Class – 7 Ch – 3 Fibre to Fabric

II. Very Short Answer Type Questions

Give one word for the following:

Q.1 A breed of sheep that gives the finest wool. Ans: *Merino*

Q.2 Fibre obtained from Angora goat. Ans: *Mohair*

Q.3 The process of removing fleece from the sheep. Ans: *Shearing*

Q.4 The stage in the life cycle of silkworms, after hatching of eggs. Ans: *Larva* or *Caterpillar*

Q.5 The process by which filaments are taken out from the cocoons of silkworm. Ans: *Reeling*

III. Short Answer Type Questions

Q.1 What are the two types of fibres on a sheep's coat?

Ans: A sheep's coat has two types of fibres:

a) Coarse outer hair

b) Soft under hair – This is used to make wool.

Q.2 What are the various features that make wool different from each other?

Ans: Wool varies based on the following features:

a) Fineness b) Shine c) Length

d) Texture e) Strength

Q.3 Define the following:

a. Scouring:

Ans: The process of washing the wool to remove dirt, grease, and sweat.

b. Spinning:

Ans: The process of twisting wool fibres to make yarn.

c. Sericulture:

Ans: The practice of rearing silkworms to produce silk.

Q.4 What is sorter's disease? Why were people working in the wool industry prone to it?

Ans: Sorter's disease is an infection caused by anthrax bacteria found in contaminated wool. Workers in the wool industry were prone to it because they handled infected wool without proper protection.

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IV. Long Answer Type Questions

Q.1 Explain the various processes involved in the production of wool.

Ans: The production of wool involves a series of processes that transform raw fleece from a sheep into usable yarn or fabric.

The Wool Production Process

The main steps in the production of wool are:

a) **Shearing:** The fleece is removed from the sheep's body, typically once a year in the spring. This is done with clippers and does not harm the sheep.

b) **Scouring:** The sheared fleece, known as "grease wool," contains dirt, grease, and other impurities. It is washed thoroughly in large tanks with a detergent solution to remove these contaminants.

c) **Sorting and Grading:** After cleaning, the wool is sorted by quality, length, and texture. The best quality wool, usually from the shoulders and sides, is used for fine clothing, while coarser wool from other parts is used for items like carpets.

d) **Dyeing:** The cleaned and sorted wool can be dyed at this stage to achieve a specific color.

e) **Carding:** The wool fibers are passed through a series of rollers with fine wire teeth to untangle and straighten them. This process creates a continuous, untwisted rope of fibers called a "sliver."

f) **Spinning:** The sliver is stretched and twisted into a continuous strand of yarn. The amount of twist determines the yarn's strength and texture.

g) **Weaving or Knitting:** The spun yarn is then woven on a loom or knitted to create fabric. This fabric can be used for a wide range of products, from clothing to home furnishings.

Q.2 Explain the various stages in the life cycle of a silkworm moth.

Ans: The life cycle of a silkworm moth, *Bombyx mori*, is a process of complete metamorphosis, which includes four distinct stages.

The Four Stages of the Silkworm Life Cycle

a) **Egg:** The life cycle begins when a female silk moth lays tiny eggs, typically on a mulberry leaf. A single female can lay up to 400 eggs at a time. The eggs are dormant during the winter and hatch in the spring as the weather warms.

b) **Larva (Caterpillar):** Once the eggs hatch, a small, hairy caterpillar, or **silkworm**, emerges. This is the feeding stage. The silkworm is a voracious eater, consuming large amounts of mulberry leaves to grow rapidly. During this stage, which can last for several weeks, the silkworm sheds its skin four times as it grows, a process called molting.

c) **Pupa:** After the larval stage, the silkworm stops eating and begins to spin a protective silk casing around itself. This casing is called a **cocoon**. Inside the cocoon, the silkworm transforms into a **pupa**. This is a resting stage where the larval organs break down and adult structures, such as wings and antennae, begin to form.

d) **Adult Moth:** After about two to three weeks, the pupa undergoes its final transformation and emerges from the cocoon as an adult silk moth. The moth is creamy-white and has a very short lifespan, typically only a few days. Its sole purpose is to reproduce. The female moth lays eggs, and the cycle begins anew.

Q.3 Explain the processes involved in sericulture.

Ans: Sericulture includes the following steps:

a) **Rearing of Silkworms:** Silkworm eggs are hatched in a controlled environment. The newly hatched silkworms are placed on trays and fed fresh mulberry leaves. They are kept in a clean, temperature-controlled space to ensure healthy growth.

b) **Cocoon Formation:** After several weeks of feeding, the silkworms stop eating and begin to spin their silk cocoons. They secrete a liquid protein that hardens into a single, continuous thread.

c) **Reeling the Silk:** The cocoons are harvested and subjected to a stifling process (heating with hot water or steam) to kill the pupa inside, preventing the moth from breaking the silk thread. The cocoons are then soaked to loosen the gum (sericin), and the silk filaments are carefully unwound and reeled together to form a single, strong thread.

d) **Processing and Weaving:** The raw silk thread is spun and twisted into yarn. This yarn can be dyed and then woven or knitted into a variety of fabrics for making clothes and other products.

Q.4 What are the various health hazards involved in sericulture?

Ans: a) **Breathing Problems -** Workers often breathe in tiny bits of dust and fiber from the silk cocoons. This can cause problems like coughing, sneezing, and even breathing difficulties, similar to having a bad allergy. The dust from the moths can also be a cause.

b) **Skin Issues -** One of the biggest problems is for the hands. To get the silk thread, workers put their hands into hot water to loosen the cocoons. This can cause their hands to become red, sore, and sometimes even get blisters. This is also known as "Reeler's Disease."

c) **Body Pain -** Because the work is done for many hours a day, workers can get tired and develop pain. Standing or sitting in one position for a long time can lead to a sore back and joint pain in the knees and shoulders. Also, constantly focusing on the tiny threads can cause eye strain.

d) **Preventive Measure -** Use of protective equipment, maintaining hygiene, and ensuring proper working conditions can reduce these hazards.