

Mark Scheme (Results)

Summer 2012

GCE Design and Technology
Graphic Design (6GR02)

Paper 01: Design and Technology in
Practice (Graphic Products)

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
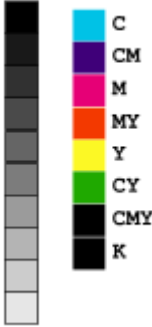
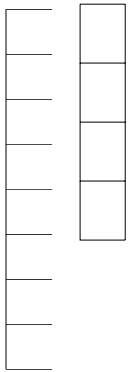
Question Number	Answer	Mark
1(a)	<p>Any one of the following:</p> <ul style="list-style-type: none"> • Good strength/protection for contents. (1) • Top layer good surface for printing. (1) • Excellent material for scoring/creasing/folding without splitting. (1) • Relatively inexpensive when purchased in bulk. (1) <p><i>(Do not accept cheap or strong unless clarified)</i></p> <p style="text-align: right;">(1 x 1)</p>	(1)

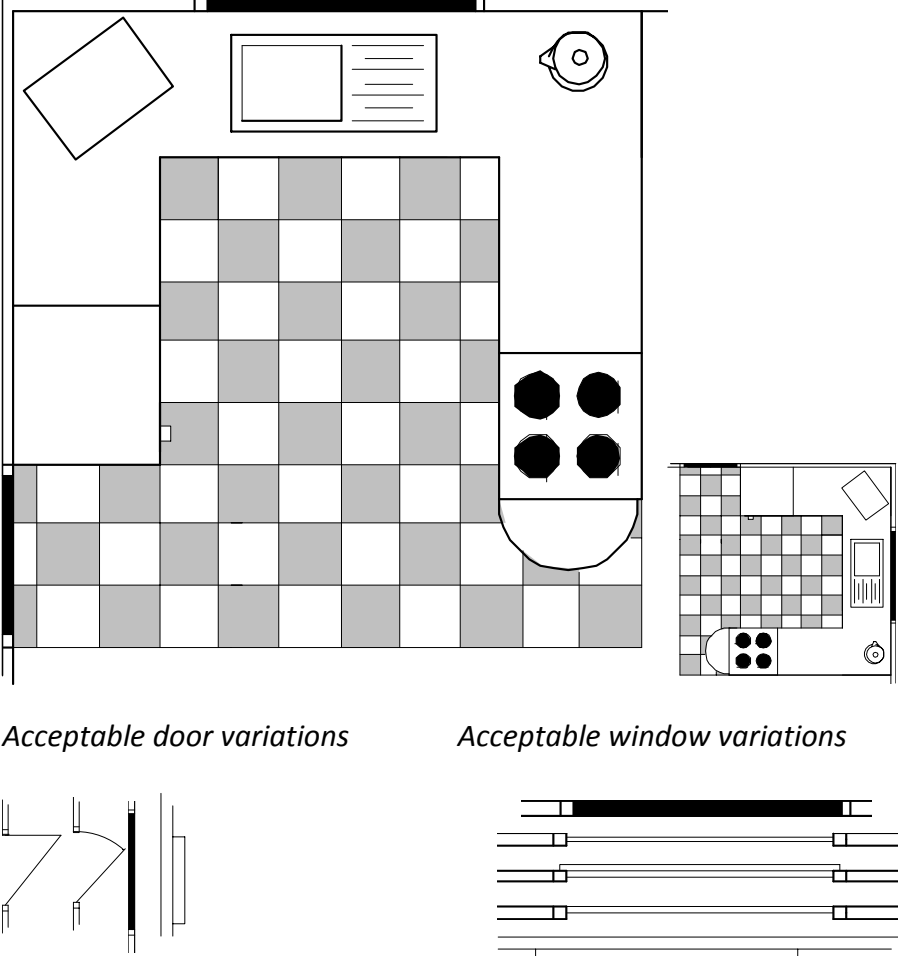
Question Number	Answer	Mark
1(b)	<p>One justified answer:</p> <ul style="list-style-type: none"> • Acts as a barrier to light/odour/heat/gas/impurities (1) so preserves contents/ensures hygiene. (1) • Adds to the strength of the card (1), so gives additional protection to the contents against contamination. (1) • Keeps the product cool once chilled/provides insulating layer (1) adding to enjoyment of beverage. (1) • Prevents UV/sunlight contamination (1) so stops contents becoming spoiled/keeps fresh/longer shelf life. (1) • Stops leaks/waterproof (1) so allows boxboard to last longer. (1) <p><i>(purpose of aluminium in packaging)</i></p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
1(c)	<p>Aesthetic: any one from the following</p> <ul style="list-style-type: none"> • Available in variety of colours/finishes. (1) • Gives shiny/glossy finish. (1) • Enhances product impression of quality/more attractive/enhances printing. (1) <p>Functional: any one from the following</p> <ul style="list-style-type: none"> • Impermeable to liquids/chemicals/waterproof/protects carton getting soggy. (1) • Allows package to be wiped clean/improve hygiene. (1) • Easily die cut. (1) • Strengthens package. (1) • Protects the graphics. (1) <p><i>(The responses must be written under the appropriate heading, i.e. Aesthetic or functional.)</i> <i>(Must have one from aesthetic and one from functional for max marks)</i> <i>(“Protection” must be qualified.)</i> <i>(1+1)</i></p>	(2)

