RECOGNISING ACHIEVEMENT

# Design \& Technology (Graphic Products) 

General Certificate of Secondary Education GCSE 1955
General Certificate of Secondary Education (Short Course) GCSE 1055

## Mark Schemes on the Components

## June 2006

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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## General Certificate of Secondary Education

GCSE Design \& Technology (Graphic Products) - 1955
GCSE Design \& Technology (Graphic Products) (Short Course) - 1055

MARK SCHEMES FOR THE COMPONENTS

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## Mark Scheme 1955/01, 1055/01 <br> June 2006

## Tolerance + or $\mathbf{- 2 m m}$ on all questions

## 1

(a) (i) Letter E completed ORLetter E accurately completed within tolerance (2)(2)
Letter P completed ..... (1)
OR
Letter P accurately completed within tolerance ..... (2)
(2)[4]
(ii) Outline shape drawn within tolerance,
No marks for freehand in (a) (i) and (a) (ii)(1)
(b) Quicker Can copy drawing
Easier Star only needs to be drawn once ..... (1) ..... (1)More accurateAny appropriate factor (1 x 2 )
Clear explanation of perforation - a series of small cuts or holes along the line to be torn(c) Sketch that shows a form of perforation - a broken line(1)(1)(d) Offset litho ticked, No mark if more than one box ticked
(1)[1]
Total: ..... [10]

2 (a) (i) Two vertical fold lines correctly added (1 x 2)
Two horizontal fold lines correctly added (1 x 2 )
(2)
(2)

Lines must be full length.
Both solid lines only 1 mark
(ii) Two glue tabs correctly added (at least 5 mm wide \& angled ends) (1)

OR
Three glue tabs correctly added (at least 5 mm wide \& angled ends) (2)
If three glue tabs in correct position but not wide enough or no angled end
No credit for 'double tabs’
(b) Die cutting, stamping or press knives
(c) Not as messy as glue

Can be attached to box by manufacturer
Assembly requires no extra materials
(1)

Not quicker or easier unless qualified eg quicker to assemble
(d) Takes up less space

Costs less to send
Less likely to be damaged
Cheaper for manufacturer to produce
(1)

Easier to transport
Less work for manufacturer (1 x 2)
(1)

3 (a) Advantage
Holds a lot of information
Sound can be used
Moving images can be used
Material can be made interactive or as a presentation
Easy to access specific information
Disadvantage
User may not have appropriate hardware to run CD ROM User may not know how to use a CD ROM
No computer available (1)
(b) (i) Any octagon drawn

Any regular octagon
Regular octagon of correct size
Eight triangles drawn as a net
Triangles show a degree of accuracy

Only one mark can be awarded if candidate has drawn a hexagon and triangles are accurate to this solution. Do not accept any other shape.

Triangles accurate within tolerance
(ii) Sketch of appropriate component - sticky label or self adhesive sticker (accept sticky tape or something being glued on but not triangles glued down) Use of sticker clearly explained - placed over the apex of each of the eight triangles Accept a workable solution which uses locking tab(s)
(1)
(1)

Total: [10]

4 (a) Photograph of car
Use of digital camera (1)
Use of disc, DVD, memory card or cable, USB port to transfer image (1)
Use of program to manipulate/crop/enhance/re-size image (1)
Invitation
Text style chosen - Helvetica
(1)

Text size chosen - 18 pts.
(1)

Text justification - Centred
(1)

Use of bold text
Car showroom address
Text justification - Right justification or aligned
Note Marks for text style and size can be awarded if they are given in car showroom address section
Tick where each of the five marks is awarded
(b) Understanding that thermochromic inks change with temperature
(1)
Appropriate modification explained using a sketch
(1) Eg.
Colour of car could change
Lucky number could appear
[2]
5 (a) Easier to get catalogues out of tray(1)..........because of cut away sections(1)
(b) Product/material contains 40\%(1)....... of recycled material(1)
(c) Any slot shown ..... (1)
Any form of tab shown ..... (1)
Locking tab shown(1)
Slot is shorter than locking tab ..... (1)
(d) More expensive/difficult/harder to produce ..... (1)
because it is a more complex design ..... (1)
Total: ..... [10]

# Mark Scheme 1955/02, 1055/02 June 2006 

## Tolerance + or $\mathbf{- 2 m m}$ on all questions

## 1 (a) Photograph of car

Use of digital camera (1)
Use of disc, DVD, memory card or cable, USB port to transfer image (1)
Use of program to manipulate/crop/enhance/re-size image (1)
[3]

Invitation
Text style chosen - Helvetica
(1)

Text size chosen - 18 pts.
(1)

Text justification - Centred
(1)

