

## 03. SYNTHETIC FIBRES AND PLASTICS

### Questions and Answers

#### 1. Explain why some fibers are called synthetic?

**A.** Natural fibers are obtained from natural like plants and animals. Synthetic fibers are obtained from chemicals mainly petroleum. They are synthesized with chemicals in factories. So they are called synthetic fibers or artificial fibers.

#### 2. Give reasons why plastic containers are used as storage devices?

**A.** The reasons for using plastic containers as storage devices.

- (i) Plastics do not react with food.
- (ii) Plastics are light weight and strong.
- (iii) Plastics are available at cheap cost.
- (iv) Plastics have more durability
- (v) Plastics are easy to handle and carry.
- (vi) Plastics will not corrode easily.

#### 3. Classify the following material which can be recycled or not.

Plastic toys, Electrical switches, Plastic chairs, Ball point pens, Telephone instruments, Plastic containers, Cooker handles, Plastic bottles, Carry bags, Tumblers, Tooth brush, Plastic chappals, Plastic plates, Plastic buckets.

**A.**

Material which can be recycled	Material which can not be recycled
Plastic toys	Electric switches
Plastic chairs	Ball point pens
Plastic containers	Telephone instruments
Plastic bottles	Cooker handles
Tumblers	Carry bags
Plastic chappals	Tooth brush
Plastic buckets	
Plastic plates	

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#### 4. If electric switches are made by thermo plastics, what would happen?

**A.** Thermo plastics are good conductors of heat. They can be melt easily. The flow of current produce heat. If we made electric switches with thermo plastics, the switches may melt due to heat. It causes electric shock. So electric switches should not be made with thermo plastics.

#### 5. Thermo plastics are eco friendly than thermo setting plastics. What do you say? Why?

**A.** Thermo plastics are recyclable plastic materials. They can be melted and change their shape. But thermo setting plastics are hard and could not be recycled. So thermo plastics are eco friendly than thermo setting plastics.

#### 6. Explain the following.

- (a) Blending      (b) Biodegradable  
 (c) Recycling      (d) Decomposition

**A. (a) Blending :** The process of combining any synthetic fiber with two or more other fibers is called blending.

Ex: Cotton + Polyester ---- Wrinkle free fabric

**(b) Bio degradable :** The materials which can be easily decomposed by natural processes are called bio-degradable.

Ex: Vegetables, Fruits, Pulses

**(c) Recycling :** The broken plastic materials are not comfortable for usage. So they were given a proper treatment to make to reuse. This process is called recycling.

**(d) Decomposition :** The materials break down into smaller pieces in the presence of water, sunlight and oxygen. They further broken down by bacteria. This is called decomposition.

## 7. Match the following.

- (i) Polyester [ ] (a) Kitchen ware  
 (ii) PET [ ] (b) artificial silk  
 (iii) Rayon [ ] (c) electric switches  
 (iv) Nylon [ ] (d) many monomers  
 (v) Melamine [ ] (e) Code-1  
 (vi) Polythene [ ] (f) Popular dress material  
 (vii) Bakelite [ ] (g) Stronger than any fiber

- A.** (i) Polyester [ f ] (a) Kitchen ware  
 (ii) PET [ e ] (b) artificial silk  
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 (v) Melamine [ a ] (e) Code-1  
 (vi) Polythene [ d ] (f) Popular dress material  
 (vii) Bakelite [ c ] (g) Stronger than any fiber

## 8. Fill in the blanks.

- (i) Synthetic fibers are called as .....  
 (ii) Synthetic fibers are synthesized from raw material called .....  
 (iii) Like synthetic fiber, plastic also .....  
 (iv) Clothing labels are ..... [ ]  
 (a) Required by law (b) Identify fabric content  
 (c) both (a) and (b) (d) None of the above  
 (v) Rayon is made up of ..... [ ]  
 (a) Coal (b) Oxygen  
 (c) Flax (d) Cellulose  
 (vi) A silk fiber's smooth surface absorbs light ..... [ ]  
 (a) Yes (b) No  
 (c) Can't say

- A.** (i) artificial fibers (ii) Petro chemicals  
 (iii) Polymer (iv) (c)  
 (v) (d) (vi) (b)

## 9. Where do we use the process of recycling? How is it useful? Give examples.

- A.** The broken plastic substances or materials are not comfortable for usage. Some local vendors collect broken plastic articles from our houses. They send the trash to recycle factories.

The broken material was given a proper treatment to make them to reuse. This process is called recycling.

It is very useful because if objects are not recycled, the trash cause pollution. It led to biological imbalance. Generally the plastic bottles used for cool drinks can be recycled.

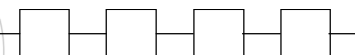
## 10. Take hair, wool, silk, paper, cotton thread, piece of plastic, thread of sweater, piece of rope and carefully observe a flame test. Based on smell and type of melting classify them as natural and artificial fibers.

