E. Answer the following question in brief.

Q1. Name any two fabrics used in making (i) upholstery (ii) Clothing?

Answer: ***Wool and its blends*** are commonly used for making upholstery, as it is sturdy, durable and resistant to soil, wrinkles, fading and pilling. Another nice fabric to make upholstery is jute which is durable, easy to clean, and stays in place even with rough use.

Two fibres that are used to make clothes are ***cotton and wool***. Two materials that are not fibres but are used for making clothes are leather and fur, which are derived from animals.

Q2. Which part of plant gives cotton fibre?

Answer: Cotton fibres are obtained from the fruits of cotton plants. The fruits of the cotton plant (cotton bolls) are about the size of a lemon. After maturing, the bolls burst open and the seeds covered with cotton fibres can be seen.

Q3. Name the methods which are used in making of fabric from fibres?

Answer: There are two main processes of making fabric from fibre – weaving and knitting.

Q4. How will you identify a sample of cotton fabric from a collection of few fabrics of different kinds?

Answers:

Burn test: Cotton is a plant fibre. When ignited, it does not shrink from the flame and burns with a yellow flame while in it. It continues to burn when the flame is removed and smells like burning paper.

Chemical test: The following chemical tests can be done to determine the cotton fibre.

With concentrated $\mathbf{H_2SO_4}$ (98%, cold) the cotton fibre will be destroyed, i.e. the cellulose components will be dissolve

Tear test: Cotton fibre shows higher tear strength in wet condition than it is dry.

Q5. How does wool keep us warm?

Answer: Wool is a bad conductor of heat. It traps air between its fibres. This trapped air does not allow heat to pass from our body into the surrounding thereby keeping us warm. Hence, we should wear woollen clothes in winter.

Q6. Compare various methods used to convert yarn into fabric. What is common to all these methods?

Answer:

Weaving: The process of arranging two sets of Yarns together to make a fabric is called weaving.

Knitting: The process in which a single yarn is used to make a piece of fabric is called knitting.

Crocheting: Crochet is a type of needlecraft in which you use a hook to create fabric from loops of yarn. Crochet can be used to make everything from blankets and scarves to hats and sweaters.

Felting: Felting is the process of creating a thick fabric - or felt - by matting, condensing and pressing fibres together.

For the conversion of yarn to fabric, the two main processes used are weaving and knitting.

Weaving: Weaving is the process of arranging two sets of yarns together perpendicular to each other to make a fabric. Fabrics are woven on looms. These looms may be operated by power or by hand.

Knitting: Knitting is a process that makes use of a single yarn to make a piece of fabric. While knitting, a single yarn is used to make a piece of fabric. Knitting can be done by hand or on machine.

Q7. Cotton and jute are not the only available fibres in market. Comment.

Answer: Many natural fibres like cotton and jute are available but we still depend on artificial fibres like nylon because:

1. Natural fibres are very costly as compared to artificial fibres, therefore people are more focused on artificial fibres.
2. Artificial fibres are available in different colours, which attracts the attention of customers.
3. Manufacturing of silk which is a natural fibre involves the death of silkworms, that's why we are switching to artificial fibre that is exactly the same as silk.
4. Natural fibre requires more effort and a complex extraction process as compared to artificial fibre.

Q8. Are cotton and jute not the only available fibres in market comments?

Answer: Yes, cotton and jute are not the only available fibers in the market. There are many other fibers as well such as silk, wool, corn fibre, spider silk, yak fibre, coir fibre, and other such things. These are other most popular fibres that are used in the textile industry.

F. Answer the following question in detail.

Q1. Explain the process of obtaining fabric from any fibre.

Processing of a Fibre into Fabric

The complete process of making or producing Fabrics from fibres includes:

Extraction of fibres either from the plant or animal source.

↓

A group of filament or staple fibres extracted are twisted together to form a yarn.

↓

These yarn are twisted tightly and allowed to rotate on the different types of by the rollers, weaved and knitted by passing a different number of yarns together to produce Fabrics.

Finally, the fabrics are produced. These fabrics are treated with chemicals in the textile industries to make different types of clothing materials like cotton fabrics, woollen fabrics, silk fabrics, polyester fabrics etc. Later these fabrics are processed for bleaching to give a smooth, shiny look, colour dying to add colours to the fabric materials and screen printings to design the fabrics.

