

GCE 2005

January Series



Mark Scheme

Design & Technology: Product Design *(Subject Code PD1T)*

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 Unit 1 (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

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. 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.

Question 1

- (a) (i) Response should refer to fabric structure, not design features.
e.g. the suedette is bonded to polar fleece which traps air and insulates the body. Double layer fabric gives extra protection against wind and cold. Suedette is knitted/has raised pile may contribute to warmth.

Marks awarded as follows:

- Little understanding, simplistic statements only, candidate typically concentrates on aspects of the design without considering fabric. Will describe fabric with little, if any, attempt to analyse it. (1-2 marks)
- Candidate shows understanding of the contribution made by at least one aspect of the fabric structure. Some parts of the response will be descriptive of the outfit but there will be a sound attempt to analyse impact of fabric. (3-4 marks)
- Candidate shows sophisticated understanding of the contribution made by several aspects of the fabric structure and is able to give a clear explanation. (5-6 marks) (6 marks)

- (ii) Response should refer to fabric structure, not design features.

e.g. the jacket is quilted on both sides and has a down filling. This acts like a duvet by trapping air and insulating the body. The down gives exceptional warmth. Tightly woven microfibre shell protects against wind.

Marks awarded as follows:

- Little understanding, simplistic statements only, candidate typically concentrates on aspects of the design without considering fabric. Will describe fabric with little, if any, attempt to analyse it. (1-2 marks)
- Candidate shows understanding of the contribution made by at least one aspect of the fabric. Some parts of the response will be descriptive of the outfit but there will be a sound attempt to analyse impact of fabric structure. (3-5 marks)
- Candidate shows sophisticated understanding of the contribution made by several aspects of the fabric structure and is able to give a clear explanation. (6-8 marks) (8 marks)

- (b) (i) The efficiency of the 2 zips should be compared. The zip of jacket A will be efficient in keeping it fastened and, in moderate conditions will keep wind out and heat in. The storm flap over the zip of jacket B gives added protection against wind and rain penetration and the 2 way zip enables the jacket to be partly opened in either direction helping prevent too much heat loss.

Marks awarded as follows:

- Candidate describes the differences between the 2 zips but does not relate them to insulation efficiency or may do so in only simplistic terms without effecting a real comparison. (1-2 marks)
- Candidate makes effective comparisons of both style of fastening and insulation efficiency. (3-5 marks) (5 marks)

- (ii) Responses should refer to features, not fabrics. Both jackets have hoods to keep head warm although that of jacket B appears more substantial. Both jackets have pockets but those of jacket B have flaps for added protection of hands and contents. Jacket B is longer so will keep more of body warm, and drawstring casing at lower edge. Jacket B has Velcro flap on hood.

Marks awarded as follows:

- Simplistic statements only, candidate typically describes limited aspects of the jackets without making comparison. (1-2 marks)
- Candidate shows understanding of the style differences but tends to describe them rather than make effective comparisons. There may be reference to the fabrics rather than style features. (3-4 marks)
- Candidate shows detailed understanding of the style features and makes effective comparisons between the 2 jackets. (5-6 marks) (6 marks)

- (c) e.g. Polyester is strong, resists abrasion, can be heat set, can be washed and dries quickly, does not crease so little ironing, is not absorbent so resists rain, lightweight.

Marks awarded as follows:

- Basic information with evidence of only limited understanding of the properties of polyester and the effects of blending them. Qualities will be generalised rather than specific to the 2 jackets. There will be confused and inaccurate information. (1-3 marks)
 - Candidate shows knowledge of the properties of polyester and is able to give some explanation of its suitability for the jackets. There will be some understanding but some points may be general rather than specific. (4-6 marks)
 - Candidate shows detailed knowledge and understanding of the properties of polyester and is able to give several accurate reasons for using it for the 2 jackets. Examples will be given to illustrate points made. (7-9 marks) (9 marks)
- (d) Candidate may refer to cost, style features in relation to a range of activities, fabric, care requirements or other as appropriate in relation to potential use the fact that jacket A is a fashion garment whereas jacket B will last for many seasons. Reference should be made to one of the jackets and decisions justified in relation to value for money.

