

Mark Scheme (Results)

Summer 2010

GCSE

GCSE Design and Technology:
Food Technology (5GR02)
Paper 01.
Knowledge and Understanding of
Graphic Products.

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question Number	Answer	Mark
1	A	(1)

Question Number	Answer	Mark
2	B	(1)

Question Number	Answer	Mark
3	D	(1)

Question Number	Answer	Mark
4	C	(1)

Question Number	Answer	Mark
5	D	(1)

Question Number	Answer	Mark
6	B	(1)

Question Number	Answer	Mark
7	C	(1)

Question Number	Answer	Mark
8	C	(1)

Question Number	Answer	Mark
9	B	(1)

Question Number	Answer	Mark
10	D	(1)

Question Number	Answer	Mark
11(a)	Drawing board	(11ai) Technical drawing/working drawings/ drawing accurate lines/drawing parallel lines/ drawing horizontal/vertical lines (1)
	Compass	(11aii) Drawing circles/arcs/ technical drawing/marketing/measuring (1)
	(11aiii) Line bender/strip heater/hot wire strip heater (1) <i>Do not accept 'bender'</i>	Bending acrylic sheet
	(11aiv) Spiral/comb binder (1) <i>Do not accept 'binder'</i>	Binding documents
	4x1	(4)

Question Number	Answer	Mark
11(b)(i)	<p>Two reasons given from:</p> <ul style="list-style-type: none"> • Accurate/high quality/ finely detailed casing formed/ intricate shapes formed (1) • Repeatable quality for mass production (1) • Quick process (1) • Fully automated process (1) • Efficient process/less waste (1) • Texture/pattern can be added to casing (1) 	
	2x1	(2)

Question Number	Answer	Mark
11(b)(ii)	<p>One property and linked reason from:</p> <ul style="list-style-type: none"> • Property: Good impact resistance/ strength/ durability (1) • Reason: protection of components inside/ won't break if dropped/ prolongs life of product/ ensures good value for money (1) • Property: thermoplastic (1) • Reason: can be easily thermoformed (1) • Property: Lightweight (1) • Reason: making product portable/user friendly (1) • Property: Low water absorption (1) • Reason: does not allow moisture to come into contact with electrical components inside (1) • Property: available in transparent and a variety of colours (1) • Reason: fashion/ product range (1) • Property: Electrical insulator (1) • Reason: Protects from shock (1) <p><i>Note: Do not accept 'cheap' as a property.</i></p> <p style="text-align: right;">2x1</p>	(2)

Question Number	Answer	Mark
11(b)(iii)	<p>Correct three stages identified:</p> <ul style="list-style-type: none"> • Polystyrene pellets fed into hopper/machine (1) • Molten/melted polystyrene forced through (Archimedean) screw/hydraulic ram into mould (1) • Two-part mould splits open/casing ejected from mould (1) <p><i>(Accept responses in any order - no marks awarded for correct order)</i></p> <p style="text-align: right;">3x1</p>	(3)

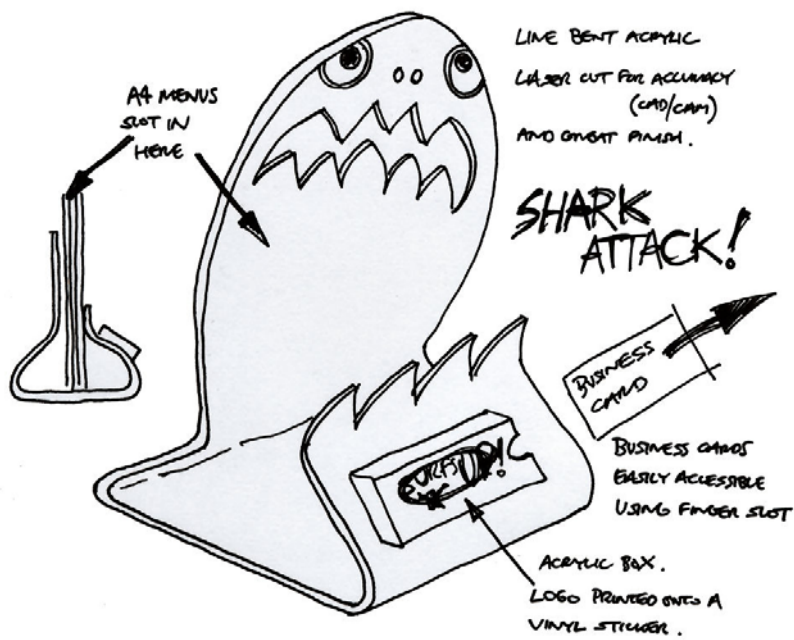
Question Number	Answer	Mark
11(b)(iv)	<ul style="list-style-type: none"> • Screen-printing/silkscreen printing (1) <p><i>Accept:</i></p> <ul style="list-style-type: none"> • Hot stamping(1) • Pad printing (1) • Transfer printing (1) <p style="text-align: right;">1x1</p>	(1)

