

Textiles and Design

Section II (continued)

Question 13 — Properties and Performance of Textiles (10 marks) **Marks**

- (a) Explain how a finishing technique can be used to enhance fabric performance for a specific end-use. **2**

Finishes are applied to improve the performance of a product for its end use. This is evident in mercerisation which fulfils the criteria of a finish both functionally and aesthetically. Aesthetically it creates lustre in the cotton and functionally pre-shrinks the yarn for strength, durability and wrinkle resistance.

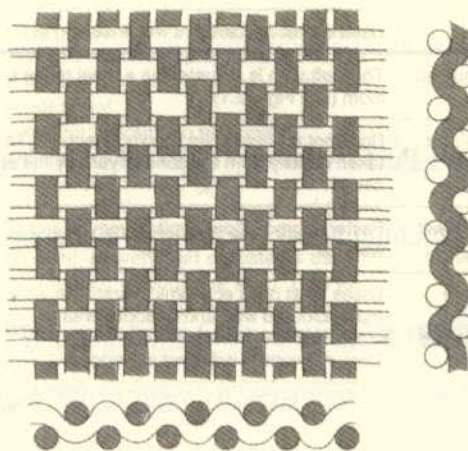
- (b) Explain the impact ONE technological advance in machinery has had on the production of textiles. **2**

Computerisation in textile machinery has instigated a number of changes. Machinery is now capable of performing many tasks, such as dyeing, cutting and producing without manual labour. In turn, production time has quickened and labour costs reduced which increases profit, although meaning a decline in employment opportunities.

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Question 13 (continued)

- (c) Identify the fabric structure in the diagram. Explain why it is an appropriate structure for a cotton hat. 2



Plain weave: This structure allows the fabric to 'breathe' and air to pass through. This is appropriate as heat is not trapped in the head, thus making the cotton hat more comfortable for the wearer, particularly in hot climatic conditions.

- (d) (i) Identify a specific end-use that requires excellent abrasion resistance in a fabric. 1

Carpets

- (ii) Describe how the fabric structure, yarn structure and fibre content optimise abrasion resistance. 3

FABRIC STRUCTURE: The weave in which carpets are woven will depend largely upon the durability or weakness of the fabric. To prevent abrasion a tight weave should be employed. YARN STRUCTURE: Yarn should be multifilament for added strength and less breakage. FIBRE CONTENT: Wool is good for insulation, a vital component of carpet, although should be combined with a durable man-made fibre such as nylon which is strong and resists abrasion well.

End of Question 13