

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

Five retardant finishes such as Proban ~~are~~ are bonded inside the cotton fibre so that the cotton only chars and does not over heat and it will self extinguish. This is used in the jump suits/overalls of fireman so that their skin does not burn.

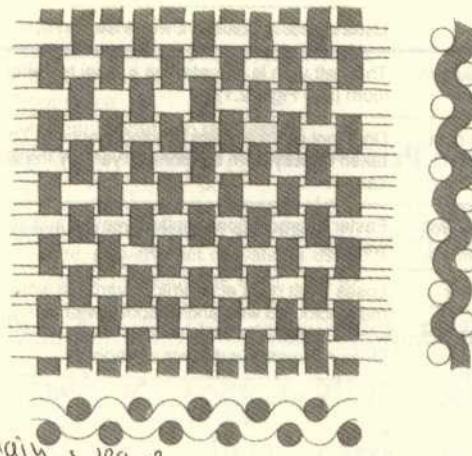
- (b) Explain the impact ONE technological advance in machinery has had on the production of textiles. 2

The use of computerised machinery such as laser cutters and computerised jacquard looms have increased productivity of manufacture by reducing cutting time and time spent making out looms to weave to weave variations thus money is saved through labour costs and manufacture is more accurate.

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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 is a basketweave which is closely structured and a high density for the yarns are woven closely together enabling little sun to get penetrate through the hat leaving a consistent dimensionally stable hat and is suitable for hard laundering as it is stable.

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

~~carpet~~ upholstery

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

Fabric structure which is tightly woven or such as a twill weave resist abrasion due to a higher density of fabric per cm². Yarn structure if it is a high twist, monofilament yarn will mean that ~~that is~~ it is stronger and stiffer so there would be less opportunity for the yarn to catch on things due to a smooth surface. The fibre would need to be monofilament with aligned orientated polymers which give strength and smoothness have a less chance of forming a yarn which ~~has~~ will be subject to abrasion. - 10 -

End of Question 13