

Synthetic Fibre class 8 Living Science

A. MULTIPLE-CHOICE QUESTIONS: Choose the most appropriate answer,

1. Which of these is a natural fibre? a. rayon b. Cotton✓ c. nylon d. polyester
2. which of these is a fibre derived from chemicals? a. rayon b. cotton c. nylon✓ d. silk
3. Which of these fibres is made from a raw material obtained from plants?
a. rayon✓ b. nylon c. terylene d. polyester
4. Which of these is a thermosetting plastic? a. polystyrene b. Bakelite✓ c. polythene d. polyvinyl chloride
5. Which of these plastics is a polymer? a. Bakelite b. polystyrene c. polythene d. all of these ✓
6. Which of these plastics can be repeatedly heated and moulded into any desired shape?
a. bakelite b. polythene✓ c. formica d. melamine
7. Which of these can you use as a substitute for glass in windows? a. polythene b. PVC c. perspex ✓ d. teflon
8. Which of these is not a property of plastics?
a. bad conductor of heat c. inflammable b. bad conductor of electricity d. soluble in water ✓

VERY SHORT-ANSWER QUESTIONS: Give one-word answers.

1. What name is given to natural materials that are used to manufacture human-made materials? Raw material
2. What is the most common source for synthetic fibres? Ans: Petroleum
3. Which artificial fibre is made from wood pulp? Ans: Rayon
4. Cotton and wool are natural polymers. True✓ or false?
5. Which synthetic fibre is commonly used to make strong ropes? Ans: Nylon
6. Which synthetic fibre is also called artificial silk? Ans: Rayon
7. All plastics are made of long chain molecules called ----- . Ans: [Polymers]
8. Name the plastic whose sheets are used for packing liquids. Ans: Polythene
9. From which plastic material is Thermocol made? Ans: Polystyrene plastic.
10. Which plastic material is used to make non-stick pans? Ans: Teflon
11. Name one thermosetting plastic which is a good insulator and is used to make plugs and switches. Ans: Bakelite.

C. SHORT-ANSWER QUESTIONS (TYPE I): Answer in a sentence or two.

1. Give two examples each of natural and synthetic fibres.
Ans: Examples of natural fibres: (a) Cotton (b) Silk Examples of synthetic fibres: (a) Nylon (b) Polyester
2. What is a polymer?
Ans: A long join chain of the molecules of hydrocarbon is called polymers. The process of the formation of polymers is called polymerization.
3. Why is rayon called a regenerated fibre?

Ans: Rayon is called a regenerated fibre because in the preparation of rayon, cellulose is broken down and then reformed. This makes it stronger and easy to dye.

4. List two disadvantages of synthetic fibres.

Ans: Two disadvantages of synthetic fibres are:

(a) Synthetic fibres can't absorb moisture, which makes them unsuitable during summer.

(b) Synthetic fibres melt on heating and sticks to the body of the person wearing it

(c) It is non biodegradable and causes soil pollution.

5. What is a plastic? All Plastics have one common property what is it?

Ans: Any material which can be melted into any desirable shape on heating is called plastic.

All Plastics have one common property that they are made up of polymers.

6. Why are plastic bottles commonly used to store chemicals in a chemistry laboratory?

Ans: Plastic do not react with air and water. They are non reactive and do not corrode easily. This is why plastic bottles are commonly used to store chemicals in a chemistry laboratory.

D.SHORT-ANSWER QUESTIONS (TYPE II): Answer in about 30 words.

1. List the important properties of nylon that make it a useful synthetic fibre. Give two important uses of nylon.

Ans: The important properties of Nylon fibres are:

(a) They are strong and elastic (b) They are light, wrinkle resistant and water resistance. (c) They are easy to wash and absorb very little water

Nylon is mainly used for making ropes, woman's wear, fishing net, sari socks and tie

2. Give three uses of polyester, and explain the reason for each use.

Ans: The uses of polyester are as follows:

(a) Polyester is used to make pants, shirts, suits and bed sheets because it is strong and crease resistant.

(b) Polyester is used to make jackets because it is absorb very little water

(c) Polyesters are used to make bottles, utensils and wires as they are light weight and elastic.

3. These days clothes made out of a mixture of synthetic fibres and natural fibres are more popular than those made purely out of synthetic fibres. Discuss the reasons for this.

Ans: Clothes purely made of synthetic fibres are not comfortable to wear so they are mixed with natural fibres. Moreover, mixing synthetic fibres with natural fibres enhances their properties, such as strength, elasticity and ease of washing and ironing

4. Differentiate between thermoplastics and thermosetting plastics. Give two examples of each.

Ans: Thermosetting plastics are kind of plastic which once moulded cannot moulded again by heating. for example : Bakelite , melanin, Formaldehyde

Thermoplastic Plastic are kind of plastic which can be moulded again and again by heating and easily reused. For example : PVS, Polysterine , nylon , polythine

5. Plastics are very useful materials. Why then is there concern today about their increasing use.

Ans: This is because plastics are non biodegradable and improper disposal cause environmental problems. The burning plastic releases lots of poisonous fumes into the atmosphere causing air pollution.

