



**General Certificate of Secondary Education
June 2012**

**Design and Technology: 45501
Graphic Products**

(Specification 4550)

Unit 1: Written Paper

Final

Mark Scheme

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Section A

1 Charity Box

1 (a) Two imaginative and creative packaging ideas.

Award mark for considering each specification point (2 x 3)-
Tick as per Model Mark Script

Easy to construct from a 1 piece net e.g. hooks, glue, tabs, locks. Communication through a sketch or well detailed notes.	1 mark	
Easy to insert money into a slot e.g. size and/or position of slot.	1 mark	3
Manufactured from a named GP sheet material e.g. board, carton board card, corriflute, correx, PP, box board, duplex. Do not accept cardboard etc. Accept FBB, SBB and WLC – all three are variations/ abbreviations of carton board.	1 mark	3

Quality of sketching for both ideas (overall impression):

High level-good quality and effective, flair, impact, well communicated.	4 – 5 marks	
Medium-adequate quality some omissions, max 3 marks if only drawing of nets	2 – 3 marks	
Low-poor quality, difficult to interpret, inadequate communication	1 mark	
Not attempted	0 marks	5

Creative solutions:

High level: original/creative/imaginative solutions e.g different shapes.	3 marks	
Mid level: some creativity	2 marks	
Low level: basic designs, rectangular boxes or repetitive or not realistic	1 mark	
No attempt	0 marks	3

Annotation:

Clear annotation	2 marks	
Labelling	1 mark	
No annotation	0 marks	2

1 (b)	Proportion: (will it assemble?)		
	High level: Effectively proportioned and will assemble.	3 marks	
	Medium level: Most sides of equal proportion with minor omissions/errors	2 marks	
	Low level: an attempt but will not assemble	1 mark	
	Not attempted	0 marks	3
	Construction:		
	High level: Suitable method, self explanatory, evidence of locking tabs, glue tabs, tongues and slits, crash bases, secure etc.	3 marks	
	Medium level: minor omissions / errors or incorrect use or key or flaps not secure.	2 marks	
	Low level: Confusing needs a lot of interpretation	1 mark	
	Not attempted	0 marks	3
	Suitable money slot	1 mark	1
1 (c)	3-D Drawing		
	High level: Good quality, in proportion, crating, line work etc	3 marks	
	Med level: adequate quality, recognisable, some inaccuracy. Max 2 marks for oblique	2 marks	
	Low level: poor, difficult to interpret, confused.	1 mark	
	Not attempted or 2D drawing	0 marks	3
	Letter style:		
	Good letter style, double line lettering, possible construction lines	2 marks	
	Single line only	1 mark	
	Not attempted or scribbled	0 mark	2
	Corporate image / Logo:		
	High level: Suitable image, good layout and proportion.	3 marks	
	Medium level: An attempt, but image is confusing or lacking attention to detail	2 marks	
	Low level: Poor images or layout	1 mark	
	No attempt	0 marks	3
	Use of colour:		
	Indication of colour either applied or written	1 mark	1

1 (d)	Evaluation		
	High level: Analytical/critical including justification	3 marks	
	Medium level: mainly descriptive, weak justification	2 marks	
	Low level: mainly self congratulation	1 mark	
	No attempt or not relevant	0 marks	3
		Total	35

Section B

2

Modelling materials

Award 1 mark for each

Materials	Uses	Advantages	Disadvantages	Health and Safety	Bio-degradeable
<i>Styrofoam</i>	<i>Block modelling</i>	<i>Excellent for 3 dimensional modelling</i>	Difficult to achieve a high quality finish, non recyclable, crumbles, breaks easily, non sustainable (1 mark)	When cutting use a well ventilated room, dust, inhale, mask plus reason, eye protection plus reason. Gloves plus reason. (1 mark)	No
<i>Card</i>	<i>Packaging</i>	Quick to shape, readily available, good print surface, variety of colours, recyclable, reuse, 1 mark)	Easily bent/creased Do not accept waterproof (1 mark)	<i>Always use a cutting mat</i>	Yes (1 mark)
<i>Fluted board</i>	<i>Point of purchases boxes</i>	Protective material-cushioned effect, rigid, durable, stackable. (1 mark)	<i>Difficult to bend or poor printing surface</i>	Always use a cutting mat, safety ruler (1 mark)	Yes (1 mark)

Do not accept strong, cheap light or weak unless qualified.