Question Number	Answer	Mark
11(c)(i)	<p>Two reasons explained from:</p> <ul style="list-style-type: none"> • Good reproduction quality (1) giving a high quality front cover/ attracts buyers attention (1) • Relatively inexpensive printing process (1) keeps unit costs low (1) • Able to print on a wide range of papers (1) including coated paper which gives a quality finish without need for lamination (1) • Ideal for mass and batch production (1) high printing speeds shorten turnaround of job (1) • Widely available (1) therefore many printers able to carry out job - home and abroad (1) <p><i>Note: Do not accept 'cheaper' and 'faster'. However, accept 'cheaper compared with gravure' for example.</i></p> <p style="text-align: right;">2x1 2x1</p>	(4)

Question Number	Answer	Mark
11(c)(ii)	<p>Answers to include three points from:</p> <p>Advantages (up to two marks):</p> <ul style="list-style-type: none"> • Enhances the visual impact of the cover (1) • Gives a high quality appearance (1) • Attracts customer's attention (1) • Products can be handled immediately (1) <p>Disadvantages (up to two marks):</p> <ul style="list-style-type: none"> • Expensive finishing process (1) • Increases overall unit costs (1) • Limited range of colours available (1) • Printing 'spreads' a little (1) <p><i>Note: Both advantages and disadvantages must be discussed - up to 2 mark for each.</i></p> <p style="text-align: right;">1x1 1x1 1x1</p>	(3)

Question Number	Answer	Mark
12.	<p>Design idea 1</p> <p>Candidates may answer any specification point in either graphical form or by annotation.</p> <p>No marks are awarded for the quality of graphical communication.</p> <ul style="list-style-type: none"> <li>• The design should be freestanding (1): e.g. evidence could be a design with a wide base in relation to height <li>• The design should hold at least six A4 menus (1): e.g. a pocket/sleeve/compartment of rectangular A4 proportions <li>• The design should hold at least twelve business cards (1): e.g. a pocket/sleeve/compartment of rectangular credit card proportions <li>• The design should allow customers to easily remove the menus and business cards (1): e.g. finger slots or side access etc <li>• The design should display the name and logo of the cafe when filled with menus and business cards (1): e.g. 'Surfs Up' logo visible on external surface(s) not obscured by menus and business cards <li>• The design should have a seaside/surf theme (1): e.g. shape and form/motifs easily identifiable with the sea and surf - waves, surfboards etc <li>• One material is indicated that is appropriate to the design (1): e.g. acrylic, aluminium sheet, hardwood/softwood, corrugated board etc <p><i>Note:</i> Do not accept generic 'card' - has to be specific such as corrugated card/board. Accept same materials on design 1 and 2 if they are appropriate to each design</p> <ul style="list-style-type: none"> <li>• One batch manufacturing process is indicated that is appropriate to the design (1): e.g. laser cutting of acrylic, bandsaw cutting of woods, screen-printing of logo onto acrylic, vinyl stickers for logo etc <p><i>Note: accept same manufacturing process on design 1 and 2 if it is appropriate for each design.</i></p>	

