

Mark Scheme (Results)

Summer 2007

GCSE

GCSE Design and Technology:
Graphic Products Technology
Foundation Tier (1972/3972)

Marking Guidance

Give / State / Name

Normally a one or two word answer, at the very most a short sentence.

Describe

Normally, one or two sentences which form a description, making reference to more than one point. All points must be linked for a complete answer.

Explain

Normally, one or two sentences which form an explanation. This requires a clear or detailed account of something and includes a relevant justification, reason or example.

Evaluate

Normally one or two sentences where the quality, suitability or value of something is judged. This can include both positive and negative points, with each point normally requiring a relevant justification.

The mark scheme contains a range of possible answers for all questions. For some questions it is possible to provide a finite number of acceptable answers. However, in some instances it is not possible to provide every conceivable answer. In these instances objective guidance is provided.

For all answers candidates are not expected to give the exact wording contained in this mark scheme. However, to gain credit their answer must demonstrate the same meaning as detailed in the mark scheme.

It is the examiner's responsibility to apply their professional judgement in determining if what the candidate has written has the same meaning as the answer detailed in the mark scheme. For all answers the '*Key words*' have been written in bold text.

For describe and explain questions, candidates may give a different combination of the marking points listed in the mark scheme. In such instances candidates can be rewarded for the marking points provided that they are suitably linked. However, candidates cannot be rewarded for the same point repeated in two different combinations.

Examiners must mark in red pen using ticks and crosses in the body of the script.

Design & Technology: Graphic Products (1972/2F)
Full Course Foundation Tier Mark Scheme

Question Number	Question		
1972_2F_Q01ai-ii	<p>The table below shows some tools and equipment.</p> <p>Complete the table by:</p> <p>(i) naming each tool or piece of equipment</p> <p>(ii) describing its use</p>		
	<p>Answer</p> <p>Name: pencil (<i>only answer</i>)</p> <p>Task: drawing / writing / colouring / shading / pushing holes into paper</p> <p>Name: sharpener (<i>only answer</i>)</p> <p>Task: sharpening / chamfering / putting points on</p> <p>Name: ruler / rule (<i>only answers</i>)</p> <p>Task: measuring / drawing lines / guiding pens/pencils/scissors/scoring tools</p> <p>Name: airbrush (<i>only answer</i>)</p> <p>Task: painting / colouring / spraying / varnishing / highlighting</p> <p>Name: laminator (<i>only answer</i>)</p> <p>Task: laminating / covering paper or card with plastic</p>	<p>Part Mark</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>Total Mark</p> <p>(10)</p>
1972_2F_Q01b	<p>The vacuum former is used to shape sheets of plastic using moulds. The chart below shows some of the stages in producing a moulded product.</p> <p>Fill in the <u>two</u> missing stages.</p>		
	<p>Answer</p> <p>Two missing stages:</p> <ul style="list-style-type: none"> • heat (<i>Do not accept 'melt'</i>) • suck / vacuum / form / mould / raise table/platen 	<p>Part Mark</p> <p>2x1</p>	<p>Total Mark</p> <p>(2)</p>

Question Number	Question		
1972_2F_Q01ci	The drawings below show a prototype mould used for vacuum forming. State <u>one</u> reason why the mould has been designed with the sloping sides (A).		
	Answer	Part Mark	Total Mark
	One reason stated:		
	<ul style="list-style-type: none"> • makes removal easier / provides relief/release/draft angle 	1	(1)
Question Number	Question		
1972_2F_Q01cii	State <u>one</u> reason why the mould has been designed with the rounded corners (B).		
	Answer	Part Mark	Total Mark
	One reason stated:		
	<ul style="list-style-type: none"> • prevents cracking • improves appearance • makes removal easier • easier to mould/form/make shape <i>(Do not accept 'easy' / 'easier' on its own)</i>	1	(1)

Question Number	Question		
1972_2F_Q01ciii	State <u>one</u> problem that would be caused by the undercuts (C).		
	Answer	Part Mark	Total Mark
	One reason stated:		
	<ul style="list-style-type: none"> • makes removal impossible / difficult • difficult to mould/form/make shape 	1	(1)
Question Number	Question		
1972_2F_Q01d	CAD can be used during the design of the vacuum forming moulds. Give <u>two</u> ways in which CAD makes designing faster.		
	Answer	Part Mark	Total Mark
	Two ways given:		
	<ul style="list-style-type: none"> • use of clipart • single click to erase / modify • use of copy and paste / rotate / invert • speed of storage & retrieval of designs • electronic communication of designs • parametric drawing • automatic change between 2D and 3D • modelling • can undo 	2x1	(2)

