CHAPTER - 3
FIBRE TO FABRIC

FIBRE

A material which is available in the form of thin and continuous strand is called fibre.

TYPES OF FIBRE

**Natural fibers:** The fibers which are obtained from plants and animals are called natural fibers. Examples: cotton, jute, silk, wool.

  - **Plant Fibre:** Cotton and jute are plant fibre.
  - **Animal fibre:** Silk and wool are animal fibre.

**Synthetic fibre:** The fibre which are synthesized in industry from simple chemicals obtained from petroleum are called synthetic fibre. Examples: Nylon, Acrylic, Polyester

SOME PLANT FIBRES

**COTTON**

Cotton is the most widely used natural fibre. Cotton fibre is also known as cotton wool. Cotton fibre comes from the cotton plants which are grown in the fields by the farmers. Cotton crop is usually grown at places having black soil and warm climate. In India, cotton is mainly grown in the states of Maharashtra, and parts of Andhra Pradesh, Madhya Pradesh and Gujarat.

The fruits of cotton plants (called cotton bolls) are of the size of lemons. After maturing, the cotton bolls burst open to produce cotton seeds covered with white, soft cotton fibres. A field of cotton plants which is ready for picking cotton looks like a field covered with snow (because all the plants have white cotton fibres at their top)

![Field of cotton plants.](image)

Cotton is picked up from the plants in the fields usually by hand. The cotton fibres picked from the fields have cotton seeds in them. The cotton fibres are then separated from the seeds.

**Ginning:** The process of separating cotton fibres from the seeds is called ginning (of cotton). Ginning was traditionally done by hands by using a comb—like device (see the below Figure). These days ginning is also done by using machines. Cotton is mainly used for making fabrics (or cloth). These fabrics are then used for making clothes, dresses, etc.
Cotton is also used for filling pillows, mattresses and quilts. The wicks of oil lamps are also made of cotton.

MAKING OF FABRICS
The fabrics are made from fibres in the following two steps:
(i) Fibres are first converted to yarn by the process of spinning.
(ii) Fabric is made from yarn by the process of weaving or knitting.

Spinning: The process of making yarn from fibre is called spinning. In this process, fibres from a mass of cotton wool are drawn out and twisted. This brings the fibres together to form a yarn. A simple device used for spinning is a hand spindle, also called takli. Another hand operated device used for spinning is charkha. Use of charkha was popularised by Mahatma Gandhi as part of the Independence movement.

Steps in making cotton yarn
- The raw cotton is loosened and cleaned; to remove straw and dried leaves.
- The cleaned cotton is then fed into a machine. The cotton fibre are combed, straightened and converted into a rope like structure called sliver.
- The sliver of cotton fibre is converted into yarn by spinning using machines.

YARN TO FABRIC
There are many ways by which fabrics are made from yarns. The two main processes are weaving and knitting.
**Weaving:** The process of arranging two sets of yarn together to make a fabric is called weaving. The big reels of yarn are called bobbins. These bobbins are used for weaving the cloth. Cloth is woven on looms. After that they bleached and dyed to give a finish.

![Handloom - It Weaves yarn to make fabrics](image)

**Knitting:** Knitting can be done by hand and machine. Just two yarns are used in knitting, while more than two yarns are used in weaving. Sweater, socks, scarf and caps are knitted from the wool.

![Knitting](image)

**Uses of cotton:** Cotton is mostly used for making clothes of various kinds. Examples: towels, bed-sheet, curtains, saris.

**JUTE**

Jute fibre is obtained from the stem of the jute plant. It is cultivated during the rainy season. In India, jute is mainly grown in West Bengal, Bihar and Assam. The jute plant is normally harvested when it is at flowering stage. The stems of the harvested plants are immersed in water for a few days. The stems rot and fibres are separated by hands.

Jute fiber is used mainly for making gunny bags, shopping bags, ropes, carpets, curtains, etc.

**WOOL**

We get wool from hair of the sheep, goat, rabbit, yak and camel. Wool is used for making warm clothes, such as sweater, cap, shawl, gloves, and blanket, etc. Wool is also used in making carpets and upholstery.

**SILK**

We get silk from silk worm. Silk fiber is obtained from the cocoons of the silk moth. The silk moth lives on the leaves of mulberry plants. There are four stages in the life cycle of silk moth: eggs, larva, pupa and adult.

The larva of the silk moth is called caterpillar. It secretes a sticky fluid fibroin from its salivary gland (silk gland). This sticky fluid forms a long thread. This thread is wrapped around the body...
of the caterpillar and forms cocoon. After this stage, the larva becomes a pupa and then turns into an adult moth.

Silk is a costly fabric. Silk fiber is used for weaving cloth; especially traditional dresses in India; like sari, kurta, shawl and other wedding clothes. Silk had always been prized for its luster and fine quality.

SYNTHETIC FIBRE
Synthetic fibre is quite strong, wrinkle- resistant and quick drying. These are used in making different materials; like clothes, neck-ties, sails, sweater, shawls, carpet and blankets. They are also used in making boats, skating boards, etc.

