Q1.

A) Reasons given could be derived from any of the usual design issues.

- Functional reasons
- Ergonomic reasons
- Environmental reasons
- Durability reason
- Safety reasons
- Cost reasons
- Aesthetics reasons
- Material reasons
- Manufacturing reasons

Two other possible routes of reasoning within this answer. Consumer and manufacturer suitability.

- Light in weight
- Good strength to weight ratio
- Strong in every direction/not easy to bend (for consumer)
- Strong/hardwearing/robust/tough/sturdy
- Easily formed (jigs/formers/etc)/easy to bend (for manufacturer)
- Inexpensive/cheap
- Ease of construction/connecting/jointing/assembly
- Can be painted/easy to coat/easy to finish
- Readily available
- Etc

B) Anthropometrics—

Eg The seating area width has been designed to suit adult hip breadth (answer showing link between stool part and human dimension).

- Seating area – hip breadth
- Seating area – buttock to knee length
- Seating area to foot rest – popliteal height
- Back rest height – buttock to shoulder height

Any suitable answer relating human dimensions and relevant aspect of the stool should be awarded 1 mark.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Vague answers which display an appropriate level of knowledge attract one mark.

Two marks should be awarded where candidates have given an extended answer, which links one part of the stool to three or more bits of anthropometric data.

eg The width of the stool has been designed to fit the 95th percentile adult hip breadth so that almost all potential users can fit on the seat area. (Percentile/user/body dimension/stool part).

Physiology-

Eg The stool has been designed to be lightweight so that it can be easily moved by an adult around the kitchen.

- Foot rest placement – leg raise, climbing
- The stool – moving, lifting, opening, closing, carrying etc

Any suitable answer relating to human limitations, linking to part of the stool. The use of physical action verbs linking to the use of the stool are to be looked for here.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Vague answers which display an appropriate level of knowledge attract one mark.

Two marks should be awarded where candidates have an extended answer, which links one part of the

stool to three or more justified physiological activities.

eg The stool frame has been designed to be opened and closed easily for storage using a small amount of effort and physical strength.

Psychology—

Eg The choice of natural wooden materials for the seat and back areas of the stool will ensure that the user thinks the stool will be comfortable to sit on.

- Frame material – looks easy to move/store/open/close
- Wooden material – looks comfortable to sit on
- Foot rest replacement – looks to have extra comfort for feet and legs
- Thermosetting feet – looks as if it will have good grip on the floor
- Rubber grip on footrest – looks to be safe to place feet on

NB We are not marking aesthetic qualities of the stool in this question.

Any suitable answer relating to human thoughts/feelings/emotions, linking to a part, bit of the entire stool.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Vague answers which display an appropriate level of knowledge attract one mark.

Eg it looks light, vague, 1 mark. (could be light in weight)

Two marks should be awarded where candidates have given an expanded answer, which links one part of the stool to three or more justified psychological feelings.

eg The rubber grip on the footrest looks like it will add a feeling of comfort and also safety to the user when they sit on the stool. They should feel safe that their feet will not slip off.

C) safety—

- Complete stool – securely assembled
- Complete stool – smooth surface/edges/no sharp edges.
- Standard components – non hazardous
- Complete stool – folding mechanism, no finger traps
- Complete stool – passed BIS testing
- Plastic feet – non slip
- Surface finishes – non toxic
- Complete stool – wide base for stability
- Complete stool – to avoid litigation/suing if users are injured
- Etc.

Any suitable justification relating to safety, linking to part of the stool.

Vague answers which display an appropriate level of knowledge attract 1 mark.

Two marks should be awarded where candidates have given an expanded answer which links one part of the stool to three or more surface finish considerations.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Economics—

Candidates may choose to refer to the following areas when responding to this question:

- Materials – choice of suitable materials
- Manufacturing techniques – scale of production/method of production
- Any other suitable justification relating to economics (cost/value for money/omparison to other products/ consumer demand), linking to part of the (or entire) stool.

Vague answers which display an appropriate level of knowledge attract 1 mark.

Two marks should be awarded where candidates have given an expanded answer which links one part of the stool to three or more economics considerations.

1 mark per correct response (including both elements of information) up to total of 2 marks.

INT 2 2013 Q1.

A) (i) **Reasons given could be derived from any of the usual design issues**

- Functional reasons
- Ergonomic reasons
- Environmental reasons
- Durability reasons
- Safety reasons
- Cost/economic reasons
- Aesthetics reasons
- Material reasons
- Manufacturing/production reasons

Two other possible routes of reasoning within this answer. Consumer and manufacturer suitability.