Question Number	Question		
1972_2F_Q01e	<p>The manufacturer of the mould product uses email to communicate with customers.</p> <p>Give <u>two</u> advantages to the manufacturer of using email for communication.</p>		
	<p>Answer</p> <p>Two advantages given:</p> <ul style="list-style-type: none"> • faster than posting/courier/carrier • easier to distribute / do mail shots/courtesy copy/cc/bcc/ mailing lists • less cost than posting / cost effective • attachments are possible • receiver does not need to be present unlike telephone • rapid customer editing / feedback • copy kept/retained • more reliable than post / you know the person has got it • cannot get damaged <p><i>(Do not accept 'faster' / 'easier' / 'cheaper' on their own)</i></p>	Part Mark	Total Mark
		2x1	(2)
Question Number	Question		
1972_2F_Q01f	<p>The manufacturer uses a computer database to store data about the moulded product. The length and height of the moulded product are two pieces of data stored.</p> <p>Name <u>three</u> other pieces of data about the moulded product that might be stored on a database.</p>		
	<p>Answer</p> <p>Three pieces of data named:</p> <ul style="list-style-type: none"> • width/thickness of object/moulded product • volume • weight • materials • suppliers • customers / target market 	Part Mark	Total Mark

- location
- thickness of material
- production costs
- sale prices
- number sold
- profit
- product identity eg barcode
- stock
- colour
- tolerance

3x1

(3)

(Total 22 marks)

Question Number

Question

1972_2F_Q02ai

The drawing below shows an estate agent's "For Sale" sign on a post.
The sign is placed outside a house.
The sign is made from corrugated polypropylene (corriflute).

One functional property of corrugated polypropylene is that it is durable.

State the meaning of the term durable.

Answer

Part Mark

Total Mark

The meaning stated:

- long lasting
 - does not fall apart
 - resists wear / decay
- (Do not accept 'strong')*

1

(1)

Question Number	Question		
1972_2F_Q02aii	Give <u>two</u> more functional properties that make corrugated polypropylene suitable for the estate agent's sign. Do <u>not</u> include cost.		
	Answer	Part Mark	Total Mark
	Two properties given: <ul style="list-style-type: none"> • rigid • self-coloured • waterproof • lightweight • can be printed on • shatterproof • tough / strong 	2x1	(2)
Question Number	Question		
1972_2F_Q02aiii	MDF could be used to make the sign. Give <u>one</u> disadvantage of making the sign from MDF.		
	Answer	Part Mark	Total Mark
	One disadvantage given: <ul style="list-style-type: none"> • heavy • will need painting/varnishing/protecting/sealing/finishing • not waterproof/weatherproof • health concerns / dust from working / toxicity / might give you cancer • hard to shape <i>(Do not accept unqualified comments about aesthetics)</i> <i>(Do not accept 'cost')</i>	1	(1)

Question Number	Question		
1972_2F_Q02cii	<p>The designer used a photocopier during the design process.</p> <p>Explain <u>one</u> reason why a designer would use a photocopier during the design process.</p>		
	<p>Answer</p> <p>One reason explained:</p> <ul style="list-style-type: none"> the designer can try out new ideas without redrawing the design because a photocopier can be used to enlarge / reduce drawings the designer can try out different enhancement techniques on the design because the photocopier provides copies to work on the designer will not loose their work because a photocopy of the original would provide a backup copy cost effective for small numbers 	2x1	(2)
1972_2F_Q02ciii	<p>The designer used spirit-based marker pens when drawing.</p> <p>Give <u>two</u> advantages of using spirit-based marker pens compared to water-based marker pens.</p>		
	<p>Answer</p> <p>Two advantages given:</p> <ul style="list-style-type: none"> quicker drying more even tone can be overlaid water resistant wider range of colours available works on wider range of surfaces/materials long lasting / permanent 	2x1	(2)

Question Number	Question		
1972_2F_Q02di	<p>The drawing below shows the front of the estate agent's office. There are lights inside the office sign.</p> <p>Give <u>two</u> reasons why it is important that the lights inside the sign are reliable.</p>		
	<p>Answer</p> <p>Two reasons given:</p> <ul style="list-style-type: none"> • lights may be difficult to replace • lights will cost money to replace • cannot read sign • sign will not always be noticeable • office will not look good if the sign is not working • repairs do not inconvenience local people/neighbourhood/area • using more bulbs causes environmental damage • reduces risk to person replacing bulbs / public 	Part Mark	Total Mark
		2x1	(2)
Question Number	Question		
1972_2F_Q02dii	<p>The office sign is tested to ensure it meets British Standards Institute (BSI) requirements.</p> <p>Give <u>two</u> advantages for the consumer of products being tested to BSI requirements.</p>		
	<p>Answer</p> <p>Two advantages given:</p> <ul style="list-style-type: none"> • safe • sufficient quality / fit for purpose • reliable • information about the product/manufacture will be available • will meet legal requirements 	Part Mark	Total Mark
		2x1	(2)

Question Number	Question		
1972_2F_Q02e	<p>The estate agent changes the design of the office sign every year to stay in fashion.</p> <p>Give <u>two</u> disadvantages for society of replacing products to stay in fashion.</p>		
	<p>Answer</p> <p>Two disadvantages given:</p> <ul style="list-style-type: none"> • material resources will be consumed/used • energy resources will be consumed/used • waste / pollution will be created • customer confusion / loss of office identity • creating artificial demand • peer pressure 	Part Mark	Total Mark
		2x1	(2)
1972_2F_Q02f	<p>The estate agent uses an internet site instead of local newspapers to advertise houses it has for sale.</p> <p>Give <u>three</u> advantages for the customer of adverts being on an internet site instead of in a newspaper.</p>		
	<p>Answer</p> <p>Three advantages given:</p> <ul style="list-style-type: none"> • information may be more up to date • interactive features • no waste paper to dispose of • hands will not get dirty with newsprint. • information will be available to/from a wide area • adverts can be forwarded to other people easily • information will be available without the need to carry paper • available 24/7 / all the time • improve image / text quality • more images / text available • search facilities 	Part Mark	Total Mark
		3x1	(3)