Question Number	Answer	Mark
1(d)	<p>one justified answer:</p> <ul style="list-style-type: none"> • Able to see 3D view (1) so saves money on costly real models. (1) • Easy to manipulate/alter/edit (1) to allow alterations/redrawing/rendering. (1) • Library of components/nets (1) makes it easier to construct/draw package. (1) • Drawings can embed cut lines/score lines/folds (1) leading to accuracy in manufacturing/speed in manufacturing. (1) • It allows for collaborative working (1) with different designers producing parts remotely. (1) • Range of fonts/grids/tools/zoom/measurements (1) that all leads to increased accuracy. (1) • Integrated process (1) which can be linked to testing and QC software. (1) • digital image can be saved (1) so can be used/altered/adjusted later. (1) • can email to manufacturer (1) allowing direct link to CAM machining/output to printer. (1) <p><i>(No marks for "fast/quick/accurate" this needs to be justified)</i></p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
1(e)	<p>Any three from:</p> <ul style="list-style-type: none"> • Performance requirements laid out for materials. (1) • Information is made readily available for product sizes/packaging sizes. (1) • Legal/statutory requirements for label information to be used/non offensive language. (1) • Performance/hygiene requirements laid out for the packaging /inks during use/ recycling/after use/non-toxic. (1) • Ensures the product is fit for purpose/safe for use. (1) <p><i>(features of BSI regulations on package design NOT explanation of BSI)</i></p> <p><i>(If three valid points are given in the same answer space award three marks.)</i></p> <p style="text-align: right;">(3x1)</p>	(3)

Question Number	Answer			Mark
1(f)	Problem	State one effect of the problem	Draw the quality control printers mark associated with the problem	
	Bad register	<ul style="list-style-type: none"> Image will look out of focus/blurred/not aligned. (1) Colours/printing will not be correctly lined up. (1) Colours/printing will overlap and protrude. (1) 	 (1) <i>accept</i>  (1) (1x1)	
	Colour variation	<ul style="list-style-type: none"> Colour quality varies throughout the print run/density incorrect. (1) Colours do not match the proof/inconsistent colour. (1) 	 (1) <i>Accept</i>  (1) (1x1)	
<i>(One mark in each section for max marks)</i>			(1+1)+(1+1)	(4)
Total for question				14 marks

Question Number	Answer	Mark
2(a)	<p><i>Accept free hand sketch.</i></p> <ul style="list-style-type: none"> • Plan view. (1) • Walls in place (<i>double lines</i>). (1) • Correct position of door and window (<i>both needed</i>). (1) • Correct layout of worktops and appliances (<i>all needed</i>). (1) • Floor tiles (<i>unshaded acceptable</i>). (1)  <p><i>Acceptable door variations</i> <i>Acceptable window variations</i></p> <p><i>(Do not accept pictorial drawings)</i> <i>(If multiple views shown mark as above)</i> <i>(Plan view must be orientated as shown. If not 0 marks)</i></p>	(5)