Process of Making Cotton Fabric

Cotton is picked up from the fields. The seeds are separated by combing. This process is known as ginning.

↓

Ginned cotton is compressed to form bales. These bales are sent to the spinning mills.

↓

The cotton bales are loosened and cleaned. This process is known as carding.

↓

The cotton fibres are then converted into rope-like loose strands. The strands are twisted to make yarns. This process is known as the spinning of cotton yarns.

↓

The yarns are then used to make fabrics by weaving and knitting.

Q2. Explain the process of making woollen clothes?

Answer: The process of making woollen clothing employs the following steps:

1. Shearing: The wool is removed from the sheep using special clippers in a process known as shearing.
2. Transportation: Post shearing, the wool is packed into bales and transported to the mills.
3. Combing and spinning: The wool is then combed by a combing machine and spun into fibre.
4. Knitting or weaving: The fibres are then knit or weaved into woollen clothing.

In detail:

(1) Shearing- the process of removing hair from the body of a sheep.

2) Scouring- the process of washing the fleece of a sheep to remove dirt, dust and greece.

3) Sorting- the process of separating good quality wool from inferior quality wool.

4) Combing- the process of removing burrs[tiny knots] from the fleece.

5) Carding or removing of burrs - Under this process, the fibres are separated individually which removes many impurities and causes many fibres to lie parallel to one another.

6) Dyeing- the fibres obtained after combing is dyed into various colours.

7) Spinning- the dyed fibres are straightened and spun to make yarn

This is the process of making wool.)

Q3. Compare natural fibres with synthetic fibres?

Answer:

Natural fibres	Synthetic Fibres
1. These fibres which are obtained from plants and animals.	1. These fibres are made by humans using some chemicals.

2. They are hydrophilic in nature.	2. They are hydrophobic in nature.
3. They do not dry easily.	3. They dry easily.
4. They are suitable for hot and humid weather.	4. They are not suitable for hot and humid weather.
5. Examples of natural fibres are cotton, silk, jute, etc.	5. Examples of synthetic fibres are nylon, rayon, etc.

Q4. How is the process of weaving varied out?

Answer: Weaving: The process of arranging two sets of yarns together to make a fabric is called weaving. Weaving of fabric is done on looms. Looms are either hand operated or power-operated. In weaving, two distinct sets of yarns or threads, called the warp and the filling or weft, are interlaced with each other to form a fabric or cloth. The warp threads run lengthways of a piece of cloth, and the weft threads run across from side to side. The manner in which the warp and weft threads interlace with each other is known as the weave.

Q5. Tabulate the sources and two uses of cotton jute silk and wool.

Answer:

Cotton Source: Cotton fibers come from cotton plants. Specifically, they grow from the seed coat—the outer layer of the cotton plant's seeds.

Uses of Cotton:

- It is basically used for every type of clothing from jackets to normal shirts.
- In home, it finds its use in bed sheets and curtains.
- Its seed oil is used in food and cosmetics.
- It is also used in coffee filters.
- It’s seeds are fed to cattle and crushed to make oil, rubber and plastics.

Jute Source: The jute fibre comes from the jute plant’s stem and ribbon (outer skin). Plants belonging to the genus ‘Corchorus’ are the primary source of Jute.

Uses of Jute: Jute is used to make many objects like carry bags, sacks and carpets. Most of the carry bags and sacks that we see are made of jute due to its strength.

(i) Jute is useful for making ropes.

(ii) It is used in making gunny sacks or covers for chairs.

Silk Source: The natural silk fibre is obtained from silk cocoons produced by the larvae of certain insects like silkworms. Farming or cultivation of silkworms for the production of natural silks is called sericulture. These fibres are then used to produce natural silk fabrics.

Uses of Silk:

- Silk is mainly used in the manufacture of clothing such as shirts, trousers, ties, dresses and sarees.
- Silk is extensively used for the making of various home décor furnishings engendering a lustrous, elegant and beautiful result.
- Woven silk fibre is sometimes used for the construction of bicycle tires and parachutes.

Source of wool: Wool is a natural fiber obtained from the fleece of animals such as sheep, goats, camels, rabbits, etc. These fibers are made up of a protein called keratin.

