

FABRICS

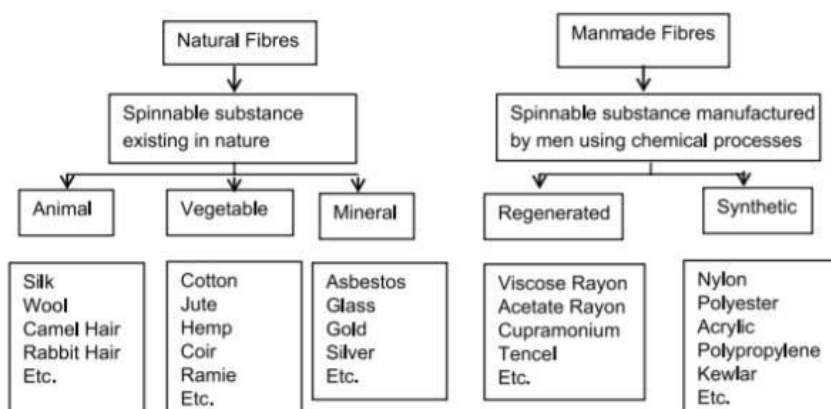
Question 1:

Polyester, a synthetic fiber, was invented in 1941 by British chemists. This polyester is used to create *fleece*- a so-called man-made wonder. This is not the fleece that we have always known- that which comes from the fur of sheep, but a synthetic fabric that can keep one warm and is soft and light-weight. Fibers of polyester are woven into a light fabric and brushed to increase its volume. You might have come across this fabric in a jacket or a soft blanket.

Saba wants to purchase a warm blanket. She prefers to buy a woolen blanket instead of the fleece one. What could be the reason(s) for her choice?

- a) Wool is soft and warm
- b) Wool is more durable than fleece
- c) Wool is environment friendly

Question 2:



The figure gives a categorization of types of fibers.

Based on the figure, choose the correct statement from below.

- a) Nylon is a man-made regenerated fiber.
- b) Rayon is a natural plant fiber.
- c) Asbestos is a natural mineral fiber.
- d) Hemp is created from chemicals.

Based on the observations in the table below, answer questions 3 and 4

Question 3:

On doing the comparative study of natural and synthetic fibres, the following observations have been made.

Properties	Natural			Synthetic		
	Cotton	Silk	Wool	Polyester	Nylon	Acrylic
Tensile strength	Strong	Strong	Weak	Very strong	Very strong	Strong
Moisture Absorption	Good	Good	Good	Hydrophobic	Hydrophobic	Hydrophobic
Thermal Behavior	Heat resistant	Heat sensitive	Heat sensitive	Heat sensitive	Heat sensitive	Heat sensitive

Which fiber would you prefer to use for making rain coats? Justify your choice.

Question 4:

Rinky and Rumi wanted to purchase material for paraglider. Rinky thinks that Cotton would suit the purpose, while Rumi says that Nylon would be a better choice. Whose choice of material is better? Support your answer with valid reason.

Question 5:

From an article in The Guardian:

Researchers at the University of California at Santa Barbara have found that synthetic fleece jackets release 1.7 grams of microfiber during each wash. These microfibers then travel to the local wastewater treatment plant, where up to 40% of them enter rivers, lakes and oceans.

(Microfibers – tiny threads shed from fabric)

Before buying/ acquiring a synthetic product, its utility/advantage must be weighed against the harm that it causes to the environment. Choose from the list below the advantages that a synthetic fleece jacket has and the possible harm it may cause.

<i>Options to choose from</i>
Expensive, biomagnification, lightweight, contamination of water bodies, degradable, flexible, tough, soluble in water, durable, insulators, entry into food chain

i.	Possible advantages	
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ii.	Possible harm that it may cause	
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Sources:

<https://www.contrado.co.uk/blog/what-is-fleece/>

<https://www.theguardian.com/environment/2016/jun/20/microfibers-plastic-pollution-oceans-patagonia-synthetic-clothes-microbeads>

Answers:

Ans: 1 – a and c

Ans: 2 - c

Ans: 3: Polyester & Nylon as they are Hydrophobic (water repellent)

Ans: 4: Rumi's choice is more appropriate as Nylon fibers have very high tensile strength (are strong) when compared to cotton. Cotton absorbs moisture and thus would be less durable.

Ans: 5

- (i) lightweight, flexible, tough, durable, insulators
- (ii) Biomagnification, contamination of water bodies, soluble in water. entry into food chain

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