Question Number	Question	
1972_2F_Q02g	<p>Products are often packaged in PVC for protection during transport. The manufacture of PVC may produce waste hydrochloric acid.</p> <p>Explain <u>one</u> disadvantage for the environment of producing waste hydrochloric acid.</p>	
	<p>Answer</p> <p>One disadvantage explained:</p> <ul style="list-style-type: none"> • may form acid rain therefore contributing to damage to lakes / forests / buildings • may leak into groundwater therefore polluting lakes / water supplies / harming animals / humans / plants • direct contact with the acid will harm animals / humans / plants / objects 	<p>Part Mark</p> <p>Total Mark</p> <p>2x1</p> <p>(2)</p>
		(Total 22 marks)

Question Number	Question							
1972_2F_Q03a	<p>A prototype package to hold the toothbrush and toothpaste is required.</p> <p>The specification for the package is that it must:</p> <ul style="list-style-type: none"> • allow customers to see the toothbrush and toothpaste inside the package • have a seal that shows if the package has been opened • have a space to clearly display graphics to promote the product • be made using materials and processes suitable for one-off production <p>In the spaces opposite, use sketches and, where necessary, brief notes to show <u>two different</u> design ideas for the package that meet this specification.</p>							
	<p>Answer</p> <p>Design idea 1</p> <p>Each point of specification has two marking points.</p> <p>1 mark should be awarded for evidence of each point of specification resolved in the design</p> <table> <tr> <td>For each point with both elements viably satisfied</td> <td>2 marks</td> </tr> <tr> <td>For each point with only one element viably satisfied</td> <td>1 mark</td> </tr> <tr> <td>Where the answer does not viably answer a specification point</td> <td>0 marks</td> </tr> </table> <p>Candidates may answer any specification point in either graphical form or by annotation.</p> <p>No marks are awarded for quality of communication.</p> <p>Allow customers to see the toothbrush and toothpaste inside the package.</p> <ul style="list-style-type: none"> • The majority of the toothbrush and/or toothpaste are visible (ie they are drawn inside), or annotation indicates the package is see-through. 1 <i>eg Annotation indicates the package has a transparent front to it.</i> • The design of the package is big enough to contain the toothbrush and toothpaste. 1 <i>eg The package is dimensioned to a size that will allow the toothbrush and toothpaste to fit inside.</i> 	For each point with both elements viably satisfied	2 marks	For each point with only one element viably satisfied	1 mark	Where the answer does not viably answer a specification point	0 marks	<p>Part Mark</p> <p>Total Mark</p>
For each point with both elements viably satisfied	2 marks							
For each point with only one element viably satisfied	1 mark							
Where the answer does not viably answer a specification point	0 marks							

Have a seal that shows if the package has been opened.

- There is evidence of the package being sealed 1
eg Parts of the package are glued together.
- There is an indication of how the seal will show if the package has been opened 1
eg The drawing is annotated to explain how the indication is achieved or opening the package will result in irreparable damage to the package that will be visible to a purchaser with the need to inspect the package carefully.

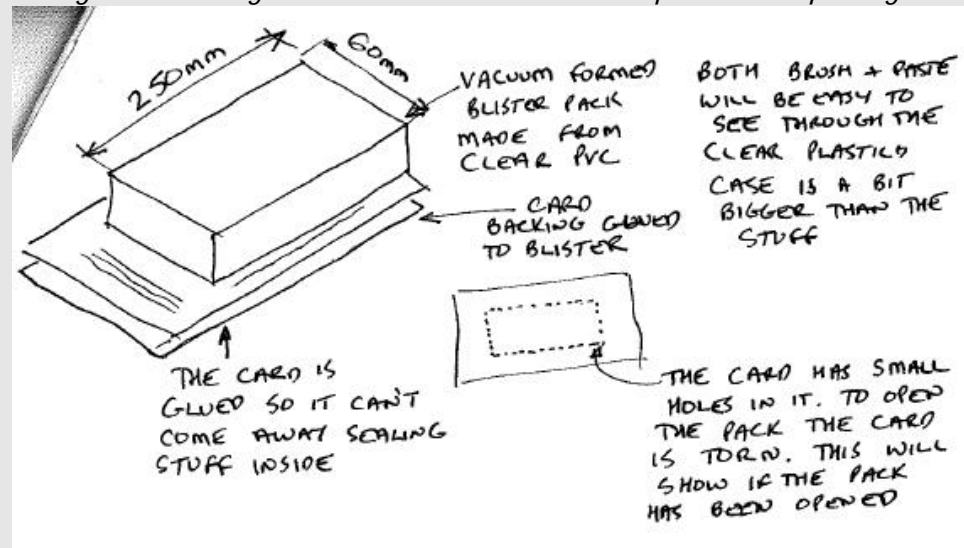
Have a space to clearly display graphics to promote the product.

