

3. Synthetic Fibres and Plastics

Question 1.

Explain why some fibres are called synthetic.

Answer:

Some fibres are called synthetic fibers because they are made by man using chemicals.

Question 2.

Mark (✓) the correct answer.

Rayon is different from synthetic fibers 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:

- (b) it is obtained from wood pulp.

Question 3.

Fill in the blanks with appropriate words.

- (a) Synthetic fibres are also called _____ or _____ fibers.
- (b) Synthetic fibres are synthesised from a raw material called _____
- (c) Like synthetic fibres, plastic is also a _____

Answer:

- (a) man-made, artificial fibers
- (b) petrochemicals
- (c) polymer

Question 4.

Give examples which indicate that nylon fibres are very strong.

Answer:

The following examples indicate that nylon fibres are very strong.

- (i) They are used for making parachutes and ropes for rock climbing.
- (ii) They are used in making seat-belts, fishing nets, tyre cord, a string for sports rackets and musical instruments.

Question 5.

Explain why plastic containers are favoured for storing food.

Answer:

Plastic containers are favoured for storing food because of the following reasons:

- (i) the plastics do not react with the food stored in them.
- (ii) the plastics are lightweight and are strong.
- (iii) they are easy to handle and safe.

Question 6.

Explain the difference between thermoplastic and thermosetting plastics.

Answer:

Thermoplastics	Thermosetting plastics
<i>(i) These plastics softened on heating and can be bent easily.</i>	<i>(i) These plastics when moulded once, can't be softened again.</i>
<i>(ii) They do not lose their plasticity.</i>	<i>(ii) They lose their plasticity.</i>
<i>(iii) Examples are polyethene, PVC, etc.</i>	<i>(iii) Examples are bakelite and melamine.</i>

Question 7.

Explain why the following are made of thermosetting plastics.

- (a) Saucepan handles*
- (b) Electric plugs/switches/plugboards*

Answer:

(a) Since, thermosetting plastics are a bad conductor of heat and do not get heated up while cooking, they are used for making saucepan handles.

(b) Since thermosetting plastics are a bad conductor of electricity and the electric current does not pass through such plastics, they are used for making electric plugs/switches/plugboards.

Question 8.

Categorise the materials of the following products into 'can be recycled' and 'can not be recycled'.

Telephone instruments, plastic toys, cooker handles, carry bags, ballpoint pens, plastic bowls, plastic covering on electrical wires, plastic chairs, electrical switches.

Answer:

Can be recycled	Cannot be recycled
<i>Plastic toys carry bags, plastic bowls, plastic covering on electrical wires, plastic chairs.</i>	<i>Telephone instruments, cooker handles, ballpoint pens, electrical switches.</i>

Question 9.

Rana wants to buy shirts for summer. Should he buy cotton shirts or shirts made from synthetic material? Advise Rana, giving your reason.

Answer:

He should buy cotton shirts. This is because cotton has more capacity to hold moisture than synthetic clothes. In summers we have extensive sweating which is easily soaked by cotton shirts and hence, cotton clothes are much better than the clothes made from synthetic material.

Question 10.

Give examples to show that plastics are non-corrosive in nature.

Answer:

The literal meaning of non-corrosive is resistant to get destroyed by chemical

action.

Following are the examples that show that plastics are non-corrosive in nature.

- Plastic containers do not react with items stored in it.
- They do not get rusted when exposed to moisture and air.
- They do not decompose when left in open for a long period.

Question 11.

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

Answer:

No, the handle and bristles of a toothbrush should not be made of the same material. This is because our gums are soft and the bristles should be made of soft material so that it does not harm the gums. On the other hand, the handles should be made up of hard material so that it can give a firm grip.

Question 12.

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

Answer:

Plastics must be avoided as far as possible. The materials made of plastics are non-biodegradable. The use of plastics has a bad effect on the environment. When the plastics are burnt, it releases a lot of poisonous fumes into the atmosphere causing air pollution. These plastic materials when eat up by the animals (like cows), choke their respiratory system. This can cause death of these animals. The waste plastic articles thrown here and there carelessly get into dirty water drains and sewers, and block them. In a nutshell, plastics can be considered a threat to our environment.

Question 13.

Match, the terms of column A correctly with the phrases given in column B.