6. List three steps you can take to reduce the danger that plastics pose to the environment.

Ans: The following three steps can be taken to reduce the danger that plastics pose to the environment:

- (i) Do not throw plastic bags in the water bodies or on the road.
- (ii) Take a cotton carry-bag or a jute bag while going for shopping.
- (iii) Try to minimise the use of plastic materials e.g., use a steel lunch box instead of a plastic one.
- (iv) Dispose plastic properly and store separately in bin at home.

LONG-ANSWER QUESTIONS: Answer in about 60 words.

1.. How is rayon made? Why is it called artificial silk? List its important properties and uses.

Ans: Rayon is made by dissolving wood pulp in an alkaline solution. The thick liquid thus produced is passed through tiny holes to make fibres, which are hardened by passing them through a bath of sulphuric acid. The fibres are then spun into yarns and woven into clothes.

Rayon is called artificial silk because it is produced from naturally occurring polymers and looks like silk.

The important properties of rayon fibres are: a) They are easier to dye in various colours. b) They are very comfortable in summer because they can absorb sweat from the body.

The uses of rayon are: a) It is used to make curtains, table clothes, blankets, bed sheets, carpets etc. b) It is used to make apparels such as jackets, suits, etc.

2. List and explain four properties of plastics. Give one use of plastics linked to each of these properties.

Ans: The four properties of plastics are:

- a) Plastics are poor conductors of heat and electricity. That is why they are used to make handles of cooking utensils and electrical wires. Cords of electrical appliances and cables also have plastic coating.
- b) Plastics are insoluble in water and that is why we use plastic buckets to store water and use plastic glasses to drink water.
- c) Plastics are inert to air and water. They are noncorrosive and therefore plastic bottles are used in chemical laboratories to store chemicals.
- d) Plastics easily melt on heating and therefore they can be moulded into different shapes. Hence, they are used to make things such as toys, buckets etc.

3, Give the characteristic properties and important uses of the following:

- a. polythene b. polystyrene c. Teflon d. Bakelite

Ans: (a) The properties and uses of polythene are as follows:

Properties: 1) It is water resistant. 2) It is strong but flexible and can be rolled into sheets and moulded into different shapes.

Uses: Polythene sheets are used for the packaging of liquids such as milk. Polythene pipes are used to transport liquids such as oil and water. Polythene containers are used to store liquids.

(b) The properties and uses of polystyrene are as follows:

Properties: 1) It can be easily moulded. 2) It has poor chemical resistance. Uses: It is used for the packaging of delicate materials like electronic items. It is used to make thermocol. It is also used to insulate the hollow walls of the refrigerator.

(c) The properties and uses of Teflon are as follows: Properties:

1) It is slippery and is not affected by heat. 2) It does not react chemically with other substances. Uses: It is used as a non-stick coating on pans and other cooking utensils.

It is used for making gaskets, pump packings, valves, seals etc.

(d) The properties and uses of bakelite are as follows:

Properties: 1) It is a good electrical insulator. 2) It is harder than other plastics.

Uses: It is used to make electrical goods, combs, fountain pens, buttons, plugs and switches.

HOTS QUESTIONS: Think and answer.

1. Do you think rayon when burnt will stick to the body like other synthetic fibres?

Ans: Synthetic fibres catch fire very easily. They melt on heating and stick to the body of the person wearing them. However, rayon is regenerated from cellulose and it doesn't melt on burning, rather it flares up like paper and smells like it.

2. Burning cotton smells like burning paper, whereas burning wool smells like burning hair. Why?

Ans: Cotton smells like burning paper because both cotton and paper are extracted from plants and constitute mainly cellulose, whereas burning wool smells like burning hair because both wool and hair are extracted from animals and both have sulphur in them.

3. Which property of plastics makes them so useful but also makes them an environmental hazard?

Ans: Plastics are nonreactive. They last much longer than any other material. They cannot be decomposed by bacteria and so are not biodegradable in nature. These properties make plastics useful but also make them an environmental hazard.

4. Clay is a 'plastic' material. Does this imply that it is a polymer?

Ans: Clay is a 'plastic' material because we can mould it into different shapes, which is a property of plastic. But clay is not a polymer because polymers are made up of monomer units while clay is not made up of monomer units. Clay is a mixture of compounds.

5. Ankit was learning how to cook. His father strictly told him not to wear nylon clothes in the kitchen. Why?

Ans: Nylon is a synthetic fibre. Synthetic fibres catch fire easily. They are inflammable. They melt on heating and stick to the body of the person wearing them which causes severe burn injuries. Therefore, these type of clothes are not suitable in a kitchen.