### A.

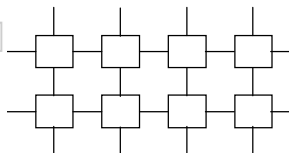
Natural fibers	Artificial fibers
Hair	Piece of plastic
Wool	Thread of sweater
Silk	Piece of rope
Pape	
Cotton	
Piece of rope (Natural)	

## 12. Explain the differences between the thermo plastics and thermo setting plastics with the help of a diagram explaining in terms of arrangements of monomers?

- A.** The linear arrangement of monomers in thermo plastics :










The cross linked arrangement of monomers in thermo setting plastics :



Thermo plastics	Thermo setting Plastics
Bonds between monomers can break easily	Bonds between monomers can not break easily
These are soft materials	These are hard materials
These can be melt easily	These can not be melt
These are good conductors of heat	These are poor conductors of heat
These can be reshaped	These can not be reshaped
These are eco friendly	These are not eco friendly
PET, Polythene are thermo plastics	Bakelite, Melamine are thermo setting plastics

13. Prepare a chart which can explain recycling codes, full name and acronym of plastic and its usage of various household articles, recycled or not, if recycled what will be made from that?

A.

Recycling code	Full Name	Acronym	Usage in various household articles	Whether recycled or not	If yes what will be made from that
	Poly Ethylene Terephthalate	PET	Cool drink bottles Water bottles Food containers	Recycled	Bottle caps
	High Density Poly Ethylene	HDPE	Oil cans Bottle caps Milk packets	Recycled	Sachets
	Poly Vinyl Chloride	PVC	Electric cables Water pipes House construction articles Credit cards	Not recycled	*****
	Low Density Poly Ethylene	LDPE	Dispensing bottles Wash bottles Package articles	Recycled	Plastic bags, Covers
	Poly Propylene	PP	Toys, Ropes Carpets	Recycled	Toy articles, Sample parts
	Poly Styrene	PS	Razor CD case Computer cabins	Not recycled	*****
	Others	(combination of resins)	Non stick pans	Not recycled	*****

14. Introduction of synthetic fibers in the textile industry brought revolutionary change across the world in the dressing patterns irrespective of culture and customs? How do you appreciate this?

A. Synthetic fibers possess uniform unique characteristics which make them a famous dress materials. They absorb water less and dried up quickly. They are in different colours. They are available in cheap cost and in different designs. They

have more durability than natural fibers.

So synthetic fibers made revolutionary changes in the world irrespective of customs and culture. So I appreciate the role of Synthetic fibers. They were attracted by the consumers.

### 15. How synthetic fibers changed our daily life?

#### A. Synthetic fibers changed our life :

- (i) Synthetic fibers possess uniform unique characteristics which make them a famous dress materials.
- (ii) They absorb water less and dried up quickly.
- (iii) They are in different colours.
- (iv) They are available in cheap cost and in different designs.
- (v) They have more durability than natural fibers.
- (vi) They are used by all people in the world irrespective of customs and culture.
- (vii) They are less weight more strength.
- (viii) So consumers attracted towards synthetic fabrics.
- (ix) Some fibers are water proof.
- (x) They are ready made.

So Synthetic fibers changed our life.

### 16. Nibha wants to buy clothes to parents for winter wear. What type of clothes would you suggest ? Specify reasons.

- A. Winter wear provide sufficient warmth to our body. So I suggest Nibha, to buy Sweaters, Shawls or blankets which were made up of wool or acrylic.

### 17. If plastic is not properly disposed, What could be the consequences?

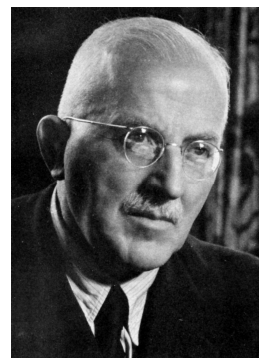
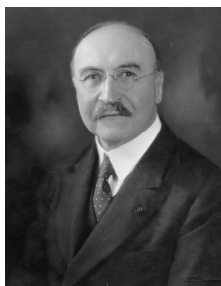
- A. If plastic materials are not disposed properly

- (i) It creates a lot of trash on the earth.
- (ii) As they take several years to decompose, they cause to earth pollution.
- (iii) The plastics waste does not dissolve in water and led to the deaths of aquatic life.
- (iv) The plastics which were eaten by animals were not digested and a cause to the death of animals
- (v) The garbage of plastic bags led to drainage problems in cities.
- (vi) If we burn the plastic, they produce poisonous fumes and causes to air pollution.

So It is better to prevent the usage of plastic.

### 18. Indiscriminate usage of plastic is a serious threat to bio diversity. What are the efforts of Government and Non-Government organization in this regard?

- A. To reduce the serious threat to bio diversity, we have to use less carry bags. Government should ban LDPE plastics. The organizations also create awareness among people towards the problems of using polythene bags. They have to create awareness about the implementation of 4R's. We should take an oath to use less number of plastic carry bags.



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