A	B
(i) Polyester	Prepared by using wood pulp
(ii) Teflon	Used for making parachutes and stockings
(iii) Rayon	Used to make non-stick cookware
(iv) Nylon	Fabrics do not wrinkle easily

Answer:

- (i) (d)
(ii) (c)

- (iii) (a)
- (iv) (b)

Question 14.

‘Manufacturing synthetic fibres is actually helping the conservation of forests’.
Comment.

Answer:

In the manufacturing of synthetic fibres, we use only chemical substances and no natural materials, thus, in turn, we conserve forests.

Question 15.

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

Answer:

Arrange a circuit as shown in the given figure. Leave a gap between two ends of the wire. Place a thermoplastic in the gap. Observe the bulb.

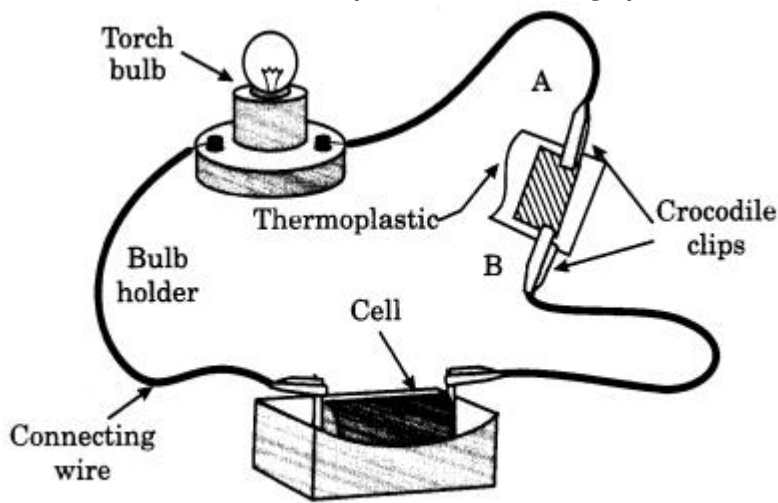


Fig. 3.4 An electric circuit to test materials for their electric conductance

It is observed that the bulb does not glow. This shows that thermoplastic is a poor conductor of electricity.

Solutions for Class 8 Science Chapter 3 - 1 Mark Questions and Answers

Question 1.

Explain why some fibres are called synthetic. [NCERT]

Answer:

Some fibres are called synthetic because they are made by human beings.

Question 2.

Mark the correct answer.

Rayon is different from synthetic fibres because [NCERT]

- It has a silk-like appearance.
- It is obtained from wood pulp.
- Its fibres can also be woven like those of natural fibres.

Answer:

- *It is obtained from wood pulp.*

Question 3.

Give examples which indicate that nylon fibres are very strong.

Answer:

Parachutes and nylon ropes are used for rock climbing.

Question 4.

Name the plastic whose sheets are used for packing liquids.

Answer:

Polythene.

Question 5.

Why is teflon used as tape for sealing purpose ?

Answer:

Because of its toughness, teflon is used as tape for sealing purpose.

Question 6.

Name the first fully synthetic fibre.

Answer:

Nylon.

Question 7.

Why nylon is used for making parachutes ?

Answer:

Nylon is used for making parachutes, because it is very strong, elastic and light.

Question 8.

Name the material used for making ropes for rock climbing.

Answer:

Nylon.

Question 9.

What is polyester ?

Answer:

Polyester is made up of the repeating units of an ester.

Question 10.

Name the plastic used for making polythene bags.

Answer:

Polythene bag is made of plastic which is a polymer of ethene.

Question 11.

What name is given to plastics which can be re-set a number of times ?

Answer:

Thermoplastics.

Question 12.

Classify the following into thermosetting and thermoplastics-combs, bakelite, melamine, toys.

Answer:

Thermosetting - bakelite, melamine

Thermoplastics - combs, toys

Question 13.

Why are the chemicals in the laboratory stored in plastic containers ?

Answer:

Plastics are non-reactive, so they can be used for storing chemicals.

Question 14.

Can you store pickles in plastic containers ? Why ?

Answer:

Plastics are non-reactive, so pickles can be stored in them.

Question 15.

Why are the electric wires covered with plastic ?

Answer:

Plastic is a poor conductor of electricity, therefore, the wires are covered with it.

Question 16.

Why do we use plastic cookwares in microwave ovens ?

Answer:

We use plastic cookware in microwave ovens, because they are not affected by heat but the food is cooked.

Question 17.

Tin takes about 100 years to degenerate. Is it biodegradable or non-biodegradable ?

