



General Certificate of Education

AS Design and Technology: Product Design 5551

PD3D Design and Market Influences

Mark Scheme

2007 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Quality of Written Communication

The following marks are allocated to the quality of the candidate's written communication. Make a separate assessment of the candidate's overall ability as demonstrated across the paper using the criteria given below.

Performance Criteria

	Marks
The candidate will express complex ideas extremely clearly and fluently. Sentences and paragraphs will follow on from one another smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling.	4
The candidate will express moderately complex ideas clearly and reasonably fluently, through well-linked sentences and paragraphs. Arguments will be generally relevant and well structured. There may be occasional errors of grammar, punctuation and spelling.	3
The candidate will express straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.	2
The candidate will express simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling may be noticeable and intrusive, suggesting weaknesses in these areas.	1

This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If candidates offer other answers which are equally valid **they must be given full credit.**

Many responses at this level are assessed according to the **quality** of the work rather than the number of points included. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

(low mark range)
The candidate has a basic but possibly confused grasp of the issues. Few correct examples are given to illustrate points made. This candidate does not have a clear idea of what s/he is writing about.
(mid mark range)
The candidate has some knowledge but there will be less clarity of understanding. Some correct examples given to illustrate points made. This candidate knows what s/he is writing about but is confused in part.
(high mark range)
The candidate has a thorough understanding of the issues and has provided relevant examples to support the knowledge shown. This candidate knows what s/he is writing about and provides clear evidence of understanding.

Question 1

(a) Expect candidates to give a brief description of ways that each graphical communication method is used in the design process.

(i) Mood board

- Collection of images possibly unrelated to evoke emotion that the design would want associated with the final product.
- Used to convey theme to a client or consumer group to gauge reaction.
- A collection of images, colour/fabric swatch used as a reference in the design process.
- Etc

(ii) Thumb-nail / quick sketches

- Used to produce development drawings. A method of rapid visualisation.
- Quick sketches to generate and record design concepts
- Preliminary sketches to communicate initial ideas to a client or colleague.
- Etc

(iii) A 3D rendering

- Application of colour/texture & texture using markers, pens, pencils or CAD to show surface qualities of materials used in the product.
- Method used to create 'artist impressions' or presentation drawings to show design proposals to a client.
- Etc

Breakdown

- Limited understanding of use of the communication method. Basic, answer with points not explained. (1-2 marks)
e.g. 'A collection or collage of images' – 1 mark
'A collection of images used to convey' theme to a client or manager – 2 marks
- Better understanding of use of the communication method. Some appropriate examples given to describe/explain the use of the mood board, etc in the design process. (3 -4 marks)

Max 2 marks for list of unjustified points.

(3 × 4 marks)

(b) Expect brief explanation of how target market and ergonomic/anthropometric issues might influence design decisions in the development of jewellery

(i) Target market (potential users)

- Might be influenced by activities young people do, e.g. sport, disco.
- Designer will need to take account of current fashions/trends associated with target market.
- Designer may draw influences from popular 'sub-cultures' in target market e.g. 'Goths', 'skaters', music and political influences, etc.
- Designer will need to take account of a suitable price band for product appropriate to income of target market.
- Answers may compare needs of this target market against another, e.g. older or younger, male or female.
- Etc

Breakdown

- Limited understanding of relevance of target market. Basic, generic answer with points not explained. (1-2 marks)

e.g. 'designer will need to think about what the current fashion is' = 1 mark

e.g. 'designer will be influenced by current trends, e.g. may incorporate fashionable colours, themes, etc into the design' = 2 marks
- Better understanding of influence of target market. Some appropriate examples given to explain points. (3 -4 marks)

Max 2 marks for a list of unjustified points.

(4 marks)

(ii) Ergonomic and anthropometric issues:

- Designer will need to take account of relevant body sizes such as wrist or neck measurements for bracelets, necklaces, etc.
- Designer will need to consider comfort of user when selecting materials for jewellery, e.g. some make the skin sweat, irritate the skin, etc
- Designer will need to consider how easy it will be for the 'user' to put the jewellery on- method of attachment, removal, etc.
- Some jewellery is made adjustable to fit different sizes.
- May need to make jewellery different size than for older or younger markets.

Breakdown

- Limited understanding of ergonomics and anthropometrics. Answer is basic and not linked well to the theme of designing jewellery. (1-2 marks)
e.g. 'Make it easy to fit' = 1 mark
e.g. 'Make it easy to put on by having clasp fitting that are not too difficult to use' = 2 marks
- Better understanding of ergonomics and anthropometrics. Examples given to illustrate relevance to jewellery design. (3-4 marks)

Max 2 marks for lists of unjustified points.

(4 marks)

TOTAL MARKS: 20

Question 2

(a) **Range of ideas.**

Marks will be awarded as follows:

- Limited range of ideas which are very similar. Little annotation to indicate potential for development. Such ideas will generally be worthy of 1 mark per drawing. (1 – 5 marks)
- Range of appropriate ideas. May be small in number but have some variety, having alternative design features. Such ideas will generally be worthy of **up to** 3 marks per drawing. (6 – 10 marks)
- Wide range of good quality design ideas. Designs will be varied and show a number of different features. Such ideas will generally be worthy of 3-4 marks per drawing. **Candidates with fewer ideas but ones that are very good quality should be able to access marks in this band.** (11 – 15 marks)

N.B. Look for differences in overall shape, styling, etc

Do not expect different types of jewellery or body adornment. Varied ideas for one type are acceptable.

