DEPARTMENT OF EDUCATION (S)
Government of Manipur

CHAPTER-3.
SYNTHETIC FIBRES AND PLASTICS

SOLUTIONS :

EXERCISES:

Q1. Explain why some fibres are called synthetic.

Ans: Some fibres are called synthetic because they are made by human beings by using chemicals.

Q2. 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

Ans: b).It is obtained from wood pulp

Q3. Fill in the blanks with appropriate words.

a) Synthetic fibre are also called……………… or ……….. fibres.
b) Synthetic fibre are synthesised from raw materials called …………….
c) Like synthetic fibres, plastic is also a …………….

Ans: (a).artificial, manmade (b).petrochemicals (c). Polymer

Q4. Give examples which indicate that nylon fibres are very strong.

Ans: Parachutes and ropes for rock climbing are made from nylon fibres.

Q5. Explain why plastic containers are favoured for storing food.

Ans: Plastic containers are favoured for storing food because plastic is non-reactive. They do not react with water and air. They are not corroded easily. Plastic is very light, strong and durable.

Q6. Explain the difference between thermoplastic and thermosetting plastics.

Ans: Plastic which gets deformed easily on heating and can be bent easily are known as thermoplastics. On the other hand, plastics which when moulded once, cannot be softened by heating are known as thermosetting plastics.

Q7. Explain why the following are made of thermosetting plastics. A) Saucepan handles B) Electric plugs/switches/plug boards.

Ans: (A). Saucepan handles are made up of thermosetting plastics because it resists fire and can tolerate heat.

(B). Electric plugs/switches/plug boards are made of thermosetting plastics because it is a poor conductor of electricity.

Q8. Categorise the materials of the following products into 'Can be recycled' and 'cannot be recycled' Telephone instruments, plastic toys, cooker handles, carry bags, ball point pen, plastic bowls, plastic covering on electrical wires, plastic chairs, electrical switches.

Ans:

'Can be recycled'	'Cannot be recycled'
Plastic toys, carry bags, ball point pens, plastic bowls, plastic covering on electrical wires, plastic chairs.	Telephone instruments, cooker handles, electrical switches.

Q9. Rana wants to buy shirts for summer. Should he buy cotton shirts or shirts made from synthetic materials? Advise Rana, giving your reason.

Ans: Rana should buy cotton shirts for summer because cotton has more pores capable of holding more sweat than synthetic clothes thus keeping us cool.

Q10. Give examples to show that plastics are non corrosive in nature.

Ans: Plastics are non corrosive in nature. They do not react with water and air and therefore they are used to store various kinds of material, including many chemicals.

Q11. Should the handle and bristles of a tooth brush be made of the same material? Explain your answer.

Ans:The handle and bristles of a tooth brush should not be made of the same materials because they have different uses. The handle should be hard to give a smooth grip and bristles should be soft and flexible so that it does not harm the gum of the teeth.

Q12. 'Avoid plastics as far as possible' Comment on this advice.

Ans: Since plastics take several years to decompose, it is not environment friendly. It causes environmental pollution. It releases lots of poisonous fumes into the atmosphere as it does not get completely burnt thus causing air pollution.

Q13. Match the terms of column 'A' correctly with the phrases given in column 'B'

	A	B
i)	Polyester	a) Preparedby using wood pulp
ii)	Teflon	b) Used for using parachutes and stockings
iii)	Rayon	c) Used to make non stick cookwares
iv)	Nylon	d) Fabrics do not wrinkle easily

Ans:

	A	B
i)	Polyester	d) Fabrics do not wrinkle easily
ii)	Teflon	c)Used to make non stick cookwares
iii)	Rayon	a) Preparedby using wood pulp
iv)	Nylon	b)Used for using parachutes and stockings

Q14. 'Manufacturing synthetic fibres is actually helping conservation of forests'. Comment.

Ans: Synthetic fibres are made up of synthetic materials and not from plants or animals. In the manufacturing of synthetic fibres no material from natural sources are used which help in deforestation and animal killing. Therefore, manufacturing synthetic fibres is actually helping conservation of forests.

Q15. Describe an activity to show that thermoplastic is a poor conductor of electricity.

Ans: Thermoplastic is a poor conductor of electricity. It can be shown by using a plastic wire as a connecting wire in a circuit. In this condition, the bulb will not glow. That is why, electrical wires have plastic covering and handles of screw drivers are made of plastics.

Extra Questions and Answers:

Q1. What are synthetic fibres? Name some synthetic fibres?

