Synthetic Fibres and Plastics

Very Short Q&A:

Q1: A synthetic fibre is a chain of small _____ joined together.

Ans: Units

Q2: Give examples of some natural and man- made fibres.

Ans: Natural fibre ,e.g.: cotton, wool, silk and synthetic fibre, e.g: rayon, nylon, polyester

Q3: Define synthetic fibres.

Ans: Fibres made by human being or man- made fibres are called synthetic fibres

Q4: Define polymer

Ans: A synthetic fibre is a chain of small units that is actually a chemical substance. Many such chemical substance joined together to form a large single unit is called polymer.

Q5: Cellulose is made up of large number of_____ units.

Ans: glucose

Q6: What is artificial silk?

Ans: Rayon is known as artificial silk because its properties are similar to that of silk. It is obtained from wood pulp, yet it is man-made fibre and is cheaper than silk.

Q7: Name the source of rayon.

Ans: Source of rayon is wood pulp which is a natural source yet it is a man – made fibre.

Q8: Define nylon fibre.

Ans: Nylon is a man- made fibre which is prepared from coal, water and air. It was the first fully synthetic fibre.

Q9: Write down few properties of nylon.

Ans: Nylon fibre is strong, elastic and light

Q10: Name some articles used in our day to day life made from nylon.

Ans: Socks, ropes, tents, bags, curtains, parachute etc.

Q11: Polyester fabrics do not get_____ easily.

Ans: Wrinkled

Q12: Give example of polyesters.

Ans: Terylene and PET

Q13: Tick the correct answer
Acrylic is used to make

- **Penicillin**
- **Alcohol**
- **Nitrate**
- **None of these**

Ans: b - sweater

Q14: What happens when synthetic fibres catch fire?

Ans: When synthetic fibres catch fire, it melts fastly and sticks to the body of the person wearing it. Thus we should avoid synthetic clothes while working in the kitchen or in a laboratory.

Q15: Define petrochemicals.

Ans: All the synthetic fibres are prepared by a series of process using raw materials that are of petroleum origin which are called as petrochemicals.

Q16: State few properties of plastics.

Ans: Plastics are non-reactive; they are light, string and durable. Plastics are poor conductors of heat and electricity.

Q17: Name some articles made from plastics

Ans: Glass, buckets, chairs, ropes, covering of electrical wires, containers etc.

Q18: Give examples of thermoplastics.

Ans: Polythene and PVC

Q19: Give examples of thermosetting plastics.

Ans: Bakelite and melamine

Q20: Which one is good conductor of electricity: Bakelite or melamine?

Ans: Melamine

Q21: Why we prefer plastic containers for storage of items like water, milk, pickles, dry food?

Ans: Plastics are light weighted, cheaper than other fabrics, strong and easy to handle, thus we prefer plastic containers for storage of items like water, milk, pickles, dry food

Q22: Plastics are poor conductor of _____ and _____.

Ans: Heat and electricity

Q23: What is Teflon?

Ans: Teflon is a special kind of plastic on which oil and water do not stick and because of this property teflon is used for non-stick coating on cookwares for preparing non-stick cookwares.

Q24: What do you mean by fire proof plastics?

Ans: Melamine is called fire proof plastic as it can resist fire and can tolerate heat better than other plastics, and because of this property of melamine it is used as coating of fireman's uniforms.

Q25: What do you mean by biodegradable?

Ans: Biodegradable is commonly associated with environmental friendly products that are capable of decomposing back into natural elements by natural processes such as action of bacteria. E.g. Paper, cotton cloth, wood etc.

Q26: What do you mean by non-biodegradable?

Ans: Non- biodegradable is commonly associated with non- environmental friendly products that are not capable of decomposing back into natural elements easily by natural processes such as action of bacteria. E.g. plastic bags, tin aluminium and other metal cans.

Q27: Paper is biodegradable or non- biodegradable?

Ans: Biodegradable

Q28: Why should we use a cotton carry bag or jute bag while going to market?

Ans: We should use cotton or jute bags while going for market to minimise the use of plastic bags, as they are non-biodegradable and not environmental friendly.

Q29: Why plastic articles are available in all shape and size?

Ans: Because of very important property of plastic that is it can be easily mouldable and shaped in any form.

Q30: Can all plastic articles be bent easily?

Ans: No. Only thermoplastics like polythene and PVC can bend easily while the thermosetting plastics like Bakelite and melamine does not get bend easily rather they break when forced to bend.

Q31: Illustrate various uses of thermoplastic andthermosetting plastics.