(15 marks)

(b) (i) **Quality of graphical communication.**

- Drawing mainly 2D, untidy, limited annotation with little thought (1 – 3 marks)
- Drawings combination of 2D and/or 3D. Annotation showing some thought to the design requirements. Use of colour, texture, or tone to enhance the drawings. (4 – 7 marks)
- Drawings combination of 2D and 3D. Good use of colour, texture or tone to enhance drawings. Thorough annotation showing consideration to the design criteria (points from the spec, details of materials and components etc). (8 – 10 marks)

Centres may have used stencils to draw parts of the body or entire figure. Look for quality in drawings of jewellery / body adornment.

(10 marks)

(ii) **Originality/innovation of product**

Marks will be awarded as follows:

- Uninspiring initial ideas and final design which are stereotypical. Designs will probably be inappropriate for intended end-use, however, there will be an attempt to incorporate a design feature, an interesting use of a material or component. (1 – 2 marks)
- Designs may be varied and the final design lacks flair but will probably be appropriate to end use. There will be **one to two** innovative features, innovative use of materials or components. (3 – 4 marks)
- Candidate has attempted to produce imaginative designs but products lack interest and designs are not wholly relevant to the theme. There will be **several (2-3)** examples of innovative features, innovative use of materials or components. (5 – 6marks)
- Sound ideas and final design clearly appropriate to theme with a **wide range of** examples of innovative features, innovative use of materials or components. (7– 8 marks)
- Highly original ideas which exploit the use of the theme. There will be **numerous** occasions where the candidate has shown innovative design features, innovative use of materials or components. (9 – 10 marks)

(10 marks)

Note: Some candidates may only produce a small number of designs but they may be extremely original and innovative. If this is the case, award marks in the higher mark range for innovation and originality.

Some examples of originality/innovation may include:

- L.E.D.s/O.L.E.D.s which flash in response to incoming mobile phone call text message
- Use of thermochromic pigments in jewellery. Item will change colour in response to body heat.
- Use of phosphorescent pigments which will glow in UV lights / disco lighting.
- Incorporate wearable electronics with jewellery / body adornment, e.g. MP3, mobile phone, etc.
- Product may incorporate safety aspects, e.g. anti drink tampering, panic alarms, etc
- Unusual / striking shape or form in the item designed, (not found in high street stores).
- Etc.

(iii) **Appropriateness of materials and components.**

Marks will be awarded as follows:

- Limited range of materials across designs with little clear detail. E.g. 'steel'. May be repeated throughout the drawings. Some may be inappropriate. (1 – 3 marks)
- Range of appropriate materials and components. Some may be repeated. (**More than 2**) different specific materials described, and/or components sketched to gain top of this range). (4 – 7 marks)
- Wide range of appropriate materials and components, with some components sketched or developed into the final design. Materials and components are entirely appropriate to the theme. (8 – 10 marks)

Example components: LED

LCD display
Lithium battery
Button cell
Jewellery findings – clasps, catches, etc
Switches
Zips
Buckles
Buttons
Mechanical fastenings eg machine screws
Any bought in standard components

Note: Some candidates may produce a small number of designs but will be able to access marks in the top band if they indicate the use of a **wide range** of materials and components.

(10 marks)

(iv) **Methods of construction.**

Marks will be awarded as follows:

- Limited information about how the product will be constructed. Probably **one or two** stated in simple labels. (1 – 3 marks)
- Variety (**two to three**) of appropriate construction methods stated and/or at least one construction/manufacturing method sketched and explained – awarding the higher mark for level of detail. (4 – 7 marks)
- Clear information about appropriate construction methods with use of exploded drawings to show assembly of **two** areas of the product or drawing(s) of industrial manufacture with accompanying notes explaining its use in the product.

Note: Where the construction method or manufacturing process is complex and the candidate answers in detail, only one drawing is needed to access the higher mark range. (8 – 10 marks)

(10 marks)

(v) **Dimensions and dimensioning**

Marks will be awarded as follows:

3 marks for overall length, width and depth (in a ring or bracelet, diameter or radius is taken as two dimensions)

Up to 6 marks if sub components dimensioned appropriately

Accept simple labels and dimensions written in prose. (6 marks)

(vi) **Details of finish.**

Marks will be awarded for:

- Specific finish named e.g. acrylic paint (2 marks)
- Specific finish named with a basic description of its application, justification for its use or justification for no finish. (3 – 4 marks)
- Specific finish named with a full description of application or justification for its use or justification for no finish. (5 marks)

No marks for generic ‘paint’, ‘varnish’, ‘polish’, ‘oil’, ‘wax’. (5 marks)

(vii) **Specification criteria met.**

Marks will be awarded for:

- Some points of the specification addressed. (1–2 spec points) (1 – 3 marks)
- Most of the specification points addressed. (3–4 spec points) (4– 6marks)
- All specification points addressed. (5 spec points) (7 - 10 marks)

Specification criteria	Addressed (1 mark)	Addressed well (1 additional mark)
Reflects the interests and fashions of the 16 – 21 age group	1 mark	1 mark
Be a fun item	1 mark	1 mark
To meet a budget price range	1 mark	1 mark
Make innovative use of modern materials and/or technology	1 mark	1 mark
Be suitable for batch production	1 mark	1 mark

(10 marks)

TOTAL MARKS: 20

Total mark for Paper: 100