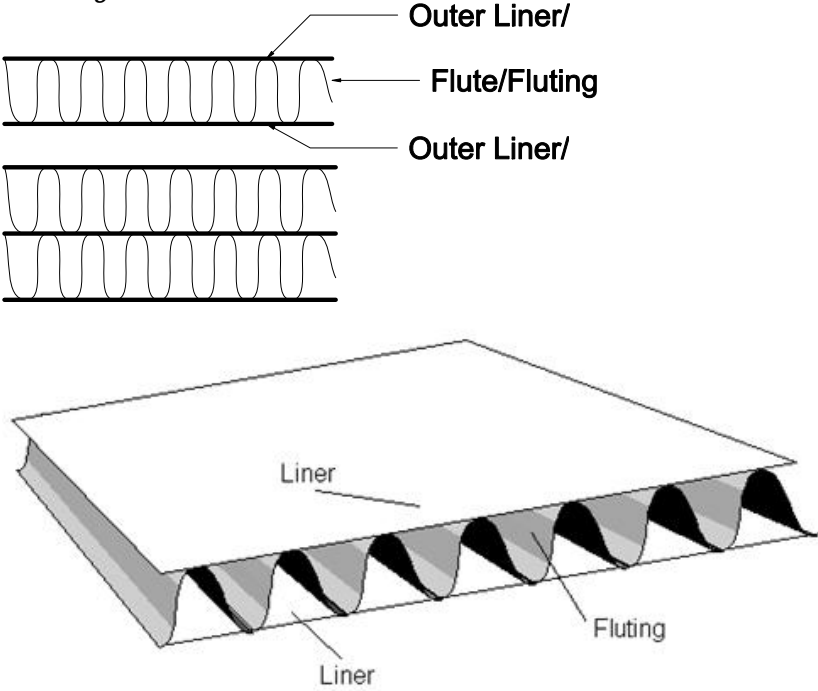
(5x1)

Question Number	Answer	Mark
2(b)	<p>One justified answer:</p> <ul style="list-style-type: none"> • Semi-transparent/Translucent (1) so allows overlay and images to be traced/copy through pages. (1) • Smooth surface finish (1) so accepts most drawing media. (1) <p><i>(do not accept reference to price)</i></p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
2(c)	<p>One justified answer:</p> <ul style="list-style-type: none"> • Natural wood (1) so gives realistic impression. (1) • Easy to cut/join/work (1) with good natural finish/range of finishes can be applied. (1) • Readily available (1) and relatively low price in comparison to hardwood.(1) <p><i>(reasons for using Pine NOT what is Pine)</i> <i>(reference to price must be justified)</i></p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
2(d)	<p>Any two from the following:</p> <ul style="list-style-type: none"> • Equipment must be maintained/stored properly. (1) • Employees must be trained to use the equipment correctly/use emergency evacuation procedures correctly. (1) • Employer to provide PPE. (1) • Display signage/warning symbols. (1) • Carry out risk assessments. (1) • Provide ventilation/extraction/guards. (1) <p><i>(procedures of safety by employers)</i></p> <p><i>(If two valid points are given in the same answer space award two marks.)</i></p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
2(e)	<p>Any three from the following:</p> <ul style="list-style-type: none"> • QA monitors all stages from design through manufacture to aftersales. (1) • QA ensures customer satisfaction. (1) • QA ensures the product is fit for purpose/safe through testing. (1) • Ensures the product is the highest standards/quality. (1) • Uses QC to monitor/check/test product at specific points. (1) <p><i>(One mark for describing quality control only.)</i> <i>(Do not accept "meets specification".)</i></p> <p style="text-align: right;">(3x1)</p>	(3)
	Total for question	14 marks

Question Number	Answer	Mark
3(a) (i)	<p><i>Drawing:</i></p>  <ul style="list-style-type: none"> • Drawing (1) • Annotation (1): <ul style="list-style-type: none"> ○ Flute/fluting /Liner accept kraft liner/test liner/sole liner. (1) <p><i>(Drawing only max 1 mark)</i> <i>(Any drawing that does not show cross section/fluting 0 marks)</i></p> <p style="text-align: right;">(1+1)</p>	(2)