Ans: Thermoplastics are used for manufacturing toys, combs and various types of containers, and thermosetting plastics are used for making electrical wire, electrical switches, and handles of cooking utensils, floor tiles, cookwares and fabrics which resist fire.

Q32: Name the fibre having properties similar to that of silk.

Ans: Rayon

Q33: Tick the right answer
Nylon fibres are used for making

- **Ropes for rock climbing**
- **Parachutes**
- **Socks**
- **All of the above**

Ans: d

Q34: Name the source of natural fibre "cotton".

Ans: Cotton plants.

Short Q&A:

Q1: Differentiate between natural and artificial fibres.

Ans:

Natural Fibres	Synthetic Fibres
1. Fibres obtained from plants or animals. 2. Expensive. 3. Aluminium 4. They do not dry up quickly and are less durable 5. e.g : cotton, silk, wool	1. Fibres made by human beings. 2. Cheaper than natural fibres. 3. They dry up quickly and are durable. 4. e.g: rayon, nylon, etc.

Q2: Define polymer and give example of a polymer occurring in nature.

Ans: Synthetic fibres and plastics are made up of very large units called polymers, and polymers are made up of many smaller units.e.g. cotton is a polymer made up of cellulose and cellulose is made from large number of glucose units.

Q3: What are the advantages of artificial silk over natural silk?

Ans: Advantages of artificial silk over silk are:

- Artificial silk or rayon is cheaper than silk,
- It can be dyed in a variety of colours
- It can be used to make bed sheets on mixing with cotton, and on mixing with wool can be used to make carpets.

Q4: Explain the first ‘’fully synthetic fibre’’.

Ans: The first fully synthetic fibre was nylon. It was prepared from coal, water and air. It is very strong, elastic and light, it is very easy to wash and used for making variety of things like socks, ropes, bags, curtains, parachutes etc.

Q5: Why nylon fibre became popular for making clothes.

Ans: The first fully synthetic fibre was nylon. It was prepared from coal, water and air. It is very strong, elastic and light, it is very easy to wash and used for making variety of things like socks, ropes, bags, curtains, parachutes etc.

Q6: Why nylon is used for making parachutes and ropes for rock climbing?

Ans: Nylon thread is very strong infact it is stronger than steel wire, because of this property of nylon it is used for making parachutes and ropes for rock climbing.

Q7: State the unique characteristic of polyester fabric and is applications

Ans: Polyester fabrics do not get wrinkled easily and it remains crisp and can be washed easily than any other fabrics. Thus it is used to make dress, shirts etc. PET is one of the familiar form of polyester that is used to make bottles, utensils, wires and many other things

Q8: Name two polyester fabrics and their uses.

Ans: Terylene and PET are two widely used polyester fabrics. Terylene is used to make very fine yarn by which various dress materials are made. PET is one of the familiar form of polyester that is used to make bottles, utensils, wires and many other things

Q9: Name and explain a fibre which appears to resemble wool.

Ans: Acrylic fabric resembles wool, it is cheaper than wool and available is variety of colours. It is also more durable than wools

Q10: State the behaviour of natural fibre and synthetic fibre on burning.

Ans: On burning a natural fibre while on burning a synthetic fibre the fabric melts rapidly and in case of synthetic clothes it sticks to the body of person wearing it and cause severe burn to that person, it is totally disastrous.

Q11: Why we should avoid polyester clothes while working in kitchen?

Ans: Synthetic clothes like polyesters on burning sticks to the body of person wearing it and cause severe burn to that person, it is totally disastrous.

Q12: State the characteristics of synthetic fibre because of which it is used as dress materials.

Ans: Synthetic fibres are

- Less expensive than natural fibres
- Strong and long lasting
- Easily available
- Easy to maintain
- Dry up quickly

Q13: Do all plastics have same type of arrangement of units?

Ans: No, all plastics do not have same type of arrangement of units. In some plastics there are linear arrangement of units while in others there are cross linked arrangement of units

Q14: State some of the characteristics of plastics because of which it is used for making various articles.

Ans: Plastics are

- Light weighted
- Cheaper than metals
- Strong and long lasting
- Easy to handle
- Non-reactive: they do not react with water or air, and do not get corroded easily
- Plastics can be moulded into different shapes and sizes
- They are easily mouldable and can be shaped in any form to make different articles.
- They are poor conductors of heat and electricity.
- Thus they are used on large scale in industries and for making household articles.

Q15: What are plastics and its different types?

Ans: Plastics are synthetic or semi-synthetic organic solids that are mouldable. Plastics are typically organicpolymers of high molecular mass, but they often contain other substances too. Most plastics

contain organic polymer, plastics are broadly classified into two types' thermosetting plastics and thermoplastics.