- Good strength to weight ratio / Light in weight
- Reflects heat / conducts heat (NOT conducts electricity)
- Strong in every direction/not easy to bend (for consumer)
- Strong/hardwearing/robust/tough/sturdy
- Easily formed (jigs/formers/etc.)/easy to bend (for manufacturer)
- Inexpensive/cheap
- Ease of construction/connecting/jointing/assembly
- Easy to coat
- Doesn't rust
- Readily available
- Durable/lasts a long time (duration)
- etc.

(ii) **Reasons given could be derived from any of the usual design issues**

- Functional reasons
- Ergonomic reasons
- Environmental reasons
- Durability reasons
- Safety reasons
- Cost/economic reasons
- Aesthetics reasons
- Material reasons
- Manufacturing/production reasons

Two other possible routes of reasoning within this answer. Consumer and manufacturer suitability.

- Light in weight
- Good strength to weight ratio
- Strong in every direction/not easy to bend (for consumer)
- Strong/hardwearing/robust/tough/sturdy
- Easily formed
- Inexpensive/cheap
- Ease of construction/connecting/jointing/assembly
- Inbuilt colour
- Readily available
- Durable/lasts a long time (duration)
- etc.

INT 2 2013 Q1 (cont.)

(iii) Suitable process and reason (control dial):

Process

- Compression moulding
- Injection moulding
- 'Moulding' scores zero

Reason

- Cheap/inexpensive
- Mass produced product
- Due to the material
- All the other plastic processes are not suitable
- Intricate detail
- Speed of production
- Any other suitable justification

B) Anthropometrics—

e.g. The loading lever has been designed to suit adult thumb width (answer showing link between toaster part and human dimension).

- Loading lever – thumb width
- Control dial – thumb and fingertip thickness
- Overall width – hand span

Any suitable answer relating human dimensions and relevant aspect of the toaster should be awarded 1 mark.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Vague answers which display an appropriate level of knowledge attract one mark.

Two marks should be awarded where candidates have given an extended answer, which links one part of the toaster to three or more bits of anthropometric data.

e.g. The width of the loading lever has been designed to suit the 95th percentile adult thumb width so that almost all potential users can push the lever down (Percentile/user/body/dimension/toaster part).

Physiology—

e.g. The toaster has been designed to be lifted easily by an adult.

- Complete toaster – lifting
- Loading lever – pressing
- Control dial – turning/twisting

Any suitable answer relating to human limitations which links to all/part of the toaster. The use of physical action verbs linking to the use of the toaster are to be looked for here.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Vague answers which display an appropriate level of knowledge attract one mark.

Two marks should be awarded where candidates have given an extended answer, which links one part of the toaster to three, or more justified physiological activities.

e.g. The toaster has been designed to be loaded easily, adjusted for toast colour and moved across the worktop easily using a small amount of effort and physical strength.

Psychology—

e.g. The different colour of the control dial makes it easy for the user to identify this important component.

- Plastic body – looks like it will be cool to touch and therefore safe.
- Plastic body – looks like it will be hot to touch and therefore hazardous.

INT 2 2013 Q1 (cont.)

NB. We are not marking aesthetic qualities of the toaster in this question. Purely visual reasons are aesthetics. e.g. 'It is pink so people will want to buy it' Scores zero.

Any suitable answer relating to human thoughts/feelings/emotions, linking to a part, bit or the entire toaster.

1 mark per correct response (including both elements of information) up to total of 2 marks.

Vague answers which display an appropriate level of knowledge attract one mark.

e.g. It looks like it has good grip. (This is vague because we do not know which part of the toaster the candidate is referring to) 1 mark.

C) Ease of maintenance

- Crumb tray – emptying / cleaning
- Plastic body – cleaning
- Components – replacement / repair
- Complete toaster – dismantling / reassembly

Any suitable ease of maintenance related justification which links to all/part/aspect of the toaster.

Vague answers which display an appropriate level of knowledge attract 1 mark.

Two marks should be awarded where candidates have given an expanded answer, which links one part/aspect of the toaster to three or more ease of maintenance considerations (not the other way round).

1 mark per correct response (including both elements of information) up to total of 2 marks.

D) Sustainability

- recyclable materials
- energy consumption
- energy efficiency
- etc.

INT 2 2012 Q5.

A different technique must be used for each aspect

Candidates should be awarded one mark for naming an appropriate evaluation technique.

Candidates should be awarded one mark for describing their named evaluation technique.