Answer:

Tin is non-biodegradable.

Question 18.

Is it advisable to use recycled plastic containers for storing food ?

Answer:

No, we should not use recycled plastic containers for storing food because they contain colouring agents.

Question 19.

As a responsible citizen, what are the 4R's we should remember ?

Answer:

Reduce, Reuse, Recycle and Recover.

Question 1.

A person has to make a non-stick pan. He has three types of plastic-Bakelite, Teflon and PVC. Which plastic will he use for coating and why ?

Answer:

The person will use Teflon because it is not affected by heat and does not react chemically with other substances.

Question 2.

Explain the difference between thermoplastic and thermosetting plastics.

[NCERT]

Answer:

Thermosetting	Thermoplastic
(i) These plastics can be moulded and (ii) e.g., Bakelite and melamine.	(i) These plastics can be moulded and reset a number of times. (ii) e.g. Polythene and PVC.

Question 3.

Differentiate between natural and synthetic fibres.

Answer:

Natural fibres are obtained from nature, e.g., cotton whereas synthetic fibres are made by man, e.g., nylon.

Question 4.

How is rayon made ? Give one advantage of using rayon.

Answer:

Rayon is obtained from wood pulp by treating it chemically. It is cheaper than silk, but can be woven like silk fibre.

Question 5.

Is nylon fibre so strong, that we can use it to make parachutes ?

Answer:

Yes, nylon is very strong and it can be used for making parachutes.

Question 6.

Give some uses of PET.

Answer:

PET is used for making bottles, utensils, fibres and wires.

Question 7.

Give the composition of Polycot and Polywool.

Answer:

Polycot is a mixture of polyester and cotton, Poly wool is a mixture of polyester and wool.

Question 8.

What properties of plastics make it useful for many things ?

Answer:

Plastics can be recycled, reused, coloured, melted, rolled into sheets or made into wires, so they are very useful.

Question 9.

Why is melamine used for making kitchenware ?

Answer:

Melamine resists fire and can tolerate heat better than other plastics. So, it is used for making kitchenware.

Question 10.

Buckets made up of plastics are better. Why ?

Answer:

Buckets made up of plastic are better because they are light, strong and durable.

Question 11.

Differentiate between biodegradable and non-biodegradable materials.

Answer:

Biodegradable Materials	Non-biodegradable Materials
(i) A material which gets decomposed through natural processes, such as action of bacteria. (ii) e.g., cotton or jute.	(i) A material which does not get decomposed by natural processes. (ii) e.g., plastics.

Question 12.

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

Answer:

No, the handle and bristles of tooth brush cannot be made of the same plastic. The handle is hard but the bristles are soft and flexible.

Solutions for Class 8 Science Chapter 3 MCQs

Question 1.

Electrical switches are made of

- (a) nylon
- (b) bakelite
- (c) polythene
- (d) melamine

Answer:

(b)

Question 2.

Out of the following, which is not biodegradable ?

- (a) Vegetable peels

- (b) Plastic bags
- (c) Cotton
- (d) Jute

Answer:

(b)

Question 3.

Clothes made of which fabric are best suited for hot climate ?

- (a) Cotton
- (b) Nylon
- (c) Acrylic
- (d) Polycot

Answer:

(a)

Question 4.

Out of the following, which is not a natural fibre ?

- (a) Cotton
- (b) Silk
- (c) Jute
- (d) Rayon

Answer:

(d)

Question 5.

Naturally occurring polymer is

- (a) cellulose
- (b) polyester
- (c) nylon
- (d) PVC

Answer:

(a)

Question 6.

Plastic used for coating non-stick pans is

- (a) PVC
- (b) ester
- (c) bakelite
- (d) melamine

Answer:

(d)

Question 7.

Pickles are kept in plastic containers because plastic containers are

- (a) non-corrosive
- (b) light
- (c) colourful
- (d) cheap

Answer:

(a)

Question 8.

Which of the following is a thermoplastic

- (a) Bakelite
- (b) Melamine
- (c) Polythene
- (d) Jute

Answer:

(c)

Question 9.

Which of the following can be recycled?

- (a) Plastic bowls
- (b) Ballpoint pens
- (c) Telephone instruments
- (d) Electrical switches

Answer:

(a)

Question 10.

Which material is best suited for covering electric wires?

- (a) Plastic bowls
- (b) PVC
- (c) Polystyrene
- (d) Nylon

Answer:

(b)