Q16: What is plastic? Write down few characteristics of plastics.

Ans: Plastics are synthetic or semi-synthetic organic solids that are mouldable. Plastics are typically organicpolymers of high molecular mass, but they often contain other substances too. Characteristics of plastics:

- Plastics are light weighted thus are used in car, spacecrafts and aircrafts
- Plastics are strong, so can be used for storing and carrying various items
- Plastics are cheap and easy to handle
- Plastics are non-reactive
- Plastics are durable
- Plastics are poor conductor of heat and electricity

Q17: Why handles of screw drivers are made of plastics?

Ans: Handles of screw drivers are made of plastics because plastics are poor conductors of heat and electricity..

Q18: State some of the uses of plastics in health care Industry.

Ans: Plastics are used in healthcare industry for the following purposes:

- Packaging of tablets
- For making threads used for stitching wounds
- For making syringes
- Making gloves used by doctors
- For making many medical instruments

Q19: What type of cookware is used in microwave oven and why?

Ans: Special plastic cookware is used in microwave oven for cooking food, such that inside the oven the heat cook food but does not affect the plastic container containing food items to be cooked.

Q20: Identify whether the following wastes are biodegradable or non- biodegradable?

a. **Pape**
b. **Aluminium**
c. **Plastic bags**
d. **Cotton clothes**

Ans:

a. Biodegradable
b. non- biodegradable
c. non- biodegradable
d. Biodegradable

Q21: What do you mean by environment friendly?

Ans: Products or articles that do not cause environmental pollution, and get burnt completely with releasing less poisonous fumes into the atmosphere are called environmental friendly products. They cause less harm to the environment and are thus called as eco- friendly products.

Q22: Why we should not throw polybags in the water bodies or on the road?

Ans: We should not throw polybags in the water bodies or on the road because animals like cow while eating garbage waste food items swallow the polythene bags and food wrappers, the plastic materials chokes the respiratory system of these animals and form a lining in their stomachs and may cause death of these animals.

Q23: State some of the ways to reduce the use of plastic bags in our day to day life.

Ans: Ways to reduce the use of plastic bags in our day to day life

- Avoid use of plastics as far as possible
- Use bags made from cotton or jute while going for shopping
- Try to recycle plastic wastes by returning them back to your grocery shop for recycling, and by using them as garbage bag liners.
- We can urge plastic manufacturers to develop biodegradable plastic.
- We can urge our legislators to ban plastic in children's toys and food and beverage containers.

Q24: What do you mean by the''4R principle''to develop environment friendly habits?

Ans: The''4R principle''to develop environment friendly habits:

- Reduce
- Reuse
- Recycle
- Recover

Q25: Write short notes on plastics and the environment.

Ans: Plastic is polymers like synthetic fibres, it is non-eco- friendly as it takes several years to decompose and it causes environmental pollution. When it burns it releases lot of poisonous fumes, and harmful gases into the atmosphere causing air pollution.

Q26: Explain the differences between thermoplastics and thermosetting plastics.

Ans:

Thermoplastics	Thermosetting plastics
1. Plastics that can be bend easily on heating and deformed easily on heating. 2. e.g: polythene and PVC 3. Used for manufacturing toys, combs, etc	1. Plastics which when moulded once can't be softened by heating. 2. e;g: Bakelite, melamine 3. Used for manufacturing electrical switches, floor tiles, kitchenware etc.

Q27: Neha want to buy a shirt for summer, should she buy shirt made from synthetic fibre or cotton fibre and why?

Ans: She should purchase cotton clothes for summer because it is very light fabric, easy to wear and air flow process is also good in cotton clothes so it keeps body cool during summer season.

Q28: Give some examples illustrating the fact that plastics are non-corrosive in nature.

Ans: Following examples show that plastics are non-corrosive in nature

a. They are used to store chemicals in laboratories as they don't react with chemicals or other items in the laboratory.
b. Plastic does not decompose even when left in the open for a long period.
c. Plastic does not react even with air and water and so it dies not get rusted.
d. They are used to store all types of food, as plastic does not react to materials stored in it.\

Q29: State the source of following fibres
a. Cotton b. Rayon c. Nylon

Ans: a. Plants b. Wood pulp c. coal water and air

Q30: What is Terylene?

Ans: Terylene is an artificial textile fibre made from polyester, it is used to make light, crease-resistant clothing, bed linen, and sails.

Q31: Why rayon is different from other synthetic fibres?

Ans: Rayon is the only synthetic fibre obtained from a natural source that is wood pulp, that's why it is different from other fibres.