Use of bold text

## Car showroom address

Text justification - Right justification or aligned
(1)

Note Marks for text style and size can be awarded if they are given in car showroom address section
Tick where each of the five marks is awarded
(b) Understanding that thermochromic inks change with temperature ..... (1)Appropriate modification explained using a sketch2 (a) Easier to get catalogues out of tray.........(1)..........because of cut away sections(1)
(b) Product/material contains $40 \%$(1)....... of recycled material(1)
(c) Any slot shown ..... (1)
Any form of tab shown ..... (1)
Locking tab shown(1)
Slot is shorter than locking tab ..... (1)
(d) More expensive/difficult/harder to produce ..... (1)
because it is a more complex design ..... (1)

$\qquad$[4]
Total:[10]

3 (a) More material is used
More processes involved
Takes longer to make
(1)
(1)
(b) Attracts people's attention

Makes product more interesting
(1)

More space is available for printing information
(1)
(c) Die cutting, stamping or press knives
(d) Some construction shown (at least 2 circles \& 2 angled lines or equivalent (1))
OR
Correct construction (2)
(2)

Good quality curve within tolerance
(Mark can be given without evidence of construction)
Rectangular tab, 60 mm wide, centrally located
10 mm measured from ellipse not along minor axis (Mark to candidate solution for ellipse)

Total: [10]
4 (a) Corrugated flutes shown
Two outer flat sheets shown
(Accept 2D or 3D sketch/drawing)
(1)
(1)
[2]
(b) Difficult to bend across the corrugations
(1)
[1]
(c) Reversed letter E drawn within tolerance
(1)

Fold over section added (either side)
(1)

Glue flap added
(1)
(d) Any letter $P$ sketched/drawn in isometric form
(1)

Depth added to letter
(1)

Proportions are appropriate
Appropriate joining pieces shown (must be two, front \& bottom)

## 5 (a) Suitable one piece net shown

(1)

Appropriate window large enough to show most of car
Appropriate method to allow packaging to hang from hook Box that can open and close
(1)
(b) Suitable net (6 surfaces)
(1)

All fold lines shown
(1)

Appropriate fold in tabs shown (min. of $3-2$ large and one small)
Appropriate glue tabs shown
(1)

Window drawn in appropriate position and to an appropriate size
Appropriate hanging method (no additional material used)
(1)
(1)

Total: [10]

## Mark Scheme 1955/03 <br> June 2006

1 (a) 6 sided figure joined up (not necessarily using $A B$ )
Regular hexagon correct to overlay
(1)

Any thickness all way round inside or out
(1)
(1)
(b) Correct tick for HEXAGON (more than 1 box ticked NO mark)
(1)
(c) (i) Remaining 4 sides shown to the right
(1)

Correct overall length $+/-5 \mathrm{~mm}$
(1)

Any additional correct use of fold line convention (accept dash line)
(1)
[3]
(c) (ii) Suitable method of joining sides together i.e. glue flap (double sided tape needs a flap)
(1)
[1]


(c) (iii) Cut out hole shown on the correct side as per overlay Cut out - correct size and position to overlay -$+/-2 \mathrm{~mm}$ on any side
(1)

2 (a) Correct tick for EMBOSSING (more than 1 tick NO mark)
(1)
(b) Some attempt to show depth

Depth correct on consistent surfaces of the best ray
(1)
(1)
(c) (i) Circle diameter shown as 50 mm diameter $+/-2 \mathrm{~mm}$
(1)
[1]
(ii) LINE TOOL given (not ruler)
Draw a horizontal
(1)
(1)

Diameter
or
Line through centre point
or
50mm line
or
Full width line or maximum width
(1)
(iii) Circle diameter correct ( $50 \mathrm{~mm}+/-2 \mathrm{~mm}$ )
(1)

Horizontal diameter
(1)

Top semi-circle darker or No bottom semi-circle shown
(1)

3 (a) (i) Overall height of 130 mm shown
Major axis of ellipse shown at a height of 100 mm
Some evidence of Ellipse construction
(two circles and two angled lines or equivalent)
(1)

Correct ellipse construction
(1)

Ellipse accuracy to overlay within 2 mm
(1)
[5]
(ii) Horizontal line projected from front view in line with major axis or to candidate solution
(1)

Tab to solution below (ignore size)
(1)
[2]

(b) Correct tick for 300 microns (more than 1 box ticked NO mark) (1)
(c) (i) Correct tick for OFFSET LITHOGRAPHY (more than 1 box ticked NO mark)
(1)
(ii) Correct tick for COLOUR PHOTOCOPYING or SCREEN PRINTING
Or
Colour photocopying AND screen printing
(1)

