



General Certificate of Education

Design and Technology: Product Design 5551/6551

PD1T Materials and Components

Report on the Examination

2007 examination - January series

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Unit PD1T: Materials and Components

General Comments

The quality of work was mixed; but generally of an improved standard compare to previous years and there were some very good scripts at the top end. Many candidates continue to write very confused accounts with contradicting statements.

The majority of candidates followed the instructions to answer only two questions from 2, 3 and 4 with very few attempting all four questions. Candidates appeared to have apportioned their time equally to the questions and there was little evidence of poor time management. There was a good spread of questions attempted with none of the optional ones appearing more or less popular than the others.

The majority of scripts were well presented with legible handwriting although the way in which some candidates present their answers caused problems for examiners. Many candidates squashed their responses to different questions together in the answer booklet; it helps if candidates rule off at the end of each question and leave a line before starting the next. It is helpful if candidates indicate that they have continued with a response elsewhere in the script if they decide to return to a question later in the examination, and that they indicate to which question and sub-section the response belongs. Where additional sheets have been used they should be fastened to the main answer booklet.

Quality of written communication was generally satisfactory but many are still writing answers which do not give detailed and/or relevant information. The sub-sections of individual questions are usually related to the main topic and follow on from each other. Some material however, was repeated in several sections and there were a number of instances where candidates failed to score marks because they had not answered the question as it was written.

Candidates should be advised to look at the mark allocation for each sub-section of the question and to write appropriately, ie not giving a half page of reasons for a question allocated only one mark. However, they do need to be reminded to give a wide range of examples when asked to do so in order to show knowledge and understanding relevant to the situation.

Question 1

The format of the question was similar to that used on recent papers and produced a reasonable spread of marks with some very good responses seen by examiners. When answering this type of question, candidates should consider their response in the context of the product. For instance, it is not normal practice to wash a woollen coat; the fabric apart, various components such as interfacing and shoulder pads would make this difficult. There was no suggestion that this was a coat intended for wear in winter only, indeed the pale colour might suggest that it was intended for spring. In addition, this type of coat, even though it was a woollen fabric with a raised nap, would not be made from a knitted fabric. Many candidates made assumptions of this nature, leading them to write responses which were not acceptable because they did not relate to the product shown.

- (a) (i) Most candidates were familiar with a raised nap but few went on to develop their understanding in part (ii). A number of candidates confused a raised nap with pile weaves, such as used for velvet and some thought it referred to the garment edges produced by the topstitching.
- (ii) Few candidates scored top marks here because they concentrated only on the properties of wool with scant consideration of the brushed fabric finish. Responses tended to suffer from many of the assumptions given above, and many made only vague references to the fact that wool is warm and can resist water, or is absorbent 'so it will be good in the rain', without explaining why wool has these qualities. When a question asks for a detailed explanation of properties, it is expected that candidates will refer to physical and chemical attributes; in this case, the scales and crimp of the wool fibre, its ability to shed off light rain because of the presence of lanolin together with its ability to absorb a lot of moisture without feeling wet. More able candidates were also knowledgeable about the role of the fabric finish in contributing both to the thermal and water repellency qualities.
- (iii) Problems with washing the coat were frequently seen, but marks were not awarded for this because this coat would not be washed.

However, if candidates stated that the coat would need to be dry cleaned, they were given a mark. Those who explained that wool becomes very heavy when wet and takes a long time to dry were awarded marks, whilst those who merely stated that it is very absorbent, without explanation, were not. Few commented on the fact that the pale colour would soil quickly. This part of the question was not generally answered well.

- (b) (i) The structure of the satin weave was clearly described by many; those who used a diagram tended to fare well although many inadvertently showed a twill weave. There were many good descriptions of the long floats. Specific terminology is required in this type of answer together with clear information about the construction and exact interlacing patterns of warp and weft yarns.
- (ii) Most candidates stated that polyester is 'strong and hardwearing'; few considered the effects of using it in a satin fabric where the construction makes it far from hardwearing and resistant to abrasion. The absorbency, or lack of it, causes other misconceptions with regard to polyester. Candidates were erroneously convinced that, because polyester is non-absorbent, then the coat would have a waterproof lining. Many others continued with their dogma concerning the ability of the satin to be washed with the coat and not cause problems. There was a tendency to explain the need for linings here, rather than explaining the virtues of the fibre and fabric for the purpose, which led to repetition of materials when part (iii) was answered. There were many inaccurate and generalised accounts which did not earn high marks.
- (iii) Candidates were knowledgeable about the reasons why the coat would be lined and many scored high marks for detailed responses.
- (c) (i) Most candidates scored full marks here.
- (ii) Answers tended to refer to the need to strengthen or give shape to the areas identified and many were awarded four or more marks. In order to achieve full marks, candidates needed to explain the need for strengthening and shaping, eg with reference to the collar, 'the interfacing gives it shape and structure so it doesn't flop'.
- (d) A number of candidates evaluated the suitability of buttons against other fastenings, such as zips and Velcro. This was not what the question asked them to do. Those who did read the question carefully, and took another look at the photograph, tended to score well.