- Evidence given that there is a space to display graphics 1
eg There is evidence in the form a decoration to a surface of the package.
- Evidence given that the graphics are either on the front of the package or on several faces and not obscured by the contents 1
eg The decoration will be visible from the same viewing angle as that which will allow the toothbrush and paste to be seen.

Be made using materials and processes suitable for one-off production

- Evidence given that one appropriate material for making the package is indicated. 1
eg The drawing is annotated to indicate one part of the package is made from PVC.
- Evidence given that one appropriate method of production is indicated. 1
eg The drawing is annotated to indicate one part of the package is made using vacuum forming.

(8)

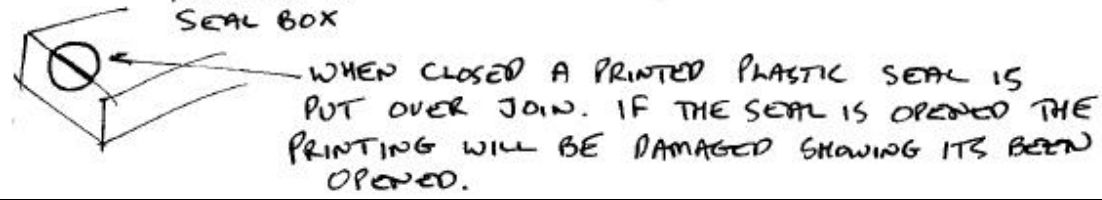
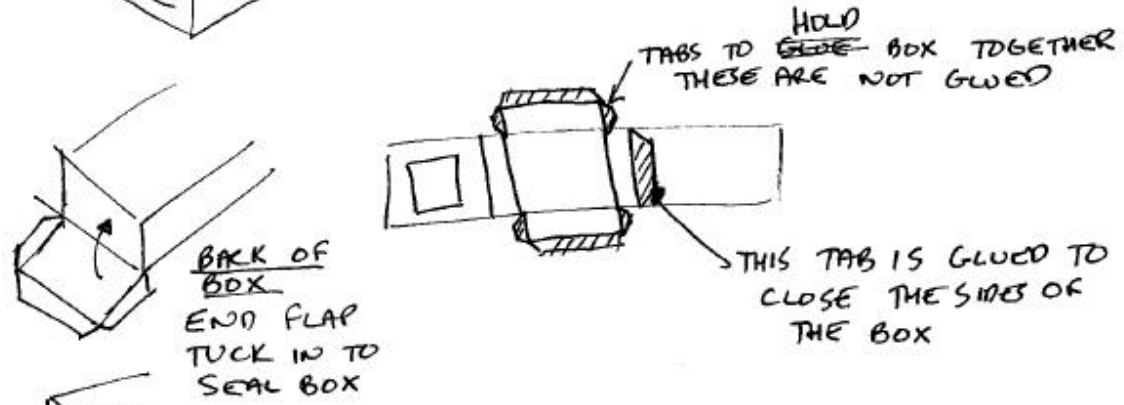
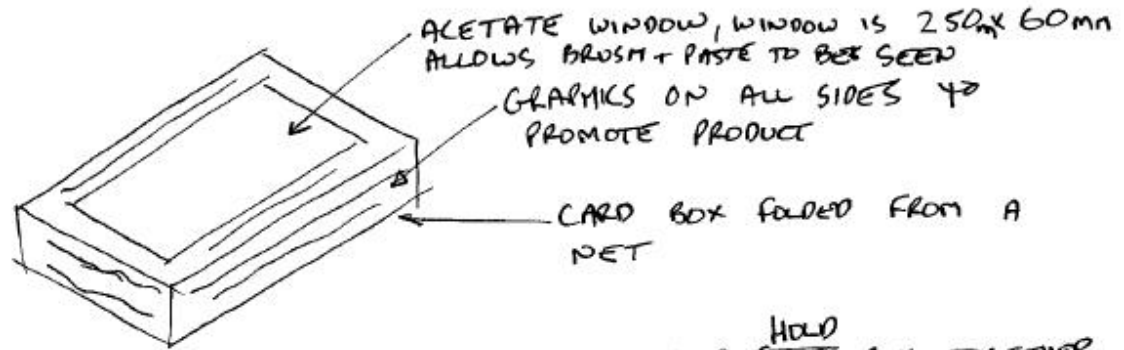


Design idea 2

Specification points 1,2 and 4 must be fully resolved in the second idea using **technically or conceptually different** solutions that are significantly different eg simply changing proportions would not be significantly different.

Specification point 3 must be fully resolved again in design idea 2. Specification point 3 is **not** subject to the requirement to be different, eg if the graphics are placed top centre on design 1 and design 2 it will score in both designs.

