

Textiles and Design

Section II (continued)

Marks

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

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

Children's and elderly people's nightwear and various other textile products need to be treated with fire retardant chemicals. These include Proban, Borax - boric acid that inhibit the ignition of flame on fibres by either smothering the fibre or releasing a gas that prevents oxygen from feeding the flame.

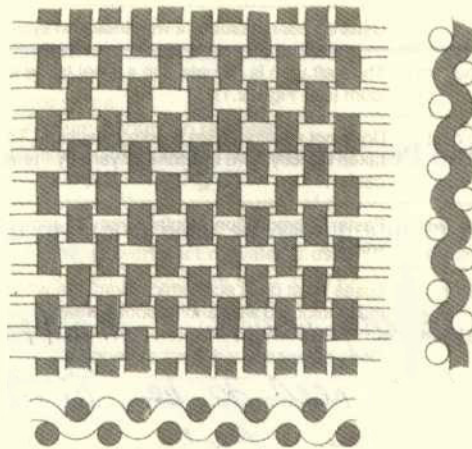
- (b) Explain the impact ONE technological advance in machinery has had on the production of textiles. 2

Computer aided design/manufacture has allowed for cost efficient and time efficient production of textiles. The computer produces pattern pieces of all the required sizes and arranges them such that material can be saved. The information is then given to an automated cutting machine saving time, wages, and fabric, thus being also environmentally friendly.

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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



This is a plain weave. This is suitable for a cotton hat as it easily dissipates moisture. The tightness of the weave also does not allow much sun rays to pass through. Also this weave is easy-care and easy to manufacture, thus it is cheap.

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

Carpet

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

For optimal durability, carpets contain nylon. Nylon is an extremely durable and easy-care synthetic fibre, and is often blended with wool that is warmer and fluffier. Yarns are twisted together very tightly for a stronger finish. The yarns are then woven with often a very tough and durable yarn with the softer and coloured yarn on the front side as loops. The fabric would need to be woven tightly and securely to ensure durability against constant abrasion from footwear etc.

End of Question 13