**NCERT EXERCISE QUESTIONS AND ANSWERS**

1. Classify the following fibres as natural or synthetic:
   nylon, wool, cotton, silk, polyester, jute
   **Answer:** Natural fibres: Wool, Cotton, Silk, Jute
   Synthetic fibre: Nylon, Polyester

2. State whether the following statements are true or false:
   a) Yarn is made from fibres.
   b) Spinning is a process of making fibres.
   c) Jute is the outer covering of coconut.
   d) The process of removing seed from cotton is called ginning.
   e) Weaving of yarn makes a piece of fabric.
   f) Silk fibre is obtained from the stem of a plant.
   g) Polyester is a natural fibre.
   **Answer:**
   (a) True  (b) False  (c) False  (d) True
   (e) True  (f) False  (g) False

3. Fill in the blanks:
   a) Plant fibres are obtained from_________ and ________.
   b) Animals fibres are __________ and __________.
   **Answer:**
   (a) Plants fibres are obtained from **cotton** and **jute**.
   (b) Animals fibres are **silk** and **wool**.

4. From which parts of the plant cotton and jute are obtained?
   **Answer:** Cotton – From fruit of the cotton plant.
   Jute – From stem of jute plant.

5. Name two items that are made from coconut fibre.
   **Answer:** (i) Bags (ii) Rope.

6. Explain the process of making yarn from fibre.
   **Answer:** The process of making yarn from fibres is called spinning. In this process, fibres from a mass of cotton were drawn out and twisted. This brings the fibres together to form a yarn.
1. Paheli wants to present her friend a gift made of plant-fibre. Which out of the following will she select?
   (a) Jute bag
   (b) Woollen shawl
   (c) Silk saree
   (d) Nylon scarf

2. Which statement out of the following is incorrect?
   (a) Use of Charkha was popularised by Mahatma Gandhi as a part of the Independence Movement.
   (b) In India, jute is mainly grown in Kerala and Punjab.
   (c) To make fabric, the fibres are first converted into yarns.
   (d) Sufi saint Kabir was a weaver.

3. Which of the following materials did people use in ancient times for making clothes?
   (i) Leaves of trees
   (ii) Newspaper
   (iii) Metal foils
   (iv) Animal skins and furs
   (a) (i) and (ii)
   (b) (i) and (iii)
   (c) (ii) and (iii)
   (d) (i) and (iv)

4. Which of the following is not a natural fibre?
   (a) Cotton
   (b) Jute
   (c) Nylon
   (d) Flax

5. Which set of substances is not used for making fibres?
   (a) Silk, chemicals
   (b) Yak hair, camel hair
   (c) Husk, bones
   (d) Flax, wool

6. Boojho went to a cloth shop. There he found a fabric which was smooth to touch, had vibrant colour and shine. The fabric could be
   (a) Cotton
   (b) Wool
   (c) Silk
   (d) Jute

7. Which part of the jute plant is used for getting jute fibre?
   (a) Flower
   (b) Stem
   (c) Fruit
   (d) Leaf

8. Yarn is woven to get fabric using
   (a) charkha
   (b) spinning machines
9. Beera is a farmer. His field has black soil and the climate is warm. Which fibre yielding plant should he grow in his field?
   (a) Jute
   (b) Cotton
   (c) Coconut
   (d) Wool

10. The correct sequence to get cloth is:
    (a) fibre fabric yarn
    (b) fibre yarn fabric
    (c) fabric yarn fibre
    (d) yarn fibre fabric

11. Boojho wants to make yarn from fibre at home. Which of the following will he use to carry out the task?
    (a) Powerloom
    (b) Handloom
    (c) Charkha
    (d) Knitting needles

12. The process of removing hair from animals is known as
    (a) shearing  (b) retting  (c) ginning  (d) weaving

13. The process of growing silkworm is known as
    (a) apiculture  (b) pisciculture  (c) sericulture  (d) none of these

14. The fibre which is made in factories from chemicals is
    (a) synthetic fibre  (b) blended fibre  (c) natural fibre  (d) none of these

15. Which of the following fibres is obtained from insects?
    (a) Wool  (b) Cotton  (c) Silk  (d) Polyester

16. Which of these countries is the biggest producer of wool?
    (a) India  (b) Australia  (c) China  (d) Japan

17. The hand-operated machines used to weave cloth are called
    (a) Mills  (b) Powerlooms  (c) Handlooms  (d) Gins

18. Which natural fibre is obtained from insects?
    (a) Silk  (b) Wool  (c) Polyester  (d) Cotton

19. Which country is the birth place of silk?
    (a) India  (b) China  (c) U.S.A.  (d) Australia

20. Which of the following clothing can be worn without stitching?
    (a) Shirt  (b) Pant  (c) Shawl  (d) Kurta

21. A silkworm lives on leaves of _____________ plant.
    (a) Mulberry  (b) Mango  (c) Palm  (d) Strawberry
22. Which one of the following is not a natural fibre?
    (a) cotton  (b) nylon  (c) flax  (d) wool