4 (a) Correct alignment of CENTRE or CENTRED, CENTRAL No mark for MIDDLE
(b) Any drawn Rectangular frame
(1)

Rectangular frame shown to just contain the farmyard
(1)

4-8 grips shown (as below or on line/inside/outside ).
(1)

No marks for arrows, circles

(c) 2 reasons 1 mark each accept alter size/change colour or tone/remove any unwanted detail such as background, add features, contrast, sharpness
NOT enhance or edit or improve quality
(d) HAND WRITTEN METHOD

45/45 Accept 60/30, 30/60, 45
Suitable colouring media i.e. pencils/markers/air brush
Watercolours, paint, felt tips, pastels
3D CAD METHOD
Suitable 3D software - Autocad/Inventor/Solid works/
Prodesktop/2D Design/Drawplus/Rhino/Autosketch/ProEng.
Mechanical Desktop
NOT DTP, Paint, Photoshop, Word
Suitable rendering words such as detail/colour/tone/shading Texture/Features/Background
(1)

5 (a) 3 parts separated or joined Bulb to sketch below
Body to sketch below
(1)

Screw thread to sketch below
(1)


Body
(1)

or


Screwthread
(1)

or

(b) Fully or partially exploded generally in line

Solution in isometric
(1)

Method prevents bulbs touching
(1)

Method prevents bulbs moving or provides extra protection
(1)

Method fully communicated
(1)
(c) One advantage of plastic blister packaging - can see the bulb/ it stops people pinching one out of the box/aids display of the bulb
No marks for cheaper/quicker/protect
(d) VACUUM FORMING or MOULDING
(1)

## Mark Scheme 1955/04 June 2006

1 (a) Correct alignment of CENTRE or CENTRED, CENTRAL No mark for MIDDLE
(b) Any drawn Rectangular frame
(1)

Rectangular frame shown to just contain the farmyard
(1)

4-8 grips shown (as below or on line/inside/outside ).
(1)

No marks for arrows, circles

(c) 2 reasons 1 mark each accept alter size/change colour or tone/remove any unwanted detail such as background, add features, contrast, sharpness
NOT enhance or edit or improve quality
(e) HAND WRITTEN METHOD

45/45 Accept 60/30, 30/60, 45
Suitable colouring media i.e. pencils/markers/air brush
Watercolours, paint, felt tips, pastels
3D CAD METHOD
Suitable 3D software - Autocad/Inventor/Solid works/
Prodesktop/2D Design/Drawplus/Rhino/Autosketch/ProEng.
Mechanical desktop
NOT DTP, Paint, Photoshop, Word
Suitable rendering words such as detail/colour/tone/shading Texture/Features/Background
(1)

2 (a) 3 parts separated or joined
Bulb to sketch below
Body to sketch below
(1)

Screw thread to sketch below
(1)


Body
(1)

or


Screwthread
(1)

or

(b) Fully or partially exploded generally in line

Solution in isometric
Method prevents bulbs touching
(1)

Method prevents bulbs moving or provides extra protection
(1)

Method fully communicated
(1)
(c) One advantage of plastic blister packaging - can see the
bulb/it stops people pinching one out of the box/aids display of the bulb
No marks for cheaper/quicker/protect
(d) VACUUM FORMING or MOULDING
(1)

3 (a) Cuboid in isometric form
Upstand curve drawn anywhere (not horizontal)

- in isometric form
(1)

Cutout curve drawn anywhere - in isometric form
(1)

Orientation ie Upstand to right, cutout opposite
(1)

Correct measurements to overlay $+/-2 \mathrm{~mm}$
(1)
[5]
(b) CARD THICKNESS 200-500 microns
(1)

CUTTING AND CREASING METHOD - Die Cutting/
Die stamping /Die forming
(1)

No marks for - CAD/CAM plotter/die cutter/laser cutter
(c) Exploded sketch shown (correct orientation needed)
(1)

2 pieces of card used to give 4 compartments
2 pieces slot together to give 4 compartments (slot any length single line acceptable)
(1)

(2) exploded mark not given due to orientation

4 (a) (i) Workable net (all elements present, fits together)

No glue flaps needed
(1)

Front to overlay $+/-2 \mathrm{~mm}$
Both sides correct to overlay $+/-2 \mathrm{~mm}$
Some evidence of ellipse construction
Min 2 circles, 2 angled lines or equivalent
(1)

Complete ellipse construction
Ellipse and top shoulders accurate to overlay $+/-2 \mathrm{~mm}$
(1)
[6]
(ii) Slot and tab which pull out

Slot and tab which will NOT pull out (slot is narrower than tab) accept double folded over sides
(1)
(1)
(1) thin line, coloured line, construction line. Ignore Tabs

Correct convention $\qquad$ (1)