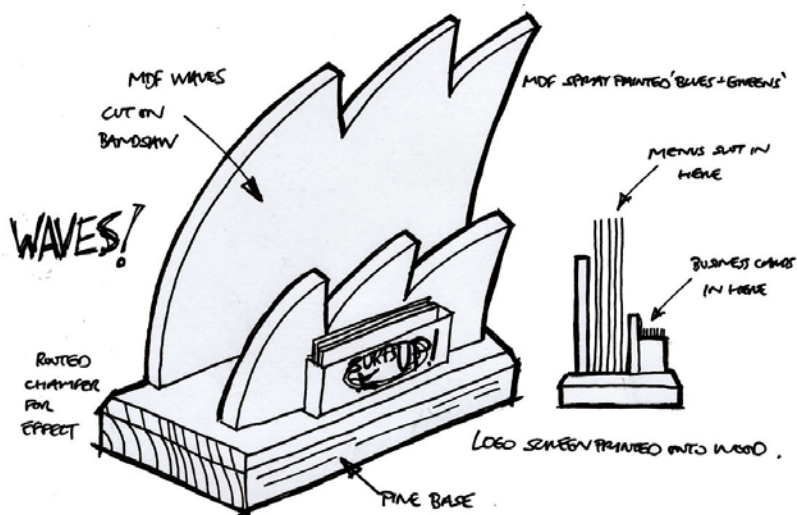
Example of candidate response:



Design idea 2

Marks for design idea 2 can only be awarded where specification points are resolved differently than in design idea 1.

Example of candidate response:



8x1

(8)

Question Number	Answer	Mark
13(a)	<p>Two properties and linked justification from:</p> <ul style="list-style-type: none"> • Property: Transparency (1) • Justification: Able to clearly see product inside (1) • Property: Toughness/strength/good abrasive resistance (1) • Justification: Protection of product inside (1) • Property: Flexibility (1) • Justification: Can easily be removed from backing card (1) • Property: Waterproof (1) • Justification: Does not allow moisture into packaging to spoil product (1) • Property: Thermoplastic (1) • Justification: Can be easily vacuum formed (1) • Property: Lightweight (1) • Justification: Does not add much to overall product weight/ minimises transport costs (1) <p style="text-align: right;">2x1 2x1</p>	(4)

Question Number	Answer	Mark
13(b)	<p>One reason explained from:</p> <ul style="list-style-type: none"> • Ideal for batch production/ fully automated process/ (1) therefore unit costs kept as low as possible/ many identical products produced quickly (1) • Relatively easy to make moulds (1) that can be modified if product develops (1) <p style="text-align: right;">2x1</p>	(2)

Question Number	Answer	Mark
13(c)(i)	<p>One explanation from:</p> <ul style="list-style-type: none"> • Large surface area on backing card (1) therefore ample space for promotional graphics/brand name (1) • Transparent blister (1) therefore product clearly visible inside/ customer can see what they are buying (1) <p style="text-align: right;">2x1</p>	(2)

Question Number	Answer	Mark
13(c)(ii)	<p>One explanation from:</p> <ul style="list-style-type: none"> • Product encapsulated/securely contained within blister (1) therefore contents unable to move about (1) • PVC is tough/strong (1) therefore forms a protective casing (1) <p style="text-align: right;">2x1</p>	(2)

Question Number	Answer	Mark										
13(d) QWC	<p>Evaluation to address the following issues:</p> <p>Built-in obsolescence for a 'throwaway' culture:</p> <table border="1"> <thead> <tr> <th>Packaging A</th> <th>Packaging B</th> </tr> </thead> <tbody> <tr> <td> <p>Can be used after purchase as carry case.</p> <p>Prolonged lifespan due to higher quality materials and re-sealable structure (2 part injection moulded case).</p> </td> <td> <p>'Physical' obsolescence - disposable/one-trip package designed to be thrown away after use.</p> <p>Over-packaged (large backing card, large PVC blister and PVC internal moulding)</p> </td> </tr> <tr> <td>Encourages consumers to re-use packaging.</td> <td>Encourages consumers to throw packaging away as it is unusable.</td> </tr> <tr> <td>Manufacturer uses a more substantial form of packaging to stimulate consumer interest ie. collector's carry case.</td> <td>Manufacturer uses relatively inexpensive materials</td> </tr> <tr> <td>Minimises waste production/energy use as packaging is re-used</td> <td> <p>Promotes waste production/adds to landfill/depletes natural resources.</p> <p>Increases energy use/pollution used in manufacture.</p> </td> </tr> </tbody> </table>	Packaging A	Packaging B	<p>Can be used after purchase as carry case.</p> <p>Prolonged lifespan due to higher quality materials and re-sealable structure (2 part injection moulded case).</p>	<p>'Physical' obsolescence - disposable/one-trip package designed to be thrown away after use.</p> <p>Over-packaged (large backing card, large PVC blister and PVC internal moulding)</p>	Encourages consumers to re-use packaging.	Encourages consumers to throw packaging away as it is unusable.	Manufacturer uses a more substantial form of packaging to stimulate consumer interest ie. collector's carry case.	Manufacturer uses relatively inexpensive materials	Minimises waste production/energy use as packaging is re-used	<p>Promotes waste production/adds to landfill/depletes natural resources.</p> <p>Increases energy use/pollution used in manufacture.</p>	(6)
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Level	Mark	Descriptor										
	0	No rewardable material										
Level 1	1-2	Candidate identifies the area(s) of comparison with no development OR identifies and develops one area. Shows limited understanding of the comparison. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy.										
Level 2	3-4	Candidate identifies some areas of comparison with associated developments showing some understanding of the comparison. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.										
Level 3	5-6	Candidate identifies a range of areas of comparison with associated developments showing a detailed understanding of the comparison. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy.										

