



## General Certificate of Education

# Design and Technology: Product Design (5551/6551)

*Unit 6 (Textiles) PD6T*

## Mark Scheme

*2006 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.

# 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-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

**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 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.

<b>(low mark range)</b>
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.
<b>(mid mark range)</b>
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.
<b>(high mark range)</b>
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.

**PD6T**

- 1 (a) Two different methods of construction from either weaving, knitting or non woven methods must be named and the appearance and physical properties described clearly.

These could include:

From weaving: plain, satin, sateen, twill, jacquard, dobby and three yarn systems.

From knitting: Weft knit, single jersey, rib knit, interlock, jacquard, plush knit, pique. Warp knit, tricot knit, locknit, Atlas and Raschel net.

From nonwoven fabrics: Wool felt, needle felt, air laid, adhesive bonded, heat bonded.

Marks awarded as follows:

Limited and simplistic descriptions of construction, names may be inaccurate. Little or no mention of appearance and physical properties. Answers lack depth of response.

(1 – 2 marks)

Correct names maybe given, a more thorough description is given of the construction, appearance and physical properties of fabrics but answers lack detail.

(3 – 5 marks)

Detailed and accurate names and descriptions given of both the appearance and a range of physical properties.

(6 – 8 marks)

**(2 × 8 marks)** (16 marks)

- (b) An explanation of how new technology has changed manufacturing methods of either knitted or woven or non woven fabrics is expected in the answers given. Reference to automated processes would be expected, for example pre-programmed weaving looms.

Marks awarded as follows:

Limited and simplistic explanation given, little reference to changes in fabric manufacture due to new technology. Answers lack depth of response.

(1 – 2 marks)

A more through explanation is given, some reference to new technology and how it has altered methods of fabric production but answers lack detail.

(3 – 5 marks)

An in-depth answer with detailed explanations given, accurate reference is given as to how new technology has altered methods of fabric production.

(6 – 8 marks)

(8 marks)

**Total 24 marks**

2

Four different modern finishes are named.

Examples could include for example: thermoplastic finishes, stain resistance (Teflon®), flame – retardant finish (Proban®), synthetic resin non-iron, crease resistance synthetic resin treatment, polyurethane coating, crimping of yarn, moiré finish, anti-static, light reflective and laser cutting.

An explanation of how each finish is applied to either yarn or fabric during production. The advantages that the consumer will gain are clearly outlined. Any special care and maintenance that may be required is included in the answer.

Marks are awarded as follows:

- (a) 1 mark for each finish named – must be a relevant finish used in modern production. (4 marks) (4 marks)
- (b) Limited response answer with little detail regarding application of finish, few advantages given, little or no reference given to care and maintenance. (1 – 2 marks)

Detailed response answer with accurate explanation of the finish. Advantages for the consumer are clearly explained and relevant reference is made to the special care and maintenance required to maintain the finish while in use.

(3 – 5 marks)

(4 × 5 marks) (20 marks)

(4 + 20 marks)

**Total 24 marks**

3 Candidates are to describe **three** different textile products that illustrate clearly inspiration from nature.

Products could include the following examples: printed textiles, (for example a print by William Morris), screens by Rene Mackintosh, wooden corset by Hussein Chalyan, printed fabric by Raoul Dufy, named Art Nouveau products, jacket by Issey Miyake, coat by Fendi, natural products by Diesel style lab, Laura Ashley rose bud print, Liberty of London products, Eco products by a range of designers.

Products selected must have a clear link to nature as a source of inspiration. The explanations of how the designers have used this source of inspiration should be clearly explained in the answers given. Illustrations may be used.

Answers could also include biomimetics

E.g. Fastskin by Speedo.

Limited response with little detail about selected products, vague reference to nature as a source of inspiration and how it has been used by the designer.

(1 – 2 marks)

Reasonable description of chosen products, some detail given, but there is some lack of detail in the explanations of how designers have used nature as a source of inspiration.

(3 – 5 marks)

Detailed descriptions of textile products inspired by nature and clear explanations are given of how the designer has incorporated the theme of nature.

(6 – 8 marks)

(3 × 8 marks) (24 marks)

**Total 24 marks**

4

Candidates are expected to discuss the statement regarding the constraints placed on designers by moral, ethical, social and political influences when developing commercial textile products.

A range of examples from a number of constraints are expected. These could include;

The effects of the environment and the ecology, for example Katherine Hamnett and her choice to use organic cotton and other organic fibres.

Use of natural dyes within the printing industry, selecting fabrics and components from manufacturers who use eco friendly processes including recycling and sustainable resources.