Marks awarded as follows:

- Opinionated statements with little justification to substantiate viewpoint made. Simplistic reference to costs. (1-2 marks)
- Candidate makes a number of points and gives a viewpoint with sound justification for it. (3-4 marks)
- Candidate makes a number of points and gives justification for both viewpoints. (5-6 marks) (6 marks)

Total 40 marks

Question 2

- (a) (i) Candidates should refer to positive properties of cotton. e.g. cotton is strong and even stronger when wet and can withstand harsh treatment during washing and does not require special care. Cotton can be washed at high temperatures without being damaged, can be ironed with a hot iron without burning/melting. Cotton is not affected by alkalis so does not need special detergents, white cottons can be bleached, does not have a static charge.

Marks awarded as follows:

- Little knowledge or understanding of properties of cotton in relation to ease of care. Will give some accurate qualities but will not explain how they relate to details of care. (1-2 marks)
- Sound knowledge of properties of cotton in relation to ease of care but candidate is unable to explain them. There will be some confusion and inaccurate information. (3-5 marks)
- Sound detailed knowledge shown, candidate understands how the properties are related to cotton's claim to be easy care. (6-7 marks) (7 marks)

- (ii) Candidates should refer to negative properties of cotton. e.g. cotton fabrics shrink badly unless given a finish, cotton creases badly and needs to be ironed with a hot iron, cotton is very absorbent so takes a long time to dry, absorbency means cotton may stain.

Marks awarded as follows:

- Little knowledge or understanding of negative properties of cotton in relation to care. Will give some accurate qualities but will not explain how they relate to details of care. (1-2 marks)
- Sound knowledge of negative properties of cotton in relation to care but candidate is unable to explain them. There will be some confusion and inaccurate information. (3-5 marks)
- Sound detailed knowledge shown, candidate understands how the properties can make cotton difficult to care for. (6-7 marks) (7 marks)

- (b) Application of finishes (1 mark)
 e.g. crease resistant (1 mark)
 shrink resistant (1 mark)
 blending with other fibres (1 mark)
 e.g. polyester } (1 mark)
 polyamide } max 2 fibres (1 mark)
 elastane } (1 mark)
 mercerisation (1 mark)
- Any 4 points, 1 mark each (4 marks)**
- (c) (i) Must be care advice
 Wash at 40° (1 mark)
 minimum agitation (1 mark)
 so as not to damage pile (1 mark)
 tumble dry (1 mark)
 iron with hot iron (1 mark)
 on wrong side (1 mark)
 to avoid flattening pile (1 mark)
 first few washes may lose colour (1 mark)
 wash light colours with similar (1 mark)
- Any 5 Points, 1 mark each (5 marks)**
- (ii) Must be care advice
 Wash at 40° (1 mark)
 as too much heat sets in creases (1 mark)
 short spin (1 mark)
 to avoid over-creasing (1 mark)
 cool tumble dry (1 mark)
 medium hot iron (1 mark)
 as hot iron melts fabric (1 mark)
- Any 5 points, 1 mark each (5 marks)**

Total 28 marks

Question 3

- (a) (i) e.g. pattern repeat is a printed, woven or knitted design/motif (1 mark)
 repeated at regular intervals (1 mark)
 along the width/length of a fabric (1 mark)
 pattern may be balanced or uneven, (1 mark)
 e.g. stripes or checks (1 mark)
 or be a one-way design, e.g. florals (1 mark)
 jacquard patterns (1 mark)
- Any 6 points, 1 mark each**
 (other examples may be included) (6 marks)
- (ii) Responses should relate to choice of this fabric, not the problems of working with it.
- e.g. large area is needed to show a large repeat to advantage, (1 mark)
 e.g. on curtains (1 mark)
 Or be a dominant focus in a small room (1 mark)
 A large repeat on a fashion product can visually swamp the wearer (1 mark)
 A small pattern repeat can be fussy (1 mark)
 Visual impact of large print (1 mark)
 Small print can add charm (1 mark)
 Garment lines can become lost in a fussy print (1 mark)
 Or they may spoil the effect of a large print (1 mark)
 An uneven pattern is difficult on a product with lots of detail (1 mark)
 Effects of colours used in a pattern may also need to be considered (1 mark)
 Pattern can add interest to product, especially if manipulated (1 mark)
 Pattern needs to be matched up (1 mark)
- Any 8 points, 1 mark each**
 (other examples may be included) (8 marks)