8 marks

3	CAD / CAM		
3 (a)	Quality of sketches as notes:	(4 x 3)	3
	High: good quality and effective, flair	3	3
	Medium: adequate quality, some confusion	2	3
	Low: poor quality, difficult to interpret, inadequate communication or possibility wrong process	1	3
	No attempt or direct copy of signage	0	
	Correctly naming tools, equipment or software (4x1)		
	Stage 2- Cut Vinyl lettering using CAM, sent electronically Tools: Plotter/cutter, Robo cutter, vinyl cutter, Stika etc Or accept laser cutter if appropriate to material choice.	1 mark	1
	Stage 3- Weeding, pick out waste Tools: Craft knife, scalpel, tweezers etc	1 mark	1
	Stage 4- Use low tack film, transfer film Tools: Low tack film/tape, masking tape, apply pressure with back of scissors or use bone folder or squeegee	1 mark	1
	Stage 5- Position of lettering, alignment Tools: Ruler, pencil, masking tape, template, jig	1 mark	1
			16 marks
3 (b) (i)	Two advantages of CAD (Any 2 award 1 mark for each-<u>tick response</u>)		
	<ul style="list-style-type: none"> • Easy to modify and include variations without redrawing • Experimentation • Standard components can be combined to make the design quicker • Checking measurement • Designs can be seen 3D, rotated, enlarged, reduced etc • Ortho drawings produced automatically • Superb presentation drawings • Designs can be sent electronically etc • Reference to accuracy / identical products – must be qualified. • Ease of storage etc 		2
3 (b) (ii)	Two disadvantages of CAD-<u>tick response</u>		
	High set up costs, maintenance costs, material costs Staff need training. Do not accept problems with emails – general hacking problems with internet.		2

3 (c)

Concert tickets

Suitable smart material. Award 1 mark.

Thermochromic, photochromic, hydrochromic,
electrochromic phosphorescent materials/pigments.
Thermal paper.

1 mark

1

Annotation:

High level, Clear explanation to avoid forgeries,
implications not generic

3 marks

Medium level: some understanding

2 marks

Low level, some confusion

1 mark

No attempt or incorrect

0 marks

3

Total

24

4 (a) **Printing**

Graphic product	Method of Printing	Reason for choice	Print run Please tick
Aluminium drinks flask	Flexography (1 mark)	None absorbent surface. Aluminium surface. 3D surface	Medium (1 mark)
1 st class stamp	Gravures	High quality print in full colour. Good detail. Reference to production rate/speed (2 marks if reasoned or 1 mark if unreasoned)	High (1 mark)
T-shirt	Screen printing (1 mark)	Block colours. Low set up costs. Flexible. Fabric. Easily transferred onto T-shirt (2 marks if reasoned or 1 mark if unreasoned)	Short (1 mark)
Sweet Packaging	Lithography (1 mark)	Prints on to paper well. Fast. Absorbent surface (2 marks if reasoned or 1 mark if unreasoned)	High (1 mark)

Do not double penalise e.g. if method of printing is wrong, still award reason for choice. E.g see Model Mark Script.

