

Synthetic Fibres and Plastics

1. Explain why some fibers are called synthetic?

Answer:

Some fibers are called synthetic fibers because they are man-made. These fibers made by the combination of different types of chemicals in industries and their nature are also different in respect of natural fiber.

2. Mark (✓) the correct answer:

Rayon is different from synthetic fibres because

- (a) it has a silk like appearance
- (b) it is obtained from wood pulp
- (c) Its fibres can also be woven like those of natural fibres

Answer:

It is obtained from wood pulp [✓]

3. Fill in the blank with appropriate words:

- i. Synthetic fibers are also called _____ or _____ fibers.
- ii. Synthetic fibers are synthesized from raw material called _____.
- iii. Like synthetic fibers, plastic is also a _____.

Answer:

- i. Synthetic fibers are also called man-made or natural fibers.
- ii. Synthetic fibers are synthesized from raw material called petrochemicals.
- iii. Like synthetic fibers, plastic is also a polymer.

4. Give examples which indicate that nylon fibers are very strong.

Answer:

Nylon fibers are very strong, elastic and light in weight. It has a lustrous and easy to wash. Nylon is also used for making parachutes and ropes for rock climbing

5. Explain why plastic containers are favoured for storing food.

Answer:

Advantages of storing foods in plastic containers are:

- The plastics do not react with the food stored in them.
- The plastics are light weight and are strong.
- They are easy to handle and safe.
- They are cheap (affordable) and ductile.

6. Explain the difference between the thermoplastic and thermosetting plastics.

Answer:

Difference between thermoplastic and thermosetting plastics is as follows:

Thermoplastic	Thermosetting Plastics
Thermoplastic is a soft material.	Thermosetting plastic is a hard material.
It can be bent easily.	It can't be bent.
It can be melted on heating.	It can't be melted on heating.
It can be re-shaped.	It can't be re-shaped.
These are good conductors of heat.	These are bad conductors of heat.
Examples: Polythene, PVC	Examples: Bakelite, Melamine

7. Explain why the following are made of thermosetting plastics:

a. Saucepan handles

b. Electric plugs / switches / plug boards.

Answer:

a. The handles of saucepans are made of thermosetting plastics because it is a bad conductor of heat and so, do not get heated up while cooking. So it is easier to handle the utensil while cooking. Moreover it does not get softened due to heat.

b. Electrical plugs, switches and plug-boards are made up of thermosetting plastics because it is a bad conductor of electricity. It does not allow the electric current to pass through it, thus safe in using in electric appliances.

8. Categorize the materials of the following products into 'can be recycled' and 'can not be recycled':

Telephone Instruments, Toys, Cooker handles, Carry bags, Ball point pens, Plastic bowls, Electric wire covering, Plastic chairs, Electrical switches.

Answer:

Can be recycled: Toys, carry bags, plastic bowls, ball point pen, plastic chair,

Can't be recycled: electric wire covering, Cooker handles, electrical switches, telephone instruments.

9: Rana wants to buy shirts for summer. Should he buy cotton shirts or shirts made of synthetic material? Advise Rana giving your reasons.

Answer:

Cotton clothes are preferred to synthetic clothes in summer because cotton is a bad conductor of heat. It does not allow the outer heat to enter in our body, thus protects our body from heat. Also it has more capacity to hold moisture than the synthetic clothes. So, it retains the sweat of the body and keeps it cool.

So Rana should buy shirts made up of cotton.

10. Give examples to show that plastics are noncorrosive in nature.

Answer:

Plastics are noncorrosive in nature because it is a nonreactive substance. It does not react with air, water, minerals and other chemicals. So in present days most of the containers, utensils and laboratory equipments are made with plastics to store food, chemicals etc.

11. Should the handle and bristles of a tooth brush be made of the same material? Explain your answer.

Answer:

For the handles and bristles of toothbrush we can not choose same type of plastics because bristles are used to clean our teeth and gum. So it must be a type of thermoplastic that is nylon but handles of toothbrush must be strong and tough so

that it can give some grip and resist our efforts on it. So it should be a type of thermosetting plastic.

12. 'Avoid plastics as far as possible'. Comment on this advice.

Answer:

Plastics are non-biodegradable materials. They take several years to decompose. It is not environment friendly and causes environment pollution. Also burning process of plastics is quite slow. In the process of burning it releases lots of poisonous gas into the atmosphere causing air pollution. Some plastics can't be recycled and so, it is very difficult to finally dispose off such materials. Polythene bags, carelessly thrown in an eating garbage can cause death for the animals like - cows, dogs etc or sometimes even become a cause for clogging of the drains.

The only solution to get rid of these problems is to reduce the use of plastics. There lies the justification for saying that 'Avoid plastics as far as possible'.

13. Match the terms of column I correctly with the phrases given in column II:

Column I

Column II

(i) Polyester

a. Prepared by using wood pulp

(ii) Teflon

b. Used for making parachutes and stockings

(iii) Rayon

c. Used to make non-stick cook wares

(iv) Nylon

d. Fabrics do not wrinkle easily

Answer:

Column I	Column II
(i) Polyester	d. Fabrics do not wrinkle easily
(ii) Teflon	c. Used to make non-stick cook wares
(iii) Rayon	a. Prepared by using wood pulp
(iv) Nylon	b. Used for making parachutes and stockings

14. 'Manufacturing synthetic fibers is actually helping conservation of forests'. Comment.

Answer:

The natural fibers are obtained from plants and animals, whereas the synthetic fibers are obtained by chemical processing of petrochemicals. Unlike natural fibers,

manufacturing of synthetic fibers do not require to cut trees or hunting of any animal. In this way manufacturing synthetic fibers is actually helping conservation forests.

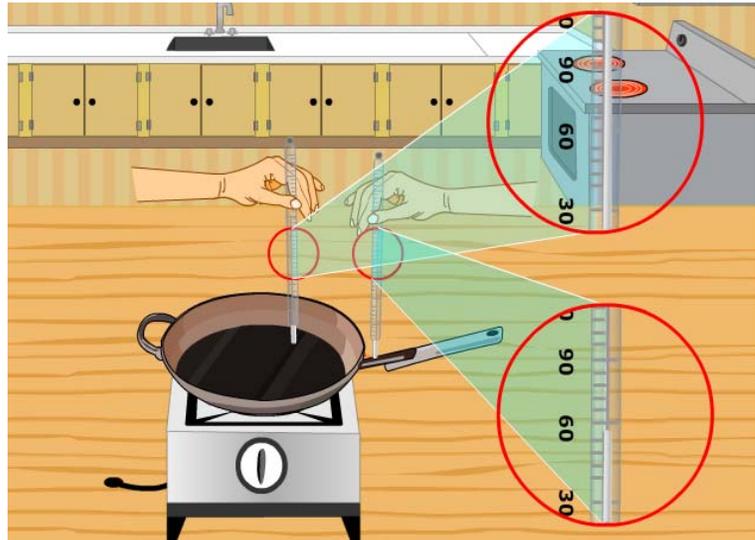
15. Describe an activity to show that thermoplastic is a poor conductor of electricity.

Answer:

Take a fry pain having plastic handle and place over the lighted burner.

Now take two thermometers and put one on metal side and other on the plastic side with help of hand as show here.

Observe after a few hours.



We observe that temperature of metal part increases rapidly, whereas temperature of handle of plastic part remain same or slightly change. Thus, we conclude that plastic is a poor conductor of heat. So it is used to make a handle of utensils.
