



# General Certificate of Education

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

*Unit 1 (Textiles) PDIT*

# Mark Scheme

*2005 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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# Design and Technology: Product Design

## Textiles (PD1T)

### *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. Description may be unclear.
<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. Description better but unclear or confused in parts.
<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's answer shows clear evidence of understanding.

**Question 1**

- (a) This question is about fabric, **not** components, style details or fibre/fabric properties.  
 e.g. the use of toning striped fabric (1 mark), with plain fleece, (1 mark), printed fabric (1 mark), with co-ordinated appliqué (1 mark), edge trim at neck (1 mark), description of colour contrast (1 mark), waist drawstring (1 mark), in co-ordinating satin (1 mark).  
**Any five points**, 1 mark each.  
 Max 4 marks per pair of pyjamas (5 marks)

- (b) (i) e.g. knitted probably single weft knit, reference to loops, wales and courses. **Not** warp knit. Candidate may use a diagram to aid explanation.

**Marks awarded as follows:**

- Basic and confused explanation with evidence of only simplistic understanding. There are likely to be some inaccuracies in information offered. (1-3 marks)
  - Sound and detailed knowledge of knitted structure with clear detail given. (4-6 marks) (6 marks)
- (ii) e.g. woven, plain/tabby weave, with different coloured warp yarns to produce multi-coloured stripe pattern. Reference to warp and weft and detail of plain weave construction.  
 Brushed finish to raise fabric surface and give added softness. Candidate may use a diagram to aid explanation.  
 Max 5 marks for description of stripes.

**Marks awarded as follows:**

- Basic and confused explanation with evidence of only simplistic understanding. There are likely to be some inaccuracies in information offered. (1-3 marks)
- Sound and detailed knowledge of plain weave structure with clear detail given. (4-6 marks) (6 marks)

- (iii) e.g. brushing raises fabric surface (1 mark), and traps air (1 mark), to act as an insulator (1 mark).  
 Loops in knit structure (1 mark), also trap air (1 mark).  
**Any four points**, 1 mark each.  
 Max 3 marks each pair of pyjamas. (4 marks)

- (c) Polyester thread (1 mark). Not cotton thread but allow reasons if thread wrong.  
 Polyester thread has some give (1 mark), which allows jersey fabric to stretch (1 mark), without seams breaking (1 mark). Also matches fibre content of style B top (1 mark). Does not burn easily (1 mark), so contributes to safety (1 mark). **Not** colour.  
**Any four points**, 1 mark each **plus** mark for naming thread type. (5 marks)

- (d) (i) **Pair A:** Wash at 40° / warm wash, so as not to damage appliqué, tumble dry, iron with hot/medium iron, to remove creases/protect sequins, do not bleach, to prevent colour loss, wash/iron inside out to protect sequins, do not wash with dark colours to prevent colour transfer.  
**Pair B:** Wash at 40°, as too much heat sets in creases in fleece, short spin, to avoid over-creasing, cool tumble dry, medium hot iron, as hot iron melts fabric, no ironing needed as fabric does not crease.

**Marks awarded as follows:**

- Basic information with evidence of only limited knowledge and understanding of different care needed for fabrics. Candidate will give only superficial reasons for the advice given. Information will be generalised rather than specific. (1-2 marks)
  - Candidate shows knowledge of the different care needed but there will be a lack of specific information. There will probably be elements of confusion and inappropriateness. (3-5 marks)  
Max mark if no reasons or if refer to only one pair.
  - Candidate shows detailed knowledge and understanding of the care needed for the different fabrics and will give a range of points with reasons for their importance. (6-8 marks) (8 marks)
- (ii) e.g. brushing makes cotton fabric even more flammable as the trapped air supports combustion. The polyester fleece does not ignite but melts. The molten polyester can stick to skin and cause severe burns. The law requires safety warnings to be included on nightwear.

**Marks awarded as follows:**

- Candidate offers limited information about the way in which the two fabrics will react to burning. Points will be simplistic and naïve. Little distinction made between the two fabrics. (1-3 marks)
- Candidate is specific about the two fabrics and gives a clear explanation of how they react to burning. (4-6 marks) (6 marks)

**Total 40 marks**

## **Question 2**

- (a) E.g. colour, weight, style in relation to garment, safety issues, cost, ease of application in relation to machines/skills available, added cost of application, fashion issues, target market, type of fabric used for garment.

### **Marks awarded as follows:**

- Basic information with evidence of only limited knowledge and understanding of components. Information will be in general terms with few examples given. (1-2 marks)
- Candidate shows understanding of the factors affecting choice of components and relates this knowledge to some examples. There will be a limited number of points made – these will tend to relate to similar examples. (3-5 marks)
- Candidate shows detailed knowledge and understanding of the factors affecting the choice of components and will relate this knowledge to a wide range of appropriate examples. (6-8 marks) (8 marks)

- (b) Must refer to both components to access top mark band.

- (i) e.g. Magnetic stud easy to fasten especially for children, does not break easily, simple to apply but easily opened, does not seal bag completely. Zip seals bag completely, more secure, can be less conspicuous, more difficult to apply/more expensive, easy to use but difficult to fasten if bag is very full.

### **Marks awarded as follows:**

- Simple explanation, e.g. ‘zip is strong, magnetic stud is not’. (1-2 marks)
  - Detailed comparisons made which give the pros and cons of both fasteners for this application. (3-5 marks) (5 marks)
- (ii) Poppers quick to apply and easy to use, may be too heavy for fabric and can pull out leaving holes in fabric, need special tool to apply, if metal not always easy to wash, are decorative, open under pressure. Buttons come in wide range of colours/shapes, can be decorative or inconspicuous, take longer to apply and fasten, wash easily, can pull off.