- A **different** method showing that the majority of the toothbrush **and/or** toothpaste are visible 1
 - A **different** design of the package that is **big enough** to contain the toothbrush and toothpaste. 1
 - A **different** method of the package being sealed is evident. 1
 - A **different** method of how the seal will show if the package has been opened is evident. 1
 - Evidence given that there is a space to display graphics 1
 - Evidence given that the graphics are either on the front of the package or on several faces and not obscured by the contents 1
 - Evidence given that **one different** appropriate material for making the package is indicated. 1
 - Evidence given that a **different** appropriate method of production is indicated. 1
- (8)**



Question Number	Question		
1972_2F_Q03b	<p>Three of the original specification points are repeated below.</p> <p>Evaluate how <u>one</u> of your design ideas succeeds or fails to meet each of these specification points.</p> <p>(i) The prototype package must allow customer to see the toothbrush and toothpaste inside the package</p> <p>(ii) The prototype package must have a seal that shows if the package has been opened</p> <p>(iii) The prototype package must be made using materials and processes suitable for one-off production</p>		
	Answer	Part Mark	Total Mark
	<p>Each point clearly evaluated.</p> <p>If a candidate has indicated design idea 1 and then evaluates design idea 2 for all or part of (i), (ii) & (iii) then the idea in greater evidence should be marked.</p> <p>The evaluation of the design must contain reference to either positive or negative aspects not just simply a description of the design.</p> <p>Award 1 mark for a correct evaluation/justification relating to each design feature and how it succeeds or fails.</p>		
	<p>(i) Evaluation of: Allow customers to see the toothbrush and toothpaste inside the package.</p> <ul style="list-style-type: none"> • the toothbrush and/or toothpaste are visible (this may not be the majority) <i>eg Because PVC is see-through you can see the brush.</i> • the design of the package contains the toothbrush and toothpaste. (the package may not be big enough) <i>eg My box is big enough to fit both things in.</i> 	2x1	(2)
	<p>(ii) Evaluation of: Have a seal that shows the user if the package has been opened.</p> <ul style="list-style-type: none"> • the package being sealed <i>eg Because the back and front are glued together they will be hard to pull apart.</i> • the seal will show if the package has been opened <i>eg You will be able to tell if the pack has been opened because it is easy to see if card has been torn.</i> 	2x1	(2)

(iii)	Evaluation of: Be made using materials and processes suitable for one-off production.	2x1	(2)
	<ul style="list-style-type: none"> one appropriate material for making the package. <i>eg Card is cheap, this means schools can afford it.</i> one appropriate method of production. <i>eg Vacuum forming is easy to do this means children can do it.</i> 		

(Total 22 marks)

Question Number	Question
1972_2F_Q04a	<p>The drawings 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.</p> <p>Two specifications points for the book are that:</p> <ul style="list-style-type: none"> the covers must attract the attention of potential purchasers the covers must allow the retailer to monitor sales easily <p>Under each of the following heading, give <u>one</u> more point that should be included in the specification for this book. For each point, give <u>one</u> reason why it should be included.</p>

Answer	Part Mark	Total Mark
<p>Three specification points given: Three reasons given: <i>(Do not accept repetition of the specification points given or duplicate answers)</i> <i>(Some flexibility should be given as some points may cross over descriptions)</i></p> <p><u>Market</u> Point: the cost of manufacturing the book should be low Reason: to maximise profits</p> <p>Point: the book should appear expensive / value for money Reason: to justify high price</p> <p>Point: the book should stand out from the other books Reason: to increase sales</p> <p>Point: the book should be a standard/suitable size to fit bookshop shelves Reason: shops are more likely to stock books that they don't have to make special displays for</p>	<p>3x1 3x1</p>	(6)

Point: the book should be suitable for target age group
Reason: safety / legal / moral / user satisfaction / educational

Point: the book should display a logo / corporate id
Reason: consumer awareness of manufacturer

Environment

Point: minimum materials used
Reason: resource conservation

Point: made from recycled materials / possible to be recycled /made from biodegradable materials

Reason: resource conservation / waste minimisation

Point: the manufacture / disposal of the book should not cause pollution
Reason: protection of the environment

Point: the book should display a recycle symbol
Reason: consumer awareness

Point: the battery should be removable / rechargeable
Reason: prevent contamination when disposed of

Point: the book should be long lasting / durable
Reason: the book can then be passed on to other children (*reducing waste*)

Quality

Point: the text/images should be easy to read / clearly printed
Reason: consumer satisfaction / brand reputation / improve sales

Point: the materials the book is made from / finishes should be durable /reliable / aesthetically pleasing
Reason: consumer satisfaction / brand reputation / improve sales

Point: the book should comply with relevant legal standards eg be tested by BSI/ISO, display a Kitemark

Reason: moral and legal obligation / improve sales

Point: the parts of the book should be tested during production

Reason: to ensure they meet specifications

Question Number	Question	
1972_2F_Q04bi	<p>The drawing below shows the case that surrounds the buttons. It is made from acrylic. One reason why the case is made from acrylic is that it can be vacuum formed to the required shape.</p> <p>Give <u>two</u> other reasons why acrylic is a suitable material from which to make the case.</p>	
	Answer	Part Mark Total Mark
	<p>Two reasons given:</p> <ul style="list-style-type: none">• self coloured• non-toxic• thermoplastic• good surface finish• rigid / tough / strong / durable• cost effective (<i>do not accept 'cheap'</i>)• manufacturer may be familiar with using acrylic / be set up to use acrylic• properties of acrylic meet the requirements of the book• does not conduct electricity	<p>2x1 (2)</p>

