

GCE 2004

June Series



Mark Scheme

Design and Technology: Product Design *(Subject Code PD6T)*

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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Dr Michael Cresswell Director General

Design and Technology: Product Design

Textiles (PD6T)

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.

<i>Performance Criteria</i>	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-lined 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

NB 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 that 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. Description may be unclear.
(mid mark range)
The candidate has some knowledge but there will be less clarity of understanding. Some correct examples given to illustrate points made. Description better but unclear or confused in parts.
(high mark range)
The candidate has a thorough understanding of the issues and has provided relevant examples to support the knowledge shown. This candidate's answer shows clear evidence of understanding.

Section A Materials and Components

Question A1

- (a) Changes in the sources, supply and manufacture of natural fibres could include :

Organic cotton, naturally coloured cotton, genetic engineering, recycled materials, alternative sources – development of hemp, new sources/unusual sources for example, pineapple and banana, development of spiders silk, eco sources – use of peat, environmental considerations in manufacture, developments in finishes – technological developments, new developments in the use of glass, metal and ceramics, changes in corporate environmental policies relating to manufacture.

Marks awarded as follows:

Limited reference to recent changes in sources, supply or changes in manufacture.

Simplistic answer.

(1–4 marks)

A more detailed explanation is given but answer focuses on a narrow range of examples.

Answer lacks depth of response.

(5–8 marks)

An in-depth answer which includes detailed reference to a number of changes in the sources, supply and manufacture of natural fibres.

Detailed examples given.

(9–12 marks)

- (b) Description of the impact of these changes on the environment could include:

Influence of green issues, waste textiles and the recycling of discarded fabrics, concept for Design for Disassembly (understanding how a product can be taken apart when reaching the end of its life), maintaining supply, sustainability, development, use and disposal of dyestuffs and other chemicals, product lifecycles, production of cotton, organic cotton.

Marks awarded as follows:

Limited reference to the impact these changes have had on the environment.

Few examples or little detail given.

(1–4 marks)

A more detailed explanation is given of the impact of change but answer focuses on a few aspects only.

(5–8 marks)

An in-depth answer which includes detailed reference to the impact of change on the environment.

A range of detailed examples given.

(9–12 marks)

Total 24 marks

Question A2

Reference is made to fibres and fabrics particularly developed for performance and a range of relevant examples have been given.

Answers could include some of the following:

Moisture management, wearable electronics, thermal insulation, weatherproof, new properties and finishes, rubber, reactive materials, fibres constructed for elasticity, flame retardance, phase changing materials, biomimetics—replicating nature, e.g. Stomatex, Fastskin. Shape Memory Alloys for product shape retention, micro fibre technology, nano technology, micro encapsulation and other relevant examples. E.g. Goretex, Permatex, Kelvar, bullet proof, reflective textiles. Answers could also include detailed descriptions of how the performance of products made from these materials has been improved.

Differentiation is through quality of answer.

Marks awarded as follows:

Limited response with little detail regarding performance and few examples given. (1–7 marks)

Candidate illustrates a reasonable understanding of fibres and fabrics developed for performance;

Examples given are appropriate but could be expanded upon. (8–15marks)

A detailed answer with a wide range of examples of performance materials described in detail. (16–24 marks)

Total 24 marks

Section B Design and Market Influences

Question B3

An appreciation of the influence of the work of artists and design movements on textile products is expected.

Candidates should describe the shape, form, materials and components, colours, fastenings, decoration, techniques used in the products selected. Some sketches may be provided.

Examples may include Pop Art–Lichtenstein influenced eveningwear by Versace or accessories by Anya Hindmarch, Surrealist fashion by Schiaparelli or Moschino, 1960's Mondrian inspired dresses and Braque inspired eveningwear by Yves Saint Laurent, the stylised geometric patterns and colour theory of Sonia Delaunay and the Art Deco movement, Art Nouveau patterns used by Miu Miu, the work of Miro and Calder in the furnishing textiles of Lucienne Day, Art nouveau in the prints of Liberty of London.

Limited response with little detail about selected products, some possible inaccuracies. (1–4 marks)

Reasonable description of different products, some detail given, but there are some key omissions or a focus on only one source of influence. (5–8 marks)

A detailed description of two different influences on textile products which reflect the world of Art and Design, appropriate detail has been included and clear explanations are given. (9–12 marks)

(2 x 12 marks)
Total 24 marks

Question B4

- (a) *Design Classics*—A description of two different textile products which are classified as design classics. Clear descriptions given, reference to shape, form, material, decoration, colour, fastenings, components and any other design feature.