13 marks

4 (b)	Process Colours-<u>tick response</u>		
	Magenta	1 mark	
	Cyan	1 mark	
	Yellow	1 mark	
	Black	1 mark	4
4 (c)	Offset litho	2 marks	
	Litho	1 mark	2
	If multiple response-mark first answer unless crossed out		
4 (d)	Quality Control		
	Reasons:		
	Faults/ errors / mistakes		
	Check colours are correct		1
	Check to see if images are in focus		1
	Check design image		
	Alignment of printing plates/ head		
	Explanation:		
	Reference to the following:		
	Colour bar		1
	Registration marks-alignment		1
		Total	23

5 'Over packaging'

Tick valid points and examples, then refer to descriptors and make a judgment.

Points for 'Over packaging':

Over packaging is where too much packaging is used. This could be a small product where a large package is used for the purpose of advertising the product when it is on display in a shop. Excessive packaging, unnecessary packaging-large card base on the chocolate desert.

Popular 'over packaging' may include Easter eggs, shirts, toys, food products etc.

5 (a)	A fully detailed and comprehensive response that includes details of most of the examples below. The answer is well-structured, with good use of appropriate design & technology terminology and showing a good grasp of grammar, punctuation and spelling.	<i>7 – 8 marks</i>	
	A detailed and comprehensive response that includes several of the examples below. The answer is well-structured, with good use of appropriate design & technology terminology and showing a good grasp of grammar, punctuation and spelling.	<i>5 – 6 marks</i>	
	A fairly detailed response which refers to some of the examples below. The answer is fairly well structured, with some use of design & technology terminology and with a small number of errors in grammar, punctuation and spelling.	<i>3 – 4 marks</i>	
	A response which contains very limited reference to any of the examples below. The answer is vague or poorly structured, with little use of design & technology terminology and with a considerable number of errors in grammar, punctuation and spelling.	<i>1 – 2 marks</i>	
	A response which is poorly structured with no relevant examples. There is very little or no use of design technology terminology and with many errors in grammar, punctuation and spelling.	<i>0 marks</i>	8
5 (b)	Trade mark	1 mark	1

5 (c)	Copyright:		
	Well explained, copyright is used to protect text, music, film, computer generated works or design drawings from being copied. Copyright mark ©. Only prevents the drawings from being copied, can be made. Lifetime plus 70 years.	2 marks	
	An attempt, mentioned copyright	1 mark	
	No attempt or incorrect	0 marks	2 marks
	Example of where it might be found, book, next to text on packaging, musical manuscript.	1 mark	1 mark
		Total	12

6 Branding

6 (a) Wally Olins 1 mark 1

6 (b) (i) Message: easily recognisable, relationship with customer, corporate image bold colours, primary colours, 3 colour and stand out to attract attention, symbolises P and O is one of the first navigation companies. Primary colours are used to make all colours of the different nations flags. Bright attractive colours.

High level: Well explained, clear, good explanation. 3 marks
 Medium level: some understanding 2 marks
 Low level: An attempt, confused 1 mark
 Not attempted or incorrect 0 marks 3

6 (b) (ii) Letter style:

Clear, formal, easy to print, implies quality, security, safety, old fashion values bold etc

Well reasoned 2 marks
 An attempt e.g. fancy letters 1 mark
 No attempt or incorrect 0 marks 2

6 (b) (iii) Parts-tick response

Award 1 mark for each correct response:



4

6 (c)	Exploded drawing		
	High level: All parts, cabin, funnel and flag exploded in line, correct size and equally spaced. Well communicated.	4 – 5 marks	
	Medium Level: Some parts exploded in line, correct size and equally spaced. Some errors.	2 – 3 marks	
	Low level: An attempt, confusing, no order to exploded views or accurate copy only.	1 mark	
	No attempt or incorrect	0 marks	5
	Hull		
	High level: at least 2 recesses in line, correct size and depth and well spaced.	3 marks	
	Medium level: Some parts exploded in line, correct size and equally spaced. Some errors, possible no depth to recess.	2 marks	
	Low level: An attempt, confusing, no order	1 mark	
	Not attempted or incorrect	0 marks	3
		Total	18
	Total 120 marks		