Ans: Fibres which are made by human beings are called synthetic or manmade fibres. Some synthetic fibres are nylon, terylene, Teflon, PET, acrylic.

Q2. What are natural fibres? Name some natural fibres.

Ans:- Fibres which are obtained from plants and animals are called natural fibres. Some natural fibres are cotton, wool and silk etc.

Q3. What is polymer?

Ans: Polymer is a chain of small units joined together to form a large single unit.

Q4. What is cellulose?

Ans: Cellulose is a polymer made up of large number of glucose units.

Q5. What are the types of synthetic fibres?

Ans: The types of synthetic fibres are Rayon, Nylon, Polyester and Acrylic.

Q6. Write some characteristics of synthetic fibre.

Ans: Some characteristics of synthetic fibres are

i. They dry up soon
ii. They are durable, less expensive
iii. They are readily available and easy to maintain

Q7. What is rayon or artificial silk? Write its uses.

Ans: Rayon or artificial silk is a fibre obtained by chemical treatment of woodpulp

Uses: Rayon is mixed with cotton to make bed sheets or mixed with wool to make carpets.

Q8. What is nylon? Write the properties and uses of nylon.

Ans: Nylon is a fibre prepared from coal, water and air without using any natural raw materials.

Properties: It is strong, elastic and light. It is lustrous and easy to wash.

Uses: It is used for making parachutes and ropes for rock climbing. It is also used for making articles such as socks, tents, toothbrushes, sleeping bags etc.

Q9. What is polyester?

Ans: Polyester is a synthetic fibre which is made up of the repeating units of a chemical called ester.

Q10. What is polycot and polywool?

Ans: Polycot is a mixture of polyester and cotton while polywool is a mixture of polyester and wool.

Q.11 What is acrylic?

Ans: Acrylic is an artificial wool.

Q12. Why is it advised not to wear synthetic clothes while working in the kitchen or in a laboratory?

Ans: We should not wear synthetic clothes while working in the kitchen or in a laboratory because synthetic fibres melt on heating. If the clothes catch fire, it can be disastrous. The fabric melts and sticks to the body of the person wearing it.

Q13. What is PET? Give its uses

Ans: PET is polyethylene terephthalate. It is used for making bottles, utensils, films, wires and other products.

Q14. Write some properties of plastic which make them as materials of choice.

Ans: Some properties of plastics are

i. Plastic is non-reactive and non-corrosive.
ii. Plastic is light, durable and strong.
iii. Plastics are poor conductors of heat and electricity.
iv.

Q15. Write some properties and uses of melamine.

Ans:- Properties: It resists fire and can tolerate heat better than other plastics.

Uses: It is used for making floor tiles, kitchen ware and fabrics which resist fire.

Q16. Write properties and uses of bakelite.

Ans: Properties:- It is a poor conductor of heat and electricity.

Uses: It is used for making electrical switches, handles of various utensils etc

Q17. What are biodegradable and non biodegradable materials?

Ans: A material which gets decomposed through natural processes such as action by bacteria is called biodegradable material while a material which is not easily decomposed by natural processes is called non biodegradable material.

Q18. Suggest some ways in which you can contribute towards reducing the uses of plastic materials.

Ans:-i). Avoid the use of plastics as far as possible.

ii). Make use of bags made of cotton or jute.

iii). The biodegradable and non biodegradable wastes should be collected separately and disposed off separately.

iv). Recycling plastic waste.

Q19. Write some disadvantages of synthetic fibres.

Ans: i). Synthetic fibres are dangerous to wear near fire or heat as they catch fire easily.

ii). They cannot absorb moisture.

iii). They cannot be easily ironed.

<u>OBJECTIVE TYPE QUESTIONS</u>

Q1. Which fibre is called the artificial silk?

a) Nylon b) Rayon c) Acrylic d) Polyester Ans: (b) Rayon

Q2. Which fibre resembles wool in look and qualities?

a) Acrylic b) Rayon c) Nylon d) cotton Ans: (a) Acrylic

Q3. Synthetic fibres are made up of small units called?

a) Polymer b) Molecule c) cells d) None of these Ans: (a) Polymer

Q4. Which is the strongest synthetic fibre?

a) Nylon b) Rayon c) Polyester d)Acrylic Ans: (a).Nylon

Q5. Which material is used to make rayon?

a) Plastic b) wool c) jute d) wood pulp Ans: (d). Wood pulp

Q6. The first fully synthetic fibre is

a) Rayon b) Nylon c) polyester d) Acrylic Ans: (b). Nylon