### **Marks awarded as follows:**

- Simple explanation, e.g. ‘poppers fasten quicker than buttons’ (1-2 marks)
  - Detailed comparisons made which give the pros and cons of both fastenings for this application. (3-5 marks) (5 marks)
- (iii) Elastic allows for changes in waist size/greater comfort and quick dressing but can be bulky and unattractive, needs casing. Petersham gives a more fitted appearance but stiffness may make it uncomfortable in wear, may take longer to apply.

**Marks awarded as follows:**

- Simple explanation, e.g. ‘elastic is more comfortable to wear than petersham’. (1-2 marks)
- Detailed comparisons made which give the pros and cons of both finishes for this application. (3-5 marks) (5 marks)

- (iv) Satin binding completely seals edge and gives decorative finish, gives a flat finish and is decorative, may wear away quickly and is easily snagged on sharp objects.  
Lace edging is decorative but takes longer to apply because edge needs to be finished. Not as flat a finish but may be harder wearing.

**Marks awarded as follows:**

- Simple explanation, e.g. ‘satin binding is flatter than lace’. (1-2 marks)
- Detailed comparisons made which give the pros and cons of both edge finishes for this application. (3-5 marks) (5 marks)

**Total 28 marks**



**Question 3**

- (a) (i) Yarns (1 mark), spun from two or more types of fibre (1 mark). (2 marks)
- (ii) Fabrics/union fabrics (1 mark), with different fibre yarns in warp and weft (1 mark). (2 marks)
- (iii) Two or more layers of fabric (1 mark), are stuck together to make one cloth (1 mark). (2 marks)
- (b) (i) E.g. by blending fibres together it is possible to produce fabrics which have improved care properties, reduce costs, improve strength and abrasion resistance, improve comfort factors, allow fabrics to be heat set, reduce creasing, achieve novelty effects/different textures, produce fabrics for particular end uses.  
Candidate is expected to give specific examples of fibre blends to illustrate points made, e.g. polyester/cotton, wool/nylon, polyester/ viscose, cotton/lycra, silk/linen.

**Marks awarded as follows:**

- Basic information with evidence of only limited understanding of the effects of blending fibres. Reasons for blending will be generalised rather than specific to a limited number of examples. There will be confused and inaccurate information. (1-4 marks)
- Candidate shows knowledge and understanding of the reasons why fibres are blended but some points may be general rather than specific information related to a limited range of examples. (5-8 marks)
- Candidate shows detailed knowledge and understanding of the properties of a number of fibres and is able to give several accurate reasons for blending them related to the properties. Examples given to illustrate points made. (9-12 marks) (12 marks)

- (ii) E.g. to add warmth, reduce costs, add weight and thickness, to produce interesting effects, to remove need for linings, to improve dimensional stability, to improve handle and crease shedding properties, to use fabrics for specific end uses for which they would otherwise be unsuitable.

**Marks awarded as follows:**

- Basic information with evidence of only limited understanding of the need to laminate fabrics. Reasons will be generalised with confused and inaccurate information. (1-3 marks)
- Candidate shows knowledge and understanding of the reasons why fabrics are laminated but some points may be general rather than specific. There may be elements of confusion, especially if examples are given. (4-7 marks)
- Candidate shows detailed knowledge and understanding of the reasons for laminating fabrics and may give several accurate examples to illustrate points made. (8-10 marks) (10 marks)

**Total 28 marks**

**Question 4**

- (a) The amount of moisture absorbed by a fibre at a relative humidity of 65% and temperature of 20C. (3 marks)
- (b) (i) e.g. viscose is very absorbent (1 mark), is very cheap to produce (1 mark), high absorbency allows inner padding to be less bulky (1 mark), low cost makes disposability economical (1 mark), biodegradable (1 mark). (4 marks)
- (ii) E.g. polyester absorbs very little moisture/hydrophobic (1 mark), and will stay dry in wet weather (1 mark), it also dries quickly (1 mark), makes it easy care (1 mark), hardwearing (1 mark), lightweight (1 mark).  
**Any four points**, 1 mark each. (4 marks)
- (iii) E.g. synthetic fibres, e.g. nylon, polyester (1 mark), hold very little moisture (1 mark), and are therefore very dry (1 mark). Static builds up in dry conditions (1 mark), especially with friction (1 mark), as it is not conducted away (1 mark), as readily as in ‘damp’ fibres (1 mark).  
**Any five points**, 1 mark each. (5 marks)
- (c) (i) Wool is very difficult to wash (1 mark), as it shrinks/felts (1 mark), cannot be washed at high temperature needed for hygiene (1 mark), initially not very absorbent (1 mark), can irritate skin (1 mark), takes a long time to dry (1 mark), very expensive to buy (1 mark), not able to stand up to friction (1 mark).  
**Any six points**, 1 mark each. (6 marks)
- (ii) Cotton is very absorbent (1 mark), stronger when wet (1 mark), towelling construction aids absorbency (1 mark), by increasing surface area (1 mark), loops also trap air which make towelling feel warm next to skin (1 mark), can be washed at high temperatures (1 mark), stands up to friction (1 marks), soft on skin (1 mark).  
**Any six points**, 1 mark each (6 marks)

**Total 28 marks**

<b>Question 1</b>		<b>40 marks</b>
<b>Question 2</b>	<b>28 marks</b>	
<b>Question 3</b>	<b>28 marks</b>	
<b>Question 4</b>	<b>28 marks</b>	
<b>2 questions 28 marks each</b>		<b>56 marks</b>
<b>Quality of written communication</b>		<b>4 marks</b>
<b>Paper total</b>		<b>100 marks</b>