Question Number	Question		
1972_2F_Q04bii	<p>One reason why the case is vacuum formed is that it is cost effective.</p> <p>Give <u>two</u> other reasons why the acrylic case is made from vacuum forming.</p>		
	<p>Answer</p> <p>Two reasons given:</p> <ul style="list-style-type: none"> • accuracy • high speed / fast • low tooling costs • can be automatic / continuous • manufacturer may be familiar with using vacuum forming / be set up to use vacuum forming • vacuum forming will produce products that meet the specification for the book • suitable for mass/volume/batch production / repeatability <p><i>(Do not accept any reference to cost)</i></p>	2x1	(2)
1972_2F_Q04c	<p>The pages of the book are made from solid board.</p> <p>Give <u>two</u> properties of solid board that make it suitable for the pages of the book.</p> <p>For each property, give <u>one</u> reason why it makes solid board suitable for the pages of the book.</p>		
	<p>Answer</p> <p>Two properties & reasons given:</p> <p>Property: rigid Reason: makes pages durable / easy to turn over</p> <p>Property: tough / strong Reason: makes pages durable / hard to tear</p> <p>Property: the pages will be thick Reason: makes the pages easy for children to turn over / prevents paper cuts</p>	2x1 2x1	(4)

Property: can be die cut
Reason: allows shape to be made economically

Property: non toxic
Reason: does not poison user / safe for user

Property: has a surface suitable for printing / varnishing / finishing
Reason: reduces cost / number of manufacturing stages / improves appearance

Property: can be folded
Reason: allows user to turn pages / reduces the number of pages to be bound

Property: can be recycled / made from recycled materials
Reason: preservation of environment/resources

Question Number	Question	
1972_2F_Q04d	<p>The battery cover is made from a red material.</p> <p>Explain <u>one</u> reason why the battery cover is made from a red material.</p>	
	<p>Answer</p> <p>One reason explained:</p> <ul style="list-style-type: none"> • associated with danger therefore the customer will be aware that the batteries within could be dangerous • will stand out therefore can find the battery 	<p>Part Mark Total Mark</p> <p>2x1 (2)</p>

Question Number	Question		
1972_2F_Q04e	The pages of the book are finished using laminating. Explain <u>one</u> reason why laminating is used for finishing the pages.		
	Answer	Part Mark	Total Mark
	One reason explained:		
	<ul style="list-style-type: none"> protects the pages / makes the pages stronger/tougher/rigid therefore maintains the quality of the product makes the product look better therefore increases user pleasure/enhances sales potential hygienic because it can be easily cleaned 	2x1	(2)
Question Number	Question		
1972_2F_Q04fi	Two purposes of the covers of the book are: <ul style="list-style-type: none"> attract the attention of potential purchasers allow the retailer to easily monitor sales of the book Explain, under the following headings, how the covers of the book achieve these purposes.		
	Answer	Part Mark	Total Mark
	Two purposes explained:		
	Attract the attention of potential purchasers <ul style="list-style-type: none"> the cover has a large interesting picture / text on the front of it therefore clearly showing the user what the book is about / stands out / eye catching the book is printed in colour therefore making it attractive. 	2x1	(2)
	Allow the retailer to easily monitor sales of the book <ul style="list-style-type: none"> the book has a barcode printed on it therefore allowing EPOS tills to function / stock control / can be scanned / links to a computer 	2x1	(2)
			(Total 22 marks)
			(TOTAL FOR PAPER: 88 MARKS)

Design & Technology: Graphic Products (3972/2F)
Short Course Foundation Tier Mark Scheme

Question Number	Question		
3972_2F_Q01ai-ii	<p>The table below shows some tools and equipment.</p> <p>Complete the table by:</p> <p>(iii) naming each tool or piece of equipment</p> <p>(iv) describing its use</p>		
	Answer	Part Mark	Total Mark
	Name: pencil (<i>only answer</i>)	1	
	Task: drawing / writing / colouring / shading / pushing holes into paper	1	
	Name: sharpener (<i>only answer</i>)	1	
	Task: sharpening / chamfering / putting points on	1	
	Name: ruler / rule (<i>only answers</i>)	1	(6)
	Task: measuring / drawing lines / guiding pens/pencils/scissors/scoring tools	1	
Question Number	Question		
3972_2F_Q01b	<p>The vacuum former is used to shape sheets of plastic using moulds. The chart below shows some of the stages in producing a moulded product.</p> <p>Fill in the <u>two</u> missing stages.</p>		
	Answer	Part Mark	Total Mark
	Two missing stages:		(2)
	<ul style="list-style-type: none"> heat (<i>Do not accept 'melt'</i>) suck / vacuum / form / mould / raise table/platen 	2x1	

