



General Certificate of Education

**A2 Design and Technology
Product Design 6551**

PD6T Written Paper

Mark Scheme

2008 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.

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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.

<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-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.

SECTION A: Materials and Components

- 1 (a) Name a different fabric, typically used for three of the following products.

Classic shirt
Tailored suit
Performance swimwear
Upholstery fabric

A fabric suitable should be named for three of the product groups listed.

Classic shirt - examples could include cotton lawn, crepe de chine, cotton pique, oxford cloth, poplin, and zephyr

Tailored suit – examples could include wool worsted, gabardine, chino, cavalry twill, houndstooth, tweed, panama, silk Doupion, Donegal, serge

Performance swimwear - examples could include Spandex, Elastane, tricot,

Upholstery fabric - examples could include cotton chintz, brocade, chenille, and cotton sateen

(3 × 1 mark)

- 1 (b) Describe in detail the physical appearance and construction for each of the fabrics named in part a) and give reasons why they are suitable for the applications given.

A detailed description of the physical appearance and properties of the fabric named is required, reference should be made to the technical face, reverse side, fibre content, handle, the type of yarns, the method of construction used. A possible finish that is relevant to the application is explained. Diagrams may be used in responses given.

Marks awarded as follows:

Low Mark Range:

Limited and simplistic descriptions of construction, little or no mention of appearance and physical properties, fibre content and types of yarn used. Answer is simplistic. (0 – 2 marks)

Mid Mark Range:

Correct names given, a more thorough description is given of the construction, appearance and physical and physical properties of fabrics. Suggested finish is suitable but answer lacks detail. (3 – 4 marks)

High Mark Range:

Detailed and accurate names and descriptions given of both the appearance and a range of physical properties. An in-depth description is given of fibre content, types of yarn and construction. The suggested finish is relevant to application and is clearly explained. (5 marks)

(3 × 5 marks)

- 1 (c) Select two of the products listed in part (a) and name an appropriate finish for each.
Give reasons for your answer.
A possible finish that is relevant to the application is explained.

Marks awarded as follows:

Low Mark Range:

Limited reference to finish, or finish suggested is not appropriate.

Answer is simplistic. (0 – 1 mark)

High Mark Range:

The suggested finish is relevant to application and is clearly explained.

(2 – 3 marks)

(2 × 3 marks)

- 2 (a) Name three different fabrics or textile products incorporating inorganic fibres.

Three inorganic fabrics or textile products containing inorganic fibres have been named.

Examples could include: reflective textiles (Reflec, Scotchlite), Lurex, lame fabric, Fibreglass material, fibre optic products, protective clothing, carbon fibres used in strengthening material in resins, ceramics and fabrics

(3 × 1 mark)

- 2 (b) Describe how each of the inorganic fibres you have named in part (a) are manufactured into fabrics and/ or textile products.

Explanation of how the inorganic fibres named in part a) have been constructed into fabrics or three-dimensional products.

For example: Glass fibres can produce a woven material which is then coated with silicon to make it pliable, metal strips with a plastic coating to form Lurex yarn woven into a lame fabric, shape memory shirt by Corpo Novo, Reflec® and Scotchlite® branded fabrics and films formed by tiny microscopic glass prisms, Gorix® a carbon fibre with electrical conductivity properties.

Marks awarded as follows:

Low Mark Range:

Limited and simplistic descriptions of how inorganic fibres have been constructed into fabrics and / or three-dimensional products, possible inaccuracies. (0 – 1 mark)

Mid Mark Range:

A more thorough description is given of how inorganic fibres have been constructed into fabrics and / or three-dimensional products, information is mainly accurate but answer lacks detail. (2 – 3 marks)

High Mark Range:

Detailed and accurate descriptions given of how inorganic fibres have been constructed into fabrics and / or three-dimensional products, In-depth information is given and is clearly explained. (4 – 5 marks)

(3 × 5 marks)

- 2 (c) With reference to specific examples discuss the advantages of using inorganic fibres for textiles products.