5 (a) (i) Suitable material for see through window, thin styrene, acetate, cellophane
No marks for acrylic, Perspex, polythene, cling film, plastic
(ii) Hexagon shown on given centre to general proportions of window (accept straight sides)
Any evidence of curved surface taken into account in the drawing of the hexagon (curved construction lines or curved sides)
(1)
[2]
(b) TOP IS SQUASHED DOWN AND THE TWO SIDES PUSH OUTWARDS
Top is shown squashed down ie lower down
Two sides shown pushed outwards
(1)

Arrows pushing down AND outwards (need both)
(1)
(c) Method shown which connects or strengthens two sides

Method should provide some support for the top
Drawing should show how the method is fixed to existing package
Clear and unambiguous communication - can you see how it works
(1)

## General Certificate of Secondary Education Design \& Technology: Graphic Products (Short Course) 1055 June 2006 Assessment Session

## Component Threshold Marks

| Component | Max Mark | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 01 Paper 1 | 50 |  |  | 26 | 22 | 18 | 15 | 12 |
| 02 Paper 2 | 50 | 32 | 28 | 24 | 19 |  |  |  |
| 03 Coursework | 105 | 82 | 69 | 57 | 45 | 33 | 22 | 11 |

## Syllabus Options

## Foundation Tier

|  | Max Mark | A* | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall Threshold Marks | 175 |  |  |  | 85 | 71 | 57 | 43 | 29 |
| Percentage in Grade |  |  |  |  | 19.7 | 22.6 | 16. | 16. | 14.7 |
|  |  |  |  |  | 19.7 | 42.3 | 59. | 75. | 90.6 |
| Cumulative Percentage in Grade |  |  |  |  |  |  | 8 | 8 |  |

The total entry for the examination was 217

Higher Tier

|  | Max Mark | A* | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall Threshold Marks | 175 | 142 | 125 | 108 | 91 | 72 | 62 |  |  |
| Percentage in Grade |  | 7.1 | 25 | 29. <br> 1 | 17.8 | 10.9 | 4.9 |  |  |
| Cumulative Percentage in Grade |  | 7.1 | 32.1 | 61. <br> 2 | 79.1 | 90.1 | 95 |  |  |

The total entry for the examination was 376

Overall

|  | A* | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Percentage in Grade | 4.5 | 16 | 18.6 | 18.5 | 15.1 | 9.1 | 6 | 5.2 |
| Cumulative Percentage in Grade | 4.5 | 20.6 | 39.3 | 57.8 | 73 | 82.1 | 88.1 | 93.4 |

The total entry for the examination was 593

# General Certificate of Secondary Education Design \& Technology: Graphic Products (Full Course) 1955 June 2005 Assessment Session 

## Component Threshold Marks

| Component | Max Mark | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| O1 Paper 1 | 50 |  |  | 26 | 22 | 18 | 15 | 12 |
| 02 Paper 2 | 50 | 32 | 28 | 24 | 19 |  |  |  |
| 03 Paper 3 | 50 |  |  | 28 | 23 | 19 | 15 | 11 |
| 04 Paper 4 | 50 | 30 | 25 | 21 | 16 |  |  |  |
| 05 Coursework | 105 | 82 | 69 | 57 | 45 | 33 | 22 | 11 |

## Syllabus Options

## Foundation Tier

|  | Max Mark | A* | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall Threshold Marks | 175 |  |  |  | 91 | 75 | 59 | 43 | 27 |
| Percentage in Grade |  |  |  |  | 25.4 | 23.7 | 20. | 15. <br> 6 | 8.8 |
| Cumulative Percentage in Grade |  |  |  |  | 25.4 | 49.3 | 69. <br> 8 | 85. <br> 2 | 94.1 |

The total entry for the examination was 10006

Higher Tier

|  | Max Mark | A* | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall Threshold Marks | 175 | 139 | 122 | 105 | 89 | 70 | 60 |  |  |
| Percentage in Grade |  | 8.1 | 22.4 | 29. <br> 9 | 22.3 | 12.0 | 2.1 |  |  |
| Cumulative Percentage in Grade |  | 8.1 | 30.6 | 60. <br> 5 | 82.9 | 94.9 | 97. <br> 1 |  |  |

The total entry for the examination was 12679

Overall

|  | A* $^{*}$ | A | B | C | D | E | F | G |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Percentage in Grade | 4.5 | 12.6 | 16.7 | 23.7 | 17.2 | 10.2 | 6.7 | 3.8 |
| Cumulative Percentage in Grade | 4.5 | 17.1 | 33.9 | 57.6 | 74.8 | 85.1 | 91.9 | 95.8 |

The total entry for the examination was 22685

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