23. A fabric is made by weaving together :
    (a) yarns  (b) fibres  (c) twigs  (d) coir

24. Which one of the following is not a synthetic fibre?
    (a) nylon  (b) polyester  (c) flax  (d) orlon

25. One of the following fibres is obtained from plants. This fibre is :
    (a) wool  (b) silk  (c) nylon  (d) flax

26. The process of separating cotton fibres from the seeds is called :
    (a) knitting  (b) loading  (c) seeding  (d) ginning

27. If a piece of fabric burns by giving the smell of charred meat, it is most likely to be made up of
    (a) cotton  (b) jute  (c) silk  (d) wool

28. Which one of the following fibres is obtained from a kind of worms?
    (a) nylon  (b) wool  (c) flax  (d) silk

29. One of the following fabrics burns by giving the smell of burning paper. This fabric is made up of
    (a) cotton  (b) silk  (c) wool  (d) polyester

30. Which one of the following fibres is obtained from animals?
    (a) flax  (b) silk  (c) jute  (d) polyester

31. The cloth made from the stem fibres of flax plant is called :
    (a) nylon  (b) orlon  (c) rayon  (d) linen

32. Name the animal from which wool is most commonly obtained.

33. Name one fibre obtained from the stem of plants.

34. Name any two states in India where jute is mainly grown.

35. Name two items that are made from coconut fibres.

36. Which of the two are stronger: natural fibres or synthetic fibres?

37. (a) From which part of the plant cotton fibre is obtained?
    (b) From which part of the plant jute fibre is obtained?

38. Name four types of fabrics used by us.

39. Name four materials which were used by the people in ancient times to cover themselves.

40. Name two products obtained by weaving ‘twigs’ and ‘grass’.

41. In which region was the cotton crop grown in India in early days?

42. Name the two types of plants which were cultivated near the river Nile in ancient Egypt to obtain fibres for making fabrics.
43. Name the four types of fabrics (or clothing) which are still used in unstitched form in our country.

44. What are the two types of fibres? Give two examples of each type of fibres.

45. What is ginning? How is it done?

46. State the various uses of cotton fibres.

47. State the two steps involved in making fabrics from fibres.

48. Name the device used for weaving yarn into fabrics. Which of the following are usually made by weaving and which by knitting?
   Fabric for shirt, Vest, Socks, Saree, Sweater

49. What name is given to those fibres which are obtained from plants and animals? Name two fibres which are obtained from plants and two fibres which are obtained from animals.

50. What type of soil and climate are good for growing cotton? Name any two states of our country where cotton is mainly grown.

51. With which fibre is the term ‘ginning’ associated? Name four animals (other than sheep) from which wool is obtained.

52. (a) Name three devices for making yarn from fibres.
   (b) Name two processes by which fabrics can be made from yarn.

53. What is meant by (a) weaving, and (b) knitting?

54. How will you distinguish between cotton, wool, silk and synthetic fabrics?

55. Describe how, jute fibre is obtained from jute plants. State the uses of jute fibres.

56. What is meant by (ct) fibre, and (b) fabric? Describe the process of making fabrics from fibres.

57. What is meant by natural fibres and synthetic fibres? Give two examples of natural fibres and two of synthetic fibres.

58. Fill in the following blanks with suitable words:
   (a) Animal fibres are .................... . and ................ .
   (b) Linen is made from the fibres of ............ . plant.
   (c) Terylene is a ............ .fibre but flax is a ............ .fibre.
   (d) The common name of coconut fibre is ............ .
   (e) Fabrics are made first by spinning the ............ .to make ............ .and then weaving or knitting the ............ .

59. Fill in the blanks.
   a) The process of separating jute fibres from its stem is known as ____________.
   b) Weaving is done on devices called ____________.
   c) ____________ are spinned to make yarns.
d) The fluffy coat of animals like goat and sheep used to make fibres known as ________.
e) The fibres present in our food are called ________.
f) Plant fibres can be obtained from _______________ and _______________ plants.
g) _______________ and _______________ are animal fibres.
h) Cotton is obtained from the _______________ of cotton plants whereas jute is obtained from _______________ of jute plants.
i) Synthetic fibres like nylon are _______________ to touch.
j) _______________ and _______________ are synthetic fibres.
k) Fibres are made up of long chains of _______________.
l) Cotton is cultivated as a _______________ shrub.
m) Fabrics containing both natural and man-made fibres are called _______________ fabrics.
n) Jute requires _______________ soil for cultivation.
o) _______________ are generally made by weaving or knitting yarns.

60. Give one word answer.
   a) The products which decompose completely by the action of microorganisms. __________
   b) The method used to make the “felt on duster”. __________
   c) The fabric made by spinning yarn at home. __________
   d) The process of removing seeds from the mass of cotton fibres. __________
   e) The fibre grown in the delta regions of rivers Ganga and Brahmaputra. __________