Inorganic fibres are a classification of man-made fibres from glass, carbon, metal and ceramics. The advantages of using these fibres are clearly explained. For examples improved heat resistance, light reflective fabrics for safety and aesthetics, aesthetics with the use of metallic strips, high strength but lightweight fabric, shape memory textiles, increased electrical conductivity, regulating body temperatures from ceramic content fabrics.

Limited explanation given, there may be some inaccuracies, little reference to the advantages of inorganic fibres. (0 – 2 marks)

A reasonable explanation of the inorganic fibres used in textile product, some examples given but there is a lack of detail regarding the advantages of these. (3 – 4 marks)

A detailed and thorough understanding of the use of inorganic fibres. Advantages are clearly explained, accurate and detailed explanations given. A number of different organic fibres have been referred to. (5 – 6 marks)

(6 marks)

SECTION B: Design and Market Influences

3 With reference to each of the following:

- (a) The designer
- (b) The manufacturer
- (c) The retailer

Explain the different issues that would need to be taken into account when developing a new range of textile products.

In your answer you should refer to specific products.

The different issues that a designer, manufacturer, retailer would need to take into consideration are clearly explained and how these issues could affect the development of a new range of textile products.

Designer: These could include moral, social, ethical, environmental issues, including fair trade practices, sources of materials and components, cost implications, production capabilities, health and safety issues, target market, functional requirements, fashion trends, seasonal colour, material trends, related products within the range, suitability for point of sale, market sector.

Manufacturer: Environmental practice, health and safety issues, production capacity, specialist processes, skills of workforce, delivery dates, transport, delivery chain, packaging, material and component supplies, quantity, size ranges, product range, style variations and quality.

Retailer: Market sector, niche market, seasonal trends, delivery dates, buying and marketing cycles, advertising and promotion, packaging, in store displays, e-tailing and the web.

Low Mark Range:

Limited response with little detail or reference to any or very few issues that a designer, manufacturer, retailer would need to take into consideration when developing a new product range.

Answers given are superficial. (0 – 2 marks)

Mid Mark Range:

A reasonable number of issues referred to that a designer, manufacturer, retailer would need to take into consideration when developing a new product range. Some lack of detail in explanation, or detailed reference to only a few issues given in answer. (3 – 5 marks)

High Mark Range:

A detailed description of a range of issues that a designer, manufacturer, retailer would need to take into consideration when developing a new product range. A wide range of issues explained in answer, candidate illustrates a very good understanding of the topic. (6 – 8 marks)

(3 × 8 marks)

- 4 Name two different brands and/ or designers, which are associated with the United Kingdom.

Explain why they have been influential in the development of the United Kingdom as an international centre for fashion and textiles. In your answer you should refer to specific examples. You may use notes and diagrams in your response.

Accurate name of two different brands and/ or designers, which are associated with Great Britain and a clear explanation as to why these brands and/ or designers have been influential in the development of Britain's reputation as an international centre for fashion and textiles.

Many products are focused on the outdoors, the countryside, innovative tailoring and rebellious youth culture.

Examples could include:

Pringle knitwear and the classic twin-set and argyle jacquard knitwear, Harris tweed featuring heathered yarns, Mary Quant and the swinging sixties, Burberry and the classic trenchcoat which has evolved into a major fashion label, Aquascutum and classic luxury raincoats and retrained English style, Barbour coats and their wax coating, Biba and the style evolved by Barabara Hulanicki , Zandra Rhodes and ethnic prints and patterns of the 1970's, Vivienne Westwood , Hardy Amies, Alexander McQueen, Stella McCartney, William Morris, Charles Rene Mackintosh and the Glasgow school.

Descriptions of products produced by these companies are expected and some explanation as to their contribution to the reputation of Great Britain as a textiles nation. For example the revolutionary designs of Mary Quant including the mini skirt, short pinafore dresses, stylized floral motifs, Op Art and bright colours and patterned tights, PVC and the use of fashion Icon Twiggy all contributed to London's reputation as the centre of the swinging sixties. The use of woven tweeds and tartans and innovative tailoring, involvement and development of the radical street styles of the Punk and New Romantic movements evident in many designs by Vivienne Westwood and the tailoring and theatrical themes including The Birds, The Highlands, The Hunger, and Dante which have inspired collections by Alexander McQueen.