Question 2

This was a popular question producing a spread of marks.

- (a) (i) The majority of candidates correctly identified the tartan fabric.
- (ii) There was good awareness of the different methods of applying pattern to fabric and most suggested weaving and printing. It is worth mentioning that 'CAD/CAM' is not a method of doing anything and will not be awarded marks.
- (b) (i) Fibre choices for both the dress and the skirt were mostly relevant, except in the cases of those candidates who insist upon referring to satin and denim as fibres. Silk was the most common choice, although cotton and polyester fibres were also popular. Candidates were asked to name a fibre, not a blend, and many lost marks.
- (ii) Many candidates scored highly here as they were able to give accurate information about the properties of the fibre they had selected and explain why those qualities would be important in an evening dress.
- (c) (i) Cotton and wool were favourites here.
- (ii) As with part (b)(ii), candidates tended to score high marks.
- (d) Responses to this part of the question were very disappointing. Ideas lacked interest and were uninspiring, although many candidates seemed knowledgeable about the work of designers who have recently used tartan fabric to effect. Some started to describe ideas but did not develop them, and a number ignored the request to use diagrams which, in a small number of cases, cost them one or two marks.
- (e) Many candidates were not familiar with what a 20cm square looks like and, therefore, did not realise that the tartan has a large repeat.

Most candidates concentrated upon matching of the checks at seams, at both cutting out and sewing up stages of manufacture, and many were aware of the wastage that would be caused. Those who picked up on the large repeat frequently made reference to the need to use the fabric carefully, especially when designing small products.

A number of candidates thought that this question, and also part (d), was asking about fabric manufacture, rather than 'garment design' and 'designing and making products from this type of fabric'. Such responses were not given credit.

Question 3

This was a popular question which tended to be answered well.

- (a) (i) Almost all candidates were able to pick up two marks.
- (ii) & (iii) Four correct examples of staple and filament fibres were given by most candidates but, surprisingly, some were not able to earn full marks here.
- (b) Information tended to be sketchy with only spinning/twisting identified as an important step in the conversion of staple fibre into a yarn. The majority of responses earned only one mark.
- (c) Again, candidates did not gain full marks because they gave insufficient detail. Many of the responses were in terms of 'one yarn does and the other does not', which did not gain high marks.
- (d) (i) Examples were almost always acceptable apart from those where 'polyester and satin' and 'cotton and denim' were given as the blends. Those who had cotton, elastane or polyester in each of the three blends had difficulties in part (ii) of the question.
 - (ii) This part of the question was not well answered and there were many very vague reasons for the particular blends given. Marks were frequently lost because candidates referred only to the general advantages of blending rather than the contribution of the individual fibres to the blend as a whole. Those who had kept to the same limited group of fibres found themselves running out of reasons for the blend, as did those who blended polyester with polyamide.

Question 4

Questions on the topic of knitted fabrics are always difficult and, although weft knitting is reasonably well understood, warp knitting appears to cause problems for many.

- (a) (i) There were some excellent explanations and impressive diagrams showing the basic differences between the two types of knit, and there were many high scoring answers. Equally, many candidates were unable to distinguish between the two and some described woven fabrics. This question asked only about differences in construction and notes about performance were not accepted. The ability to produce a clear and simple diagram of the warp knit, showing several vertical yarns, and the inclusion of a continuous yarn in a diagram of the weft knit, would help many candidates improve their score on this type of question.
 - (ii) Again, there were some very good descriptions but many were confused.
- (b) Only a minority picked up on the fact that knitted fabrics stretch and therefore heavy components are generally unsuitable. Some noted that the thread used to stitch products together would need to have some give but then referred to elastic/elastane threads which, of course, are not required. Many responses consisted of only generalized points such as 'ensure a good colour match', 'consider the end use of the product' which did not earn high marks.

- (c) (i) The majority of responses centered round the ability of knitted fabrics to insulate and many were able to explain why this is the case. Naturally, all knitted fabrics are made from wool which is a further contributing factor. A range of samples of each of these fabric types in every student's notebook would help overcome some of the common misunderstandings which cause them to lose marks.
- (ii) Knowledge was not as good in this part of the question with little beyond stretch capability being considered. Many continued with the theme of insulation although there was generally good awareness of the 'breathability' of these fabrics.
- (iii) Many responses referred to the ability of knitted fabrics to be compressed and to resist creasing. Only a very few showed awareness of the generally lightweight nature of these fabrics.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.