Question Number	Answer	Mark
14(a)	<p>Three advantages from the following:</p> <ul style="list-style-type: none"> • Quick/fast/efficient process (1) • Accuracy - directly from CAD data (1) • Intricate/complex shapes are easily produced (1) • Cheaper to produce as skilled manual labour not required (1) • Designs can be sent electronically to off shore manufacturing (1) <p style="text-align: right;">3x1</p>	(3)

Question Number	Answer	Mark
14(b)	<p>One reason explained from:</p> <ul style="list-style-type: none"> • Clearer communication than 2D drawings (1) by being able to view it in 3 dimensions/ identify areas for further development (1) • Physical model to be able to show client (1) enabling greater 'feel' for the final building (1) <p style="text-align: right;">2x1</p>	(2)

Question Number	Answer	Mark
14(c)	<p>Two advantages explained from:</p> <ul style="list-style-type: none"> • Faster process (1) therefore cuts development costs/shortens development time (1) • Can be modified/manipulated on screen (1) therefore saving time and money in developing ideas (1) • Clear communication (1) as a photorealistic image is produced/ Can 'move through' the model/rotate/manipulate and see from different aspects (1) • Tested and evaluated on screen (1) and design data sent directly to RPT system (1) <p style="text-align: right;">2x1 2x1</p>	(4)

Question Number	Answer	Mark
14(d)	<p>Description to include both notes and sketches.</p> <p>Notes up to 2 marks/ sketches up to 2 marks.</p> <div> <p style="text-align: right;"><i>(Indicative sketch only)</i></p> </div> <ul style="list-style-type: none"> • 2D CAD drawings are converted to 3D models (1) which are sliced into hundreds of very thin layers (1) • Data from each layer transferred to the laser (1) • Laser draws the first layer of the shape on to the surface of the resin (1) which causes it to solidify (1) • Layer is supported on a platform which moves down enabling the next layer to be drawn (1) • Process repeated which quickly builds up one layer on top of another until the final 3D object is achieved (1) 	<p>4x1</p> <p>(4)</p>

Question Number	Answer	Mark
14(e) QWC	<p>Discussion to address the following issues:</p> <p>Re: E-mail:</p> <ul style="list-style-type: none"> • Quick, easy and convenient means of communicating around the world • E-mail exchanges can be saved as a dated record of correspondence • Documents can be attached electronically and can be saved and edited easily <p>Re: Electronic data interchange:</p> <ul style="list-style-type: none"> • Saves money by eliminating the need for processing paper documents • Saves time as information is transferred digitally • Improves customer service as business documents are transferred quickly with fewer errors <p>Re: Videoconferencing:</p> <ul style="list-style-type: none"> • Eliminates the need for travel to other countries, saving both time and money • Visual information can be communicated as part of the conversation • Accelerates the decision making process as presentations can be made to several people simultaneously • Remote diagnostics available with technicians in other countries able to solve problems. 	(6)
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Candidate identifies the issues with no development OR identifies and develops one area. Shows limited understanding of the issues. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy.
Level 2	3-4	Candidate identifies some issues with associated developments showing some understanding of the issues. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.
Level 3	5-6	Candidate identifies a range of issues with associated developments showing a detailed understanding of the issues. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy.

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