Reference should be made to the designer and the period it was produced. For example Mary Quant and the miniskirt, Pleats please by Issey Miyake, the new look by Christian Dior, Russian Constructivist fabrics, furnishing fabrics by Charles Mackintosh, the Burberry waterproof mackintosh, statements by Vivienne Westwood, wedge shoes by Salvatore Ferragamo, the tweed Chanel suit, the classic navy blazer with brass buttons, duffle coat, Barbour coat.

Diagrams may be used.

Limited response with little detail. (1–2 marks)

A reasonable description of chosen design classics, lack of detail. (3–5 marks)

A detailed description of textile design classics. Product is clearly explained, possible use of diagrams. (6–7 marks)

(2 x 7 marks)

- (b) Clear explanations given to justify why these two products can be classified as design classics. Reference could be made to unique individuality, timeless quality, influence on other products

Limited response with vague references and little detail included. (1–3 marks)

A reasonable explanation and some justifications given, candidate may focus on one of the products predominantly. (4–7 marks)

A detailed explanation given of the importance and impact of the two chosen products. (8–10 marks)

Total 24 marks

Section C Processes and Manufacture

Question C5

- (a) Answer should show knowledge and understanding of legal requirements, safety at work legislation, possible reference to the applications of the Factories Act. Reference should also be made to safety regarding textile materials for interiors in public buildings and the requirements for upholstery and carpeting for domestic use and children's clothing and toys, (including no sharp edges or small parts).

Reference to only a few legal requirements (1–4 marks)

A range of legal requirements addressed in the answer given. Clear explanations given. (5–8 marks)

- (b) Candidates will be expected to make reference to the organisation of a safe working environment. Including the need for a risk assessment, to appoint a health and safety officer, to address issues regarding safe use and disposal of chemicals (COSHH), training of workforce, wearing of safety clothing, use processes correctly and maintenance of equipment, industrial waste, and environmental pollution, recognition of potential hazards, safety measures during construction—spreading and cutting, sewing, fusing, pressing, stain removal, possible finishing processes, possible use of dyeing and printing procedures of CAD/CAM—particularly with dangerous procedures, general working area, layout of processes within factory space, to ensure products are safe to use.

Limited reference to health and safety within the workplace, only a few safety procedures suggested. (1–5 marks)

Reasonable information given but lacks a range of health and safety issues addressed in the answer, limited range of procedures for garment production (6–11marks)

A wide range of health and safety issues have been addressed and the candidate has a very good understanding of the procedures and issues involved in garment manufacture.

A comprehensive range of procedures suggested for garment manufacture. (12–16 marks)

Total 24 marks

Question C6

- (a) Clear explanations expected of the following related textiles manufacture:
- (i) Wholesalers—A company which often produces designs, buys materials, plans cutting, selling and delivery, but does not make the clothing. This does allow for innovative ideas to be produced by sub contracting to a cut and trim manufacturer without the additional costs of running a factory. A wholesaler can also buy completed products and sell them on to retailers. (4 marks)
- (ii) Contractors – A contract manufacturer is making products supported by an order. They do not produce their own collections but work with their customers to develop the resulting merchandise. (4 marks)
- (iii) Offshore production—Where production is placed outside of the country placing the order. This may be due to price or specialised skills or capacity. (4 marks)
- Limited explanations given (1–2 marks)
- Clear and detailed explanation given. (3–4 marks)
- (b) (i) An explanation of the term global production should be clearly outlined. Where manufacturing for a single company or group is carried out in a number of countries around the world, answer could include reference to the development of “multi national” companies. Global manufacturing is continuing at an increasing rate. Reasons are linked to efficiency, product competition and the developments in electronic communications.
- Limited response with little explanation given. (1–2 marks)
- A clear explanation of global production is given. (3–4 marks)
- (ii) A balance of advantages and disadvantages should be clearly outlined. Reference to ICT and global networks, EDI, video conferencing, e marketing, enhanced economies of scale, labour costs.
Disadvantages could be global competition of quality control, moral issues to do with exploitation of the labour used, some awareness of timescale would be expected.
- Limited response with few advantages and disadvantages given. (1–3 marks)
- Several advantages and disadvantages are given. (4–6 marks)
- A number of advantages/disadvantages are clearly outlined. (7–8 marks)

Total 24 marks