Uses of wool: The following are the uses of wool:

- In making of blankets.
- Carpets are made using wool.
- Upholstery is made from wool.
- Different types of insulations are made using wool.
- Winter clothes are made from wool.

Q6. Synthetic fibres are more important than natural fibres. Do you agree with this statement? Comment.

Answer: Synthetic fibres possess unique characteristics which make them popular in dress materials. They dry up quickly, are durable, less expensive, readily available and easy to maintain. Synthetic fibres are more durable and affordable which makes them more popular than natural fibres. Synthetic fibers are preferably used more than natural fibers because they are more durable and elastic. Synthetic fibers are stronger, softer and cheaper as compared to natural fibers.

Q7. Differentiate between the following:

Answers:

(a) Fibre and Fabric

Fibre: A single strand from which production of yarn takes place, that is, by whirling threads together or passing them via spinnerets is the fiber.
Fabric: A network of single or multiple yarns is a fabric.

Fibre	Fabric

1. It can be obtained from synthetic or natural sources.	1. It is obtained from yarns, which are knotted, weaved, or knitted together.
2. It functions as the foundation for clothing.	2. It has many uses like in garments, apparel, industry, and home furnishing.
3. Examples are wool, cotton, rayon, nylon, and others.	3. Examples are jersey, interlock, chiffon, and others.

(b) Plant and Animal Fibre

Answer:

Plant Fibre	Animal Fibre
1. Obtained from the plant source.	1. Obtained from an animal source.
2. When burnt smell like grass or appears like burnt grass.	2. When burnt smell like hair.
3. Have more strength.	3. Have less strength.
Eg. Cotton, Jute, etc.	Eg. Wool, Silk, etc.

Plant fiber	Animal fiber
It is available in nature and extracted from plants.	It is obtained from animals.
It contains cellulose, thus they are cellulosic fiber.	Animal fibers are protein-based fibers.
Examples: Cotton, linen, jute, hemp, etc.	Examples: Wool, silk, alpaca, etc.

C. Knitting and Weaving

Knitting refers to the process of making fabrics by linking or joining the loops of one set of yarn.
Weaving refers to the process of making fabrics by the interweaving of warp and weft yarn.

Knitting	Weaving
Single yarn is required	Two sets of yarn are required.
In this knitting needles are required.	In this big equipment that is loom is required.
They are more elastic and bulkier.	They have more flow and are much thinner.
Sweaters and shawls are produced by the knitting process.	Woven fabrics and trousers are produced by the weaving process.

Q8. Why is the use of jute and cotton bags being encouraged these days?

Answers: Jute Bags and Cotton Bags have proved to be an ideal replacement for plastic bags. Bags made from these natural fibers are bio-degradable, eco-friendly, reusable and at the same time help create awareness to the disadvantages of using plastic bags.

Plastic bags are made of non-biodegradable material which do not decompose in the soil when disposed. This causes soil pollution and is harmful for the ecosystem.

But jute and cotton bags are an excellent change because

- It is reusable.
- It is cheap.
- It is eco-friendly.
- Does not require any maintenance.
- Can carry heavy weights.
- It is long lasting and durable.
- It is very attractive and easy on the eyes.

Q9. What type of clothing materials are worn by astronauts and firemen? Give reasons.

Answer: *One of the main clothing material used by both astronauts and firefighters is Nomex and Kevlar. It is fire resistant and shock resistant which is advantageous for a fire fighter. In space suits it gives durability, flexibility and insulation for astronauts.*

(The fabrics in space suits and firefighting uniforms are flexible but offer insulation from extreme temperatures and debris.

Firefighters wear suits made of Nomex or Kevlar. Both are fire-resistant materials which help to protect the firefighter from catching aflame or from sustaining burns when nearby fire.

Nomex is also used in some astronaut clothing. Space suits are made of many layers of protective and insulating materials to ensure durability, flexibility, and insulation. Another important fabric in space suits is called Chromel-R- it helps to keep the astronaut's body heat *inside* the suit and protect against extremely cold temperatures *outside* the suit. This

fabric is especially important for the hand or glove parts of a suit, as astronauts sometimes handle objects which are very cold!)