Q32: What are the disadvantages of synthetic fibres?

Ans: Following are the disadvantages of synthetic fibres

1. Synthetic fibres cannot absorb moisture. This makes them unsuitable to be warm during summer because in summer when our body sweats. These fibres make body sticky and sometimes cause skin irritation.
2. They are dangerous to be worn near fire or heat, as they easily catch fire and is unfit to be worm.
3. They cannot be easily ironed as they melt very easily.

Long Q&A:

Q1: "Minimise use of plastics for healthy environment", comment on this advice.

Ans: Plastic is polymers like synthetic fibres, it is non-eco- friendly as it takes several years to decompose, it causes environmental pollution. When it burns it releases lot of poisonous fumes, into the atmosphere causing air pollution. We should not throw polybags in the water bodies or on the road because animals like cow while eating garbage waste food items swallow the polythene bags and food wrappers, the plastic materials chokes the respiratory system of these animals and form a lining in their stomachs and may cause death of these animals.The polybags carelessly thrown here and there are responsible for clogging the drains too. Thus we say we should minimise use of plastics for healthy environment by adopting following ways

- Avoid use of plastics as far as possible
- Use bags made from cotton or jute while going for shopping
- Try to recycle plastic wastes by returning them back to your grocery shop for recycling, and by using them as garbage bag liners.
- We can urge plastic manufacturers to develop biodegradable plastic.
- We can urge our legislators to ban plastic in children's toys and food and beverage containers.

Q2: Increasing application of synthetic fibres is actually helping in conservation of forests. Do you agree, if yes comment how?

Ans: Synthetic fibres are made by human beings by using various chemicals, it minimises the use of natural fibres whose source is plants, thus we can say increasing use of man- made fibres are playing very important role in conservation of forests.

Q3: What are synthetic fibres and its various types?

Ans: Fibres made by human being or man- made fibres are called synthetic fibres

Following are the various types of synthetic fibres:

- Rayon: Nylon thread is very strong infact it is stronger than steel wire, because of this property of nylon it is used for making parachutes and ropes for rock climbing.
  Polyester fabrics do not get wrinkled easily and it remains crisp and can be washed easily than any other fabrics. Thus it is used to make dress, shirts etc. PET is one of the familiar form of polyester that is used to make bottles, utensils, wires and many other things
  Rayon is the only synthetic fibre obtained from a natural source that is wood pulp, that's why it is different from other fibres.
- Nylon: The first fully synthetic fibre was nylon. It was prepared from coal, water and air. It is very strong, elastic and light, it is very easy to wash and used for making variety of things like socks, ropes, bags, curtains, parachutes etc.

Nylon thread is very strong infact it is stronger than steel wire, because of this property of nylon it is used for making parachutes and ropes for rock climbing.

- Polyester:Polyester fabrics do not get wrinkled easily and it remains crisp and can be washed easily than any other fabrics. Thus it is used to make dress, shirts etc. PET is one of the familiar form of polyester that is used to make bottles, utensils, wires and many other things
  Terylene and PET are two widely used polyester fabrics. Terylene is used to make very fine yarn by which various dress materials are made. PET is one of the familiar form of polyester that is used to make bottles, utensils, wires and many other things
- Acrylic: Acrylic fabric resembles wool, it is cheaper than wool and available is variety of colours. It is also more durable than wools

Q4: Write short notes on various characteristics of synthetic fibres and natural fibre

Ans: Synthetic fibres are

- Less expensive than natural fibres
- Strong and long lasting
- Easily available
- Easy to maintain
- Dry up quickly

Plastics are

- Light weighted
- Cheaper than metals
- Strong and long lasting
- Easy to handle
- Non-reactive: they do not react with water or air, and do not get corroded easily
- Plastics can be moulded into different shapes and sizes
- They are easily mouldable and can be shaped in any form to make different articles.
- They are poor conductors of heat and electricity.
- Thus they are used on large scale in industries and for making household articles.

Following examples show that plastics are non-corrosive in nature

a. They are used to store chemicals in laboratories as they don't react with chemicals or other items in the laboratory.
b. Plastic does not decompose even when left in the open for a long period.
c. Plastic does not react even with air and water and so it dies not get rusted.
d. They are used to store all types of food, as plastic does not react to materials stored in it.

Characteristics of natural fibres:
These fibers have higher tensile strength than other fibers. Therefore, these fibers are used for durable yarn, fabric, packaging, and paper. Some examples are flax, jute, kenaf, industrial hemp, ramie, rattan, soybean fiber, and even vine fibers and banana fibers.