Question Number	Question	
3972_2F_Q01ci	The drawings below show a prototype mould used for vacuum forming. State <u>one</u> reason why the mould has been designed with the sloping sides (A).	
	Answer	Part Mark Total Mark
	One reason stated:	
	<ul style="list-style-type: none"> • makes removal easier / provides relief/release/draft angle 	1 (1)
Question Number	Question	
2972_2F_Q01cii	State <u>one</u> reason why the mould has been designed with the rounded corners (B).	
	Answer	Part Mark Total Mark
	One reason stated:	
	<ul style="list-style-type: none"> • prevents cracking • improves appearance • makes removal easier • easier to mould/form/make shape <p><i>(Do not accept 'easy' / 'easier' on its own)</i></p>	1 (1)
Question Number	Question	
3972_2F_Q01ciii	State <u>one</u> problem that would be caused by the undercuts (C).	
	Answer	Part Mark Total Mark
	One reason stated:	
	<ul style="list-style-type: none"> • makes removal impossible / difficult • difficult to mould/form/make shape 	1 (1)
(Total 11 marks)		

Question Number	Question	Part Mark	Total Mark
3972_2F_Q02ai	<p>The drawing below shows an estate agent’s “For Sale” sign on a post. The sign is placed outside a house. The sign is made from corrugated polypropylene (corriflute).</p> <p>One functional property of corrugated polypropylene is that it is durable.</p> <p>State the meaning of the term <u>durable</u>.</p>	1	(1)
3972_2F_Q02aii	<p>Give <u>two</u> more functional properties that make corrugated polypropylene suitable for the estate agent’s sign.</p> <p>Do <u>not</u> include cost.</p>	2x1	(2)

Question Number	Question		
3972_2F_Q02aiii	MDF could be used to make the sign. Give <u>one</u> disadvantage of making the sign from MDF.		
	Answer	Part Mark	Total Mark
	One disadvantage given: <ul style="list-style-type: none"> • heavy • will need painting/varnishing/protecting/sealing/finishing • not waterproof/weatherproof • health concerns / dust from working / toxicity / might give you cancer • hard to shape <i>(Do not accept unqualified comments about aesthetics)</i> <i>(Do not accept 'cost')</i>	1	(1)
3972_2F_Q02b	The corrugated polypropylene is yellow. The graphics of the sign are printed in black. Give <u>one</u> aesthetic reason for using the colour yellow for the sign.		
	Answer	Part Mark	Total Mark
	One aesthetic reason given: <ul style="list-style-type: none"> • stand out / be eye-catching / contrast • look attractive • colour may be a company style • market appeal 	1	(1)

Question Number	Question		
3972_2F_Q02ci	The designer used a drawing board when designing the graphics for the sign. Explain <u>one</u> reason why a designer would use a drawing board.		
	Answer	Part Mark	Total Mark
	One reason explained:		
	<ul style="list-style-type: none"> • easy to draw parallel lines / accurate lines because drawing boards have “t” squares / rulers / parallel motion • uneven lines when rendering a drawing are prevented because drawing boards have flat/smooth surfaces • comfort/ergonomics/anthropometrics because drawing boards hold the paper at a slight angle. • technological competence / preference / need because designer may not like PCs / have access to PCs • large size paper can be held therefore full size designs can be drawn 	2x1	(2)
Question Number	Question		
3972_2F_Q02cii	The designer used a photocopier during the design process. Explain <u>one</u> reason why a designer would use a photocopier during the design process.		
	Answer	Part Mark	Total Mark
	One reason explained:		
	<ul style="list-style-type: none"> • the designer can try out new ideas without redrawing the design because a photocopier can be used to enlarge / reduce drawings • the designer can try out different enhancement techniques on the design because the photocopier provides copies to work on. • the designer will not loose their work because a photocopy of the original would provide a backup copy. • cost effective for small numbers 	2x1	(2)

Question Number	Question		
3972_2F_Q02ciii	<p>The designer used spirit-based marker pens when drawing.</p> <p>Give <u>two</u> advantages of using spirit-based marker pens compared to water-based marker pens.</p>		
	Answer	Part Mark	Total Mark
	<p>Two advantages given:</p> <ul style="list-style-type: none"> • quicker drying • more even tone • can be overlaid • water resistant • wider range of colours available • works on wider range of surfaces/materials • long lasting / permanent 	2x1	(2)
		(Total 11 marks)	

Question Number	Question		
3972_2F_Q03a	<p>The drawings 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.</p> <p>Two specifications points for the book are that:</p> <ul style="list-style-type: none"> the covers must attract the attention of potential purchasers the covers must allow the retailer to monitor sales easily <p>Under each of the following heading, give <u>one</u> more point that should be included in the specification for this book. For each point, give <u>one</u> reason why it should be included.</p>		
	<p>Answer</p> <p>Three specification points given: Three reasons given: <i>(Do not accept repetition of the specification points given or duplicate answers)</i> <i>(Some flexibility should be given as some points may cross over descriptions)</i></p> <p><u>Market</u></p> <p>Point: the cost of manufacturing the book should be low Reason: to maximise profits</p> <p>Point: the book should appear expensive / value for money Reason: to justify high price</p> <p>Point: the book should stand out from the other books Reason: to increase sales</p> <p>Point: the book should be a standard/suitable size to fit bookshop shelves Reason: shops are more likely to stock books that they don't have to make special displays for</p> <p>Point: the book should be suitable for target age group Reason: safety / legal / moral / user satisfaction / educational</p>	<p>Part Mark</p> <p>(3x1) (3x1)</p>	<p>Total Mark</p> <p>(6)</p>

Point: the book should display a logo / corporate id
Reason: consumer awareness of manufacturer