Question Number	Answer	Mark
3(a) (ii)	<p>one justified answer:</p> <ul style="list-style-type: none"> • Good strength/absorbs impact (1) so gives protection to the product. (1) • Rigid material (1) so allows stacking of boxes. (1) • Relatively inexpensive (1) so doesn't excessively add to the cost of the product. (1) • Recyclable/biodegradable (1) so reduces environmental impact. (1) • Made from Natural materials (1) so is morally acceptable to use. (1) • Lightweight material (1) that doesn't add undue weight to the package. (1) <p><i>(explanation why corrugated card is used NOT what is corrugated card)</i> <i>(Do not accept cheap unless clarified)</i></p> <p style="text-align: right;">(1x2)</p>	(2)

Question Number	Answer	Mark
3(b)	<p>A= glue flap (1) <i>accept glue tab</i></p> <p>B= upper tuck (1) <i>accept tuck</i></p> <p>C= Dust flap (1) <i>accept dust panel</i></p> <p><i>(do not accept just 'flap' or 'tab')</i></p> <p style="text-align: right;">(3x1)</p>	(3)

Question Number	Answer	Mark
3(c)	<p>Any two justified points:</p> <ul style="list-style-type: none"> • Can be used to print on uneven surfaces (1) as Printing plates are flexible with raised ink pattern. (1) • Use of fast drying water based inks (1) so corrugated card doesn't absorb excess moisture so card doesn't warp. (1) • Low viscosity inks used (1) so flow into rippled surface (1) • Horizontal printing (1) method so corrugated board does not get bent. (1) • Least expensive and simplest printing (1) so doesn't add to cost of product. (1) • Low pressure from rollers (1) so printing doesn't bend/ crush card. (1) <p><i>(reasons for using flexography NOT what is flexography)</i></p> <p style="text-align: right;">(2x1)+(2x1)</p>	(4)



Question Number	Answer	Mark
3(d)	<p>Any three of the following:</p> <ul style="list-style-type: none"> • Replaces products derived from non-renewable sources. (1) • Moral/ethical impact/ environmental impact/sustainable product. (1) • Reduces landfill as paper is reused rather than put into landfill. (1) • Increases use of bleach/chemicals adding to pollution. (1) • Can have "false impact" / still high use of energy/ pollution.(1) • Pulp packaging recyclable/biodegradable after use. (1) • Less trees cut down/deforestation. (1) <p style="text-align: right;">(3x1)</p>	(3)
Total for question		14 marks

Question Number	Answer	Mark
4(a)	<p>Any three of the following:</p> <ul style="list-style-type: none"> • Automated process meaning it can be replicated (1) • No physical contact produces clean edge / no sharp swarf/neater finish. (1) • Less mistakes/removes human error. (1) • Low heat so less distortion /tool/laser wear/ less chance of acrylic breaking. (1) • more accurate/better quality due to computer precision (1) • Very complex cuts / acute shapes that are difficult to replicate by hand. (1) • Faster process than by hand. (1) • Reduces labour costs. (1) <p><i>(features of laser cutting signage NOT general CAM)</i></p>	(3)

(3x1)

Question Number	Answer	Mark
4(b)	<p>Any three of the following:</p> <ul style="list-style-type: none"> • Able to withstand extreme weather conditions/waterproof/ weatherproof. (1) • Available in variety of colours/visual appeal/aesthetically pleasing. (1) • Tough/durable/hard wearing. (1) • Available in variety of surface finishes/opacity/self finishing/ good surface finish / shiny surface finish. (1) • Ease of laser cutting/ machining /joining/shaping/forming. (1) • Able to be backlit. (1) • Easy to clean/wipe clean. (1) • Recyclable (1) <p><i>(Do not accept strong/cheap/lightweight)</i></p> <p><i>(features of acrylic for use in exterior signage only)</i></p>	(3)

(3x1)

Question Number	Answer	Mark
4(c)	<ul style="list-style-type: none"> •  Toxic (1) <i>accept poison.</i> •  Harmful (1) <i>accept irritant.</i> 	(2)

(1+1)