Diagrams are relevant and support explanations.

Basic - Low Mark Range:

Named brands/ designers may not be associated with the United Kingdom.

Limited response with little explanation of the brands or designers named having any influence on Britain's reputation as an international centre for fashion and textiles. Few examples or details given about selected products, diagrams are simplistic. (0 – 3 marks)

Low - Mid Mark Range:

Named brands/ designers are associated with the United Kingdom. Explanation of the brands or designers named refers to some influence on Britain's reputation as an international centre for fashion and textiles although there is a lack of detail.

Some description of examples given, diagrams have some detail.

(4 – 6 marks)

Upper Mid Mark Range:

Named brands/ designers are clearly associated with the United Kingdom. Reasonable explanation of the brands or designers named and reference is made to their influence on Britain's reputation as an international centre for fashion and textiles. Description of examples given are reasonably detailed, diagrams are accurate and have some detail. (7 – 8 marks)

High Mark Range:

Named brands/ designers are very clearly associated with the United Kingdom. Very detailed and in-depth explanations of the brands or designers named and reference is made to their considerable influence on Britain's reputation as an international centre for fashion and textiles. A very good range of examples given which are very detailed, diagrams are very accurate and are considerably detail. (9 – 12 marks)

(2 × 12 marks)

SECTION C: Processes and Manufacture

- 5 *Lay plans* need to be organised according to the type of fabric being used.
- 5 (a) Using notes and diagrams, explain the different requirements for *each* of the following fabrics:
- (i) Non-woven felted fabric
 - (ii) Woven corduroy
 - (iii) Small spot print cotton lawn
 - (iv) Striped jersey

An explanation using diagrams is given of the different requirements for organising the cutting plans for cutting out the following fabrics:

Non woven – felted fabric – pattern lay plans can be multi directional pattern pieces, as non woven fabrics do not have a direction therefore can be cut out very economically

Woven corduroy – Plans for directional pile fabrics must consider both orientation and direction as light affects the appearance of the fabric.

Small spot print cotton lawn – small all over decorative pattern, which can be cut out in both directions, orientation must still be considered.

Striped jersey – horizontal striped pattern engineered in a stretch interlock jersey, care will need to be taken with matching stripes at seams, balance of stripe across panels, tendency for jersey fabric to curl when laid flat.

Low mark range:

Limited response with little detail included in the different layout plans. Basic written explanation, some inaccuracies. (0 – 1 mark)

Mid mark range:

Reasonable description of different layout plans with mostly accurate diagrams. (2 – 3 marks)

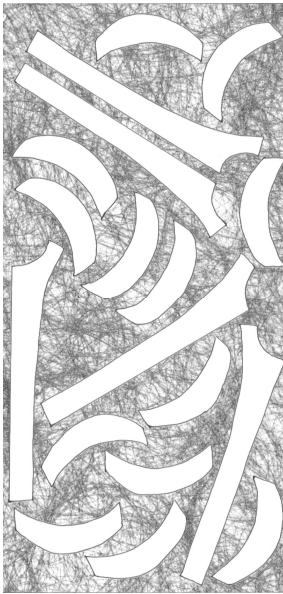
High mark range:

A very detailed description of different layout plans with extremely accurate diagrams. (4 marks)

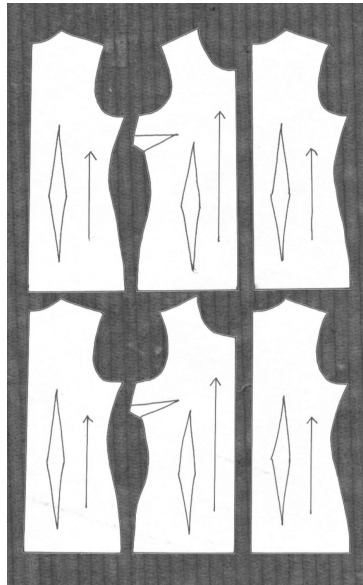
(4 × 4 marks)

Layout plans – exemplar diagrams:

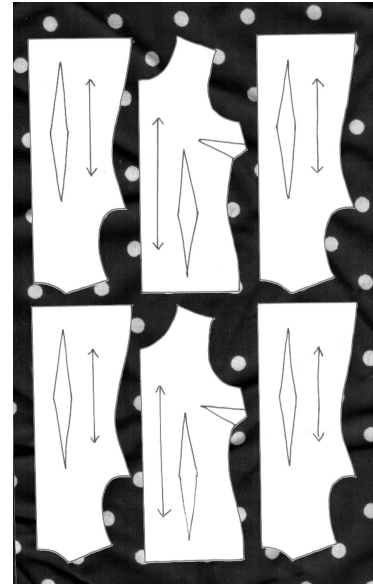
Non woven



Corduroy



Cotton Lawn



These diagrams are indicators of the response expected in conjunction with the descriptors given above.

- 5 (b) Outline the problems of pattern matching when constructing textile products.

The problems of pattern matching when constructing textile products are outlined clearly in responses given.

Problems could include: The quality of production can be affected by poor pattern matching. The size and scale of pattern, repeat size, the dominance of pattern, matching pattern within individual garment pieces, all create problems. Checks and stripes have to be matched particularly at seams and also across patch pockets, flaps, darts, facings, they need to be balanced across a product. Patterns may have to be symmetrical, there needs to be both vertical and horizontal continuity.

Marks awarded as follows:

Low mark range:

Limited and simplistic explanation of pattern matching given, few problems outlined.

Answers lack depth of response. (0 – 2 marks)

Mid mark range:

A more thorough explanation is given of the problems of pattern matching, but answers lack detail. (3 – 5 marks)

High mark range:

An in-depth answer with detailed and accurate explanations given. Key and relevant response. (6 – 8 marks)

(8 marks)

- 6 (a) Outline the four main stages at which colour can be applied during the textile manufacturing process. Describe the possible outcomes and effects achieved at each stage.

Colour can be applied at the fibre, yarn, fabric (piece goods) and whole garment stages.

Different stages are clearly outlined in the response and the different products achieved at each stage are clearly explained.

The aesthetic effects which are possible at each stage, for example:

Fibre stage, stock and top fibre dyeing to create heather and marl effects. Question requires knowledge of the manufacturing process, natural dyes may be accepted if reference to genetic modification of natural colours.

Yarn dyeing, also skein, package and beam methods of dyeing yarn for fabrics with stripes, checks, plaids, and other multi coloured patterned fabrics including tartan, madras, gingham.

Ikat weaving requires the application of a print to warp yarns before weaving.

Fabric stage, piece dyeing to create solid colour fabrics or piece goods, cross-dyed effects, two-tone fabrics. The stage is adaptable to all fabric types, the application of print is at this stage using pigments or dyes.

Whole garment dyeing limited to garments of simple construction, including sweatshirts, hosiery and T-shirts.

The risk in dyeing long before season begins, particularly with the fibre and yarn stage and the possibilities of changes in fashion demands, the advantages of dyeing whole garments being closest to the fashion season, the cost implications of the different stages, the adaptability of each stage may be included in answer.

Low mark range:

Limited response with little reference to products produced at each stage of colour application, little detail given. (0 – 1 mark)

Mid mark range:

Clear understanding of the products produced at each stage of colour application, several examples are given, but lack of depth. (2 – 3 marks)

High mark range:

A detailed response with reference to a number of products produced at each stage of colour application, answer conveys a very good understanding of the question. (4 marks)

(4 × 4 marks)

- 6 (b) Name and describe one volume production method of printing pattern on to fabric.

Name and description of a method of applying colour and pattern through print aimed at volume production given.

Methods could include rotary screen-printing, roller printing, and digital printing, transfer printing. Description of method given in detail. Clear explanation of method related to volume production.

Low mark range:

Limited and simplistic explanation given of printing method, little reference to volume production.

Answers lack depth of response. (0 – 2 marks)

Mid mark range:

A more thorough explanation is given of printing method, some reference to volume production.

But answers lack detail. (3 – 5 marks)

High mark range:

An in-depth answer with detailed explanations given of printing method, accurate reference is given to volume production. (6 – 8 marks)

(8 marks)