Q10. Mention the kind of fabric you would select: a) While working in kitchen b) On a cold and foggy day c) During rainy season

Answer:

a) cotton clothes

b) woollen clothes or clothes made out of wool

c) polyester or nylon as an outer layer on a rainy day.

Explanation:

a) to avoid catching fire

b) Cloudy days and rainy days. Hint: Woollen clothes are worn during cold days. They keep us warm and protect us from getting in contact with cold air.

c) The synthetic fibres are lightweight, mostly hydrophobic and do not absorb water when they are exposed to water and dry quickly. They both are flexible, easy to carry and maintain as well.

Q11. Reshma and her mother went to a shop to buy a shawl to keep them warm during winter. The shopkeeper gave her an expensive one that looked very attractive and told her that it was pure wool. After coming home, Reshma took a small thread from it and tested it by burning. Immediately she realized that they were cheated and the shawl was not of pure wool. Which of the following would have helped her to come to the correct conclusion? The thread …….

(i) Formed a crushable bead.

(ii) Gave out the smell of burning paper.

(iii) Started melting

(iv) Formed a hard bead.

(a) (i) and (ii)

(b) (i) and (iii)

(c) (iii)

(iv) (d) (ii) and (iv)

Explanation: Shawl is made up of synthetic Yam. Wool, and other Protein Fibers: Burns, but does not melt. It shrinks from the flame. It has a strong odor of burning hair.

Q12. Paheli went to the market to buy sarees for her mother. She took out a thread from the edges of the two sarees shown by the shopkeeper and burnt them. One thread burnt with a smell of burning hair and the other burnt with the smell of burning paper. Which thread is from a pure cotton saree and which one from a pure silk saree? Give a reason for your answer.

Solution

- In the case of the first saree, the thread burnt with a smell of burning hair is from pure silk. Silk and hair are protein fibres.
- So, on burning these threads, a smell of burning hair comes out.
- In the case of the second saree, the thread burnt with the smell of burning paper is from a cotton saree.
- Since cotton and paper both are carbohydrates and on burning they give a similar smell.

Objective Questions:

Write one word for the following.

1. The material made by weaving threads from fibres .....
2. The process by which fabric is made from fibre using looms .....
3. The process of separating cotton fibres from its seeds .....
4. The process of making yarn from fibre .....
5. The process of removing the sticky substance from the stems to obtain the jute fibre .....

Solution

1.The material made by weaving threads from fibres Fabric

2.The process by which fabric is made from fibre using looms Weaving

3.The process of separating cotton fibres from cotton seeds Ginning

4.The process of making yarn from fibre Spinning

5.The process of removing the sticky substance from jute stems to obtain jute fibre Retting

Question 1.
Match the following items given in Column A with that in Column B

Column A	Column B
(a) Jute is obtained from	(i) Charkha
(b) Fibre from retted jute are extracted by	(ii) Sliver
(c) Separation of fibres from jute stem	(iii) Bales
(d) Compressed bundles of cotton	(iv) Retting
(e) Cotton is collected from cotton plants by	(v) Hand picking
(f) Separation of cotton from seeds	(vi) Silk and wool
(g)Loose rope of cotton fibres	(vii) Stem of'putson'
(h) Animal fibres	(viii) Hands with jerks and pulls
(i)Suitable for wearing in kitchen	(ix)Ginning
(j) Used to spin yams	(x) Cotton clothes

Answer:

Column A	Column B
(a) Jute is obtained from	(vii) Stem of 'putson'
(b) Fibre from retted jute is extracted by	(viii) Hands with jerks and pulls
(c) Separation of fibres from jute stem	(iv) Retting
(d) Compressed bundles of cotton	(iii) Bales
(e) Cotton is collected from cotton plants by	(v) Hand picking
(f) Separation of cotton from seeds	(ix) Ginning
(g) Loose rope of cotton fibres	(ii) Sliver
(h) Animal fibres	(vi) Silk and wool

(i) Suitable for wearing in kitchen	(x) Cotton clothes
(j) Used to spin yams	(i) Charkha

Question 2.Fill in the blanks with appropriate words:

1. Clothes are made up of …… .
2. Different clothing materials have ……. properties.
3. Cotton plants need……. climate.
4. Cotton is planted in the ……. .
5. …… soil is excellent for the cultivation of cotton.
6. …….. Usually cotton is picked from the plants.
7. Separation of cotton fibres from their seeds is called …….. .
8. A ……. of cotton is a loose strand of cotton fibres.
9. In villages, the cloth is woven on small scale in …… .
10. Jute is cultivated in …… season.
11. Jute is grown in ……. soil.
12. On large scale, cotton clothes are made by machines in …….. .
13. Twisting of fibres into yarn increases the ……. of fibres.
14. Cotton fibres are obtained from the …….. of cotton plant.
15. Jute fibre is obtained from the ……. of jute plant.
16. Tightly compressed bundles of cotton are called …….. .
17. The process of getting fibres from the jute stem is called …… .
18. People migrated to colder regions only after the invention of …… .

Answer:

1. fibres
2. different
3. warm
4. spring
5. Black
6. hand
7. ginning
8. sliver
9. handloom

10. rainy
11. alluvial
12. powerloom
13. cohesion and strength
14. seeds
15. stem
16. bales
17. retting
18. fire

Question 3.State whether the statements given below are True or False:

1. Ml the plants have fibres in their body structure.
2. Cotton is the most important industrial crop.
3. India was the proud inventor of cotton clothing.
4. Cotton plants need cold climate.
5. Alluvial soil is best suited for cotton.
6. Jute is obtained from the stem of 'putson'.
7. Jute fibres are quite strong, 6-8 feet long and have a silky lusture.
8. Primitive men and women had no idea about clothes.
9. Type of clothing which we wear is influenced by climate, occupation, culture and daily needs.
10. Cotton; and woollen clothes are smooth to touch.
11. Clothes are made from threads, and threads, in turn, are spun from fibres, (xii) Coconut fibres are good for making yarn.
12. Twisting of fibres into yam increases cohesion. '
13. While working in kitchen, we should wear cotton clothes.
14. Clothes protect us from adverse weather condition.

Answer:

1. True
2. True
3. True
4. False
5. False
6. True
7. True
8. True
9. True
10. False
11. True
12. False

13.True
14.True
15.True

Question 4.Choose the correct option in the following questions:

(i) Which one of the following is a synthetic fibre?
(a) Nylon
(b) Rayon
(c) Polyester
(d) All of these
Answer:
(d) All of these fibres are man-made.

(ii) Which is a natural fibre?
(a) Silk
(b) Nylon
(c) Rayon
(d) All of these
Answer:
(a) Only silk is natural.

(iii) The clothes are made up of thinner and thinner strands called
(a) yam
(b) thread
(c) fibre
(d) fabric
Answer:
(c) Fibre is thinnest unit of fabric.

(iv) Separation of fibres of cotton from its seeds is known as
(a) weaving
(b) spinning
(c) knitting
(d) ginning
Answer:
(d) Cotton fibres are separated from seeds by combing and the process is called -¬ginning.

(v) Jute fibres are obtaine from
(a) stem of jute plant
(b) seeds of jute plant
(c) fruit covering of jute plant

(d) roots of jute plant
Answer:
(a) Jute fibres are obtained from the stem of jute plant.

(vi) Number of yams used to make fabric by weaving and knitting are
(a) two sets of yams in each case
(b) single yam in each case
(c) two sets of yams in weaving and single in knitting
(d) single yam in weaving and two sets in knitting
Answer:
(c) In weaving two sets of yam are arranged while knitting is done by a single yam.

(vii) Weaving of fabric is done in
(a) handlooms
(b) power looms
(c) both (a) and (b)
(d) takli
Answer:
(c) Weaving is done both in handlooms and power looms.

(viii) Which one is spinning device?
(a) Takli
(b) Loom
(c) Charkha
(d) Both (a) and (c)
Answer:
(d) In looms, fabric is woven; while by takli and charkha, yam is made.

(ix) Which of the following is a plant fibre?
(a) Wool
(6) Silk
(c) Cotton
(d) Nylon
Answer:
(c) Cotton is a plant fibre.

(x) The right time to cut jute plants is
(a) matured stage
(b) before flowering stage
(c) flowering stage
(d) any time after flowering

Answer:

(c) Jute plants are usually cut at the flowering stage.