Question Number	Answer	Mark
4(d)	<p>Any two of the following</p> <ul style="list-style-type: none"> • Lid fitted securely/sealed container/solvent correctly labelled. (1) • Store in cool/dry/well ventilated area. (1) • Store away from heat/sun/flame. (1) • Store in metal cupboard/locked cupboard/yellow cupboard. (1) • Cupboard must have safety signage. (1) • Staff to be briefed as to how to store adhesives. (1) • Regular checks need to be made by technician/monitoring log. (1) <p><i>(This question is concerned with control measures during STORING acrylic solvent adhesive)</i> <i>(If two valid points are given in the same answer space award two marks.)</i></p> <p style="text-align: right;">(2x1)</p>	(2)

Question Number	Answer	Mark
4(e)	<p>Any four of the following:</p> <ul style="list-style-type: none"> • Image designed on CAD <u>and</u> sent to vinyl cutter to cut out <i>(both points needed for one mark)</i>. (1) • peel off /remove/ weeding background leaving required image.(1) • Low tack film/ application tape/transfer tape/masking tape applied over lettering. (1) • Mark out surface. (1) • Remove image from backing paper with low tack/application tape.(1) • Apply image to surface <u>and</u> 'firm' down removing air <i>(both points needed for one mark)</i>. (1) • Remove low tack. (1) <p><i>(accept reference to a program ie 2D design)</i> <i>(do not accept reference to cutting with laser cutter)</i></p> <p style="text-align: right;">(4x1)</p>	(4)
Total for question		14 marks

Question Number	Answer	Mark
5(a)	<p>Any five of the following:</p> <p><i>Advantages:</i></p> <ul style="list-style-type: none"> • Light weight. (1) • Enhances performance of bike (1) • Can be formed into complex/aerodynamic shape (1) • Excellent strength to weight ratio. (1) • Modern' /stylish/self finishing. (1) • Engineered to distribute stresses in structure/durable (1) • Can be constructed in one piece /no welding needed. (1) • Better tensile strength than steel. (1) • Does not corrode. (1) • Can be recycled with difficulty. (1) <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> • Very expensive. (1) • Not easily repaired. (1) • Can be brittle. (1) • Difficult to manufacture/specialised manufacture/expensive manufacturing process. (1) • Takes longer to manufacture than steel frame. (1) <p><i>(Do not accept strong unless justified)</i> <i>(Must have advantages and disadvantages for max marks)</i> <i>(If advantages only max 4 marks)</i> <i>(If disadvantages only max 4 marks)</i></p> <p style="text-align: right;">(5x1)</p>	(5)

Question Number	Answer	Mark
5(b)	<p>Two justified points:</p> <ul style="list-style-type: none"> • Machines/casts well (1) so can be formed into complex shapes. (1) • Excellent strength to weight ratio/lightweight (1) so does not add excessive weight to bike. (1) • Can be coloured/shiny finish (1) so enhances to bikes aesthetics. (1) • Excellent hardness/tensile strength (1) and therefore will have increased life in comp to steel. (1) • Does not corrode/rust (1) therefore does not effect appearance of the bike/not affected by the weather/ reduces maintenance. (1) • Tough/hardwearing/long lasting/durable (1) will not break under force. (1) <p style="text-align: right;">(2x1)+(2x1)</p>	(4)

Question Number	Answer	Mark
5(c)	<p>Any five of the following:</p> <ul style="list-style-type: none"> • Helps visualise the product/gives accurate/scale/realistic impression. (1) • Product can be seen from 360⁰/all angles: (1) • Clear un-technical view so you don't have to understand 2D orthographic/2d views. (1) • Can automatically modify sizes and dimensions. (1) • Surface textures/lighting detail/colour/rendering can be added. (1) • Helps designer where improvements/faults could be. (1) • Enables client feedback. (1) • Ergonomic/aesthetic testing can occur. (1) • Saves physical model being made. (1) • Surface model can be used as a promotional impression. (1) • Can be linked to RPT. (1) • Easier to work with than 2D modelling. (1) • Can simulate 'in use' /walk round capability/virtual feel. (1) • Ability to edit/modify on screen. (1) <p style="text-align: right;">(5x1)</p>	(5)
Total for question		14 marks

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