Environment

Point: minimum materials used
Reason: resource conservation

Point: made from recycled materials / possible to be recycled /made from biodegradable materials
Reason: resource conservation / waste minimisation

Point: the manufacture / disposal of the book should not cause pollution
Reason: protection of the environment

Point: the book should display a recycle symbol
Reason: consumer awareness

Point: the battery should be removable / rechargeable
Reason: prevent contamination when disposed of

Point: the book should be long lasting / durable
Reason: the book can then be passed on to other children (*reducing waste*)

Quality

Point: the text/images should be easy to read / clearly printed
Reason: consumer satisfaction / brand reputation / improve sales

Point: the materials the book is made from / finishes should be durable /reliable / aesthetically pleasing
Reason: consumer satisfaction / brand reputation / improve sales

Point: the book should comply with relevant legal standards eg be tested by BSI/ISO, display a Kitemark
Reason: moral and legal obligation / improve sales

Point: the parts of the book should be tested during production
Reason: to ensure they meet specifications

Question Number	Question		
3972_2F_Q03bi	<p>The drawing below shows the case that surrounds the buttons. It is made from acrylic. One reason why the case is made from acrylic is that it can be vacuum formed to the required shape.</p> <p>Give <u>two</u> other reasons why acrylic is a suitable material from which to make the case.</p>		
	Answer	Part Mark	Total Mark
	<p>Two reasons given:</p> <ul style="list-style-type: none"> • self coloured • non-toxic • thermoplastic • good surface finish • rigid / tough / strong / durable • cost effective (<i>do not accept 'cheap'</i>) • manufacturer may be familiar with using acrylic / be set up to use acrylic • properties of acrylic meet the requirements of the book • does not conduct electricity 	2x1	(2)

Question Number	Question		
3972_2F_Q03bii	<p>One reason why the case is vacuum formed is that it is cost effective.</p> <p>Give <u>two</u> other reasons why the acrylic case is made from vacuum forming.</p>		
	<p>Answer</p> <p>Two reasons given:</p> <ul style="list-style-type: none"> • accuracy • high speed / fast • low tooling costs • can be automatic / continuous • manufacturer may be familiar with using vacuum forming / be set up to use vacuum forming • vacuum forming will produce products that meet the specification for the book • suitable for mass/volume/batch production / repeatability <p><i>(Do not accept any reference to cost)</i></p>	2x1	(2)
3972_2F_Q03c	<p>The pages of the book are made from solid board</p> <p>Give <u>two</u> properties of solid board that make it suitable for the pages of the book. For each property, give <u>one</u> reason why it makes solid board suitable for the pages of the book.</p>		
	<p>Answer</p> <p>Two properties & reasons given:</p> <p>Property: rigid Reason: makes pages durable / easy to turn over</p> <p>Property: tough / strong Reason: makes pages durable / hard to tear</p> <p>Property: the pages will be thick Reason: makes the pages easy for children to turn over / prevents paper cuts</p>	2x1 2x1	(4)

Property: can be die cut
Reason: allows shape to be made economically

Property: non toxic
Reason: does not poison user / safe for user

Property: has a surface suitable for printing / varnishing / finishing
Reason: reduces cost / number of manufacturing stages / improves appearance

Property: can be folded
Reason: allows user to turn pages / reduces the number of pages to be bound

Property: can be recycled / made from recycled materials
Reason: preservation of environment/resources

Question Number	Question	
3972_2F_Q03d	<p>The battery cover is made from a red material.</p> <p>Explain <u>one</u> reason why the battery cover is made from a red material.</p>	
	<p>Answer</p> <p>One reason explained:</p> <ul style="list-style-type: none"> • associated with danger therefore the customer will be aware that the batteries within could be dangerous • will stand out therefore can find the battery 	<p>Part Mark</p> <p>Total Mark</p> <p>2x1</p> <p>(2)</p>

Question Number	Question		
3972_2F_Q03e	The pages of the book are finished using laminating. Explain <u>one</u> reason why laminating is used for finishing the pages.		
	Answer	Part Mark	Total Mark
	One reason explained:		
	<ul style="list-style-type: none"> protects the pages / makes the pages stronger/tougher/rigid therefore maintains the quality of the product makes the product look better therefore increases user pleasure/enhances sales potential hygienic because it can be easily cleaned 	2x1	(2)
Question Number	Question		
3972_2F_Q03fi	Two purposes of the covers of the book are: <ul style="list-style-type: none"> attract the attention of potential purchasers allow the retailer to easily monitor sales of the book Explain, under the following headings, how the covers of the book achieve these purposes.		
	Answer	Part Mark	Total Mark
	Two purposes explained:		
	Attract the attention of potential purchasers <ul style="list-style-type: none"> the cover has a large interesting picture / text on the front of it therefore clearly showing the user what the book is about / stands out / eye catching the book is printed in colour therefore making it attractive. 	2x1	(2)
	Allow the retailer to easily monitor sales of the book <ul style="list-style-type: none"> the book has a barcode printed on it therefore allowing EPOS tills to function / stock control / can be scanned / links to a computer 	2x1	(2)
			(Total 22 marks)
			(TOTAL FOR PAPER: 44 MARKS)