Where candidates incorrectly describe a named evaluation technique, this may attract one mark where the description of the technique relates to the question.

To gain two marks candidates should correctly describe their named technique.

Generic descriptions of methods of evaluation may attract 2 marks.

- A) Ease of use – candidates may refer to user trials/user trip/internet research
Description of evaluation activity marked on a 2-1-0 scale.
- B) Aesthetics – candidates may refer to surveys/questionnaires/internet research
Description of evaluation activity marked on a 2-1-0 scale.
- C) Battery life – candidates may refer to testing/test rigs/comparison to other products/internet research
Description of evaluation activity marked on a 2-1-0 scale.
Extended response gains 2 marks on the 2-1-0 scale.
Technique must match activity

INT 2 2013 Q4.

Candidate's responses to this question should be appropriate and relevant to the iPad / tablet shown. Examples are given below for each part of the question, (i) – (iii).

- i) Fingertip size – so that the user can easily select icons and operate the controls on the screen
- ii) Battery life – it has to last a suitable time away from a mains power electrical point / should be able to watch a movie away from home
- iii) Aesthetics – the use of the white colour makes it look a modern product (reference to aesthetic terms or appearance linked to sales required here)

Vague or generic responses attract no marks

INT 2 2013 Q2.

- A) (i) Ease of use – candidates may refer to user trials / user trip / Internet research / etc. / (use it / 'ironing a shirt' etc. scores zero).

Description of evaluation activity marked on a 2-1-0 scale.

- (ii) Time to reach ironing temperature – candidates may refer to testing / test rigs / comparison to other products / internet research / stopwatches / etc. / ('time it' scores zero)

Description of evaluation activity marked on a 2-1-0 scale.

INT 2 2011 Q6.

- A) Ergonomics: Any relevant and true anthropometric, psychological or physiological explanation.

Aesthetics: shape/size/form/contrast/colour/encourage usage/etc.

Materials: Comfortable/tactile/attractive or in-built colour/hygiene/safety/ ease of cleaning/lightweight/non-allergenic/etc.

We are looking for aspects of the cutlery to be linked to each design issue to get 1 mark per issue.

1 mark per correct response up to total of 3 marks.

INT 2 2011 Q4.

- A) (i) As the plastic softens and stretches the plastic thins as it stretches over the mould/pattern/because it stretches.
(ii) The pattern or mould has fillets/to prevent tearing/harder to break/ stronger/shape of the mould.
(iii) It allows the product to be easily removed/separated/from the mould/ pattern.

1 mark per correct response up to total of 3 marks.

- B) uniformity
Easier to mass produce products

INT 2 2012 Q2.

'beech veneer chipboard rather than solid beech'

- Low cost
- Environmental reasons
- Uniformity of thickness
- Smooth surface
- Easy to machine
- Wide flat boards
- Knock Down Fittings are compatible
- Uses materials that might be considered as waste
- Etc.

Aesthetic responses zero marks.

Eg 'looks nice'

Only first 2 responses are marked.

1 mark per correct response up to total of 2 marks.

INT 2 2012 Q4.

Product A: Rotational Moulding

Product B: Turning

Product C: Sand Casting

1 mark per correct response up to total of 3 marks.

INT 2 2012 Q6.

A) Two possible routes of reasoning within this answer. Consumer and manufacturer suitability.

- Heavy
- Strong/hardwearing/robust/tough/sturdy
- Manufacturing method adds to the strength
- Ease of connecting/jointing/assembly
- Readily available
- Durable/lasts a long time (duration)
- Etc.

Where the candidate has given two contradicting reasons, these cancel each other out and the remainder of the candidate's response should be marked.

Only first 2 responses are marked.

1 mark per correct response up to total of 2 marks.

SG 2011 Q3.

A) Bend as a pair on the metal folder
Use a former, jig or template

B) Malleable/ Malleability

SG 2011 Q4.

- A) Full answer two marks, partial answer 1 mark.
Drilling holes and adjust the coping saw.
- B) Cross halving/ halving joint

SG 2012 Q3.

- A) (i) Any ferrous metal
(ii) Any hardwood

SG 2013 Q1.

- A) Doesn't rust
Doesn't need a finish, shiny etc
Durable
Strong
Malleable
If you drop it, it won't break
Lightweight
Any other suitable answer
- B) To get a grip
To show where to turn
- C) Chamfering/ tapering

SG 2013 Q2.

- A) To soften, make malleable, to remove work hardness/ brittleness
- B) Aluminium won't dent, it is hard and durable.