Designers who select to recycle fabrics, for example Jessica Ogden and Kate Goldsworthy.

The sourcing of materials and components from developing countries, moral decisions regarding fair trade and exploitation of the workforce.

Decisions regarding the use of real fur, alternatives to leather. Styling limitations and dress codes for garments destined for particular markets.

- Political constraints
- Trade agreements/tariffs
- Sourcing from areas of unrest
- Pollution/emissions
- Supplies – movement within a global area – raw materials
- An awareness of disability within design
- Offensive images, slogans, religious and cultural awareness

Limited response with little detail or reference to any or very few constraints on designers. Answers given are superficial.

(1 – 7 marks)

A reasonable number of constraints placed on designers referred to but a lack of detail, or detailed reference to only a few examples given in answer.

(8 – 15 marks)

A detailed description of a range of constraints placed on designers when creating new products. Candidate illustrates a very good understanding of the topic.

(16 – 24 marks) (24 marks)

**Total 24 marks**

- 5 (a) Candidates will be expected to select an appropriate garment for bespoke, one off manufacture and for mass manufacture.

A detailed description of the different manufacturing processes used for each garment would be expected.

Bespoke, (one-off) and couture are considered to be a make through system produced by a single operator or by a small number of highly skilled specialist staff, where all the processes are carried out one after the other. Developing a toile – individual measurements.

Processes may include hand cutting, hand fitting, some hand stitching, hand hemming, hand finishing processes that will be very time consuming. Some automation may be incorporated for precision and accuracy.

May use a standardised pattern or one generated by CAM.  
Mass manufactured garments will be made in bulk in a very short time and will be made on a quick response, progressive bundle, unit production or line production. A JIT system may also be incorporated.

Reference to layout of production  
- organisation of construction processes

Reference maybe made to  
- absenteeism  
- machine breakdown  
- cost of setting up system

A number of operators will be involved in the construction. A number of automated processes may be incorporated, including pattern and fabric cutting, CAM embroidery, pockets, pressing.

Limited description of each manufacturing method, limited garment processes mentioned, some inaccuracies, focus may be only on one area.  
(1 – 2 marks)

Reasonable description of each manufacturing methods, some garment processes mentioned but answer lacks depth and detail, focus may only be on a few production processes.  
(3 – 5 marks)

Candidate illustrates a very good understanding of the manufacturing methods and the production processes used for each of the garments suggested.  
(6 – 8 marks)

(2 × 8 marks) (16 marks)

- (b) Answers should be a clear explanation as to why the production methods given in answer to part (a) are the most suitable for both bespoke and mass manufacture.

Little explanation regarding the suitability of these processes related to the scale of manufacture for both bespoke and mass manufacture.

(1 – 2 marks)

Candidate illustrates a very good understanding of the suitability of the production processes and methods discussed to the scale of bespoke, one-off and mass manufacture.

(3 – 4 marks)

(2 × 4 marks) (8 marks)

**Total 24 marks**

- 6 (a) Clear explanations are expected of the use of pre manufactured components in garment manufacture.  
Specific pre manufactured components are listed and the advantages of using them are clearly outlined. Examples may include pre manufactured garment sections; pre manufactured jetted pocket sections, embroidered panels, collar sections, mirror work panels for a cushion. Advantages of cost, time saving, lack of specialist facilities/ machines/ operators are mentioned.
- Limited explanation given, there may be some inaccuracies, little reference to the advantages of pre-manufactured component.  
(1 – 2 marks)
- A reasonable explanation of the use of pre manufactured components. Some examples given but there is a lack of detail regarding the advantages of these.  
(3 – 4 marks)
- A detailed and thorough understanding of a range of pre manufactured components. Advantages are clear, accurate and detailed explanations given.  
(5 – 6 marks) (6 marks)
- (b) A clear explanation of the advantages of the application of ICT to production planning and control is expected. Candidates may make reference to line balancing, factory load, the use of computer production software, the use of inputs, processes, outputs, loops and feedbacks and the use of control points, quality control checking, tracking orders, computer software to monitor production.
- Limited response with little explanation given. Few examples are referred to in answer.  
(1 – 7 marks)
- A reasonable explanation of the advantages of the application of ICT to production planning and control is given. Some specific examples are given to support answer.  
(8 – 12 marks)
- A detailed and thorough explanation of the advantages of the application of ICT to production of ICT to production planning and control is given. A clear understanding is illustrated by the candidate. A range of relevant examples have been included to support answer given.  
(13 – 18 marks) (18 marks)

**Total 24 marks**