- (b) (i) e.g. directional pile is a raised surface /
 nap / brushed in one direction (1 mark)
 Usually along the fabric length (1 mark)
 Knitted or woven into fabric (1 mark)
 e.g. velvet (1 mark)
 Velour (1 mark)
 Corduroy (1 mark)
 Fake fur (1 mark)
 When viewed / brushed from different directions (1 mark)
 It appears to be different colours / textures (1 mark)
- Any 6 points, 1 mark each**
 (other examples may be included) (6 marks)
- (ii) e.g. must be cut with 'nap' layout (1 mark)
 And may require extra fabric (1 mark)
 So can be expensive / wasteful (1 mark)
 Is not usually a hardwearing fabric (1 mark)
 Can present difficulties with sewing as it tends
 to move (1 mark)
 Thus products with lots of seams/detail
 not always appropriate (1 mark)
 Often a heavy fabric (1 mark)
 May make person/room appear larger
 because of way light is reflected (1 mark)
 Gives richness of colour (1 mark)
 Soft finish (1 mark)
 Luxury fabric adds quality to product (1 mark)
- Any 8 points, 1 mark each**
 (other examples may be included) (8 marks)

Total 28 marks

Question 4

- (a) Staple yarn is spun (1 mark)
From short fibres (1 mark)
Fluffier/hairier yarn (1 mark)
e.g. cotton, wool (1 mark)
dull / no lustre (1 mark)

- Filament yarn is spun from very long fibres (1 mark)
Twisted together (1 mark)
Smoother yarn (1 mark)
e.g. polyester, nylon (1 mark)
Greater lustre (1 mark)

Any 6 points, at least two from each group

1 mark each

(6 marks)

- (b) Natural fibres come from natural plant / animal (1 mark)
e.g. cellulose (1 mark)
e.g. protein sources (1 mark)
e.g. mineral (1 mark)
e.g. wool, cotton, linen, silk (1 mark)
Usually staple form (1 mark)
Do not build up static (1 mark)

Max 2 marks

- Synthetic fibres derived from coal/oil (1 mark)
e.g. nylon, polyester, acrylic (1 mark)
Produced as continuous filament (1 mark)
Can be modified to give special properties (1 mark)
Melt rather than burn (1 mark)

Any 6 points, at least two from each group

(1 mark each)

(6 marks)

- (c) A button is fairly flat (1 mark)
 With 2 or 4 holes (1 mark)
 Fastens with buttonhole / loop (1 mark)
- A toggle is barrel/rounded in shape (1 mark)
 With either a loop or one hole to attach it to a product (1 mark)
 Candidate may draw diagram(s) to aid explanation. (4 marks)
Any 4 points, 2 from each group.
 Must explain differences in structure, otherwise max 4 marks
- (d) Warp knit is produced from a number of warp yarns (1 mark)
 Knitted parallel to each other (1 mark)
 Down the length of the fabric being made (1 mark)
 Example of named fabric, e.g. tricot (1 mark)
 Does not unravel / curl at edges (1 mark)
 Can only be done by machine (1 mark)
- Weft knit is formed from interlocking loops of yarn (1 mark)
 One loop at a time (1 mark)
 As the yarn moves across the width of the fabric being made (1 mark)
 Example of named fabric, e.g. jersey (1 mark)
 Candidate may draw diagrams(s) to aid explanation.
 Must explain differences in structure, otherwise max 4 marks
- Any 6 points**, 3 from each group, 1 mark each (6 marks)
- (e) Response should be about differences, not uses of.
 Lining is made separately (1 mark)
 From the rest of the product and sewn to the inside (1 mark)
 Hiding construction (1 mark)
- Underlining is cut exactly the same as the product (1 mark)
 And tacked to the wrong side of the main fabric (1 mark)
 Which is then treated as a single layer of fabric (1 mark)
 Goes between outer fabric and lining (1 mark)
Any 6 points, 3 from each group (6 marks)

Total 28 marks