पुणा International School
Shree Swaminarayan Gurukul, Zundal

Class-VIII

Science

Specimen copy

Session-22-23

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1.	April	Chapter 1: Crop Production and Management. Chapter 2: Microorganisms: Friend and Foe.	
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CH – 1 CROP PRODUCTION AND MANAGEMENT

Crop : When plants of the same kind are grown and cultivated at one place on a large scale, it is called a crop.

- In India, crops can be broadly categorised into two types based on seasons - Rabi and Kharif crops.
- Sowing of seeds at appropriate depths and distances gives good yield. Good variety of seeds are sown after selection of healthy seeds. Sowing is done by seed drills.
- Soil needs replenishment and enrichment through the use of organic manure and fertilisers. Use of chemical fertilisers has increased tremendously with the introduction of new crop varieties.

- **Basic practices of crop production:**
  (i) **Preparation of Soil**: One of the most important tasks in agriculture is to turn the soil and loosen it.The process of loosening and turning of the soil is called tilling or ploughing.

  (ii) **Sowing**: Sowing of seeds at appropriate depths and distances gives good yield. Good variety of seeds is sown after selection of healthy seeds. Sowing is done by seed drills.

  (iii) **Adding Manure and Fertilisers** Soil needs replenishment and enrichment through the use of organic manure and fertilisers. Use of chemical fertilisers has increased tremendously with the introduction of new crop varieties.

  Fertiliser: The inorganic compounds containing nutrients such as nitrogen, potassium and phosphorus. They are made in the factories. Example: Urea, ammonium sulphate, potash, etc.

  Manure: A natural substance prepared from decomposition of plant and animal wastes (cow dung, animal bones, dead leaves, dead insects and vegetable wastes) by the action of microbes.

  (iv) **Irrigation :** Supply of water to crops at appropriate intervals is called irrigation.

  Method of Irrigation:
  (a) Tradition methods of Irrigation: Moat, Chain pump, Dheki, Rahat.
  (b) Modern methods of Irrigation: Sprinkler system, Drip system.

(v) **Protection from Weeds:** Weeding involves removal of unwanted and uncultivated plants called weeds.

(vi) **Harvesting:** Harvesting is the cutting of the mature crop manually or by machines.

(vii) **Storage** Proper storage of grains is necessary to protect them from pests and microorganisms. Harvested food grains normally contain more moisture than required for storage. Large scale of storage of grains is done in silos and granaries to protect them from pest like rats and insects. Farmers store grains in jute bags or metallic bins.

- Food is also obtained from animals for which animals are reared. This is called **animal husbandry**.

Q1. Tick the correct option –

1. Watering the crops is called:

(a) sowing (b) manuring (c) tilling (d) irrigation

Ans – (d) irrigation

2. Weeds are the:

(a) main crop plants (b) insects and pests (c) unwanted plants growing along the crop (d) chemical substances

Ans - (c) unwanted plants growing along the crop

3. Kharif crops are sown in

(a) March , April (b) May, June (c) October, November (d) Any time

Ans – (b) May, June

4. Rabi crops are sown in

(a) July , August (b) October, November (c) May , June (d) Any time

Ans- (b) October , November

5. Which of the following is a rabi crop?

(a) Rice (b)Mustard (c) Soya bean (d) Maize

Ans - (b) Mustard

6. Which of the following should be used by a farmer with large farm to harvest his crops quickly and efficiently ?

(a) Winnowing machine (b) Combine (c) Sickle (d) Seed Drill

Ans - (b) Combine

7. Which type of irrigation is similar to rainfall ?

(a) Moat (b) Sprinkler system (c) Rahat (d) Drip System

Ans – (b) Sprinkler system

8. Which of the following tool helps in uniform distribution of seeds while sowing ?

(a) Thresher (b) Seed Drill (c) funnel connected to pipes

(d) Sprinkler

Ans - (b) Seed Drill

Q 2. Fill the blanks -

float, water, crop, nutrients, preparation

(a) The same kind of plants grown and cultivated on a large scale at a place is called **crop**.

(b) The first step before growing crop is **preparation** of soil.

(c) Damaged seeds would **float** on top of water.

(d) For growing crop, sufficient sunlight and **water** and **nutrients** from the soil are essential.

Q 3. Answer in one or two word –

i) Name the tool used with a tractor for sowing seeds in a field.

Ans – Seed drill

ii) Name the practice followed for large scale rearing of farm animals.

Ans – Animal Husbandry

iii) Give example of each –

a) Kharif crop **b) Rabi crop**

Ans – a) Kharif crop – Paddy and maize

b) Rabi crop – Wheat and pea

iv) Pick out the odd one from the following words given - Plough, Seed Drill, Hoe, Chain Pump, Sickle

Ans – Seed drill

v) Name the tool used for tilling of soil.

Ans – Plough

Q 4. Short Answer questions –

i) Define the terms – Manure , Irrigation , Fertiliser

Ans – **Manure - Manure** is an organic substance which is obtained from decomposition of plant or animal wastes.

Irrigation - Supply of water to crops at appropriate intervals is called Irrigation.

Fertiliser - Fertilisers are chemical substances which are rich in a particular nutrient.

ii) Give reason - Earthworms are nature's ploughmen.

Ans - They make burrows in soil and bring lower fertile layer above the ground.

iii) During which months do farmers grow mustard in India?

Ans. Seed of mustard germinates at a low soil temperature of **40° F**. Therefore, cultivation of mustard is done during winter season which ranges in our country from October to March.

iv) Give three reasons, why soil should be turned and loosened?

Ans – a) It allows the roots to penetrate deep in the soil.

b) It helps the growth of earthworms and microbes in the soil.

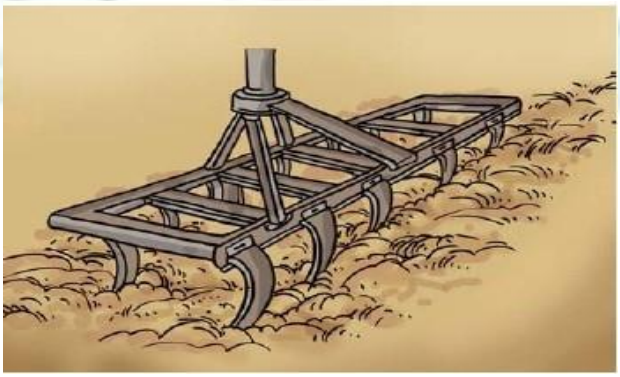
c) Various nutrients held in the dead organisms are released back in the soil.

v) Differentiate between Manure and Fertilisers.

Manure	**Fertiliser**
(i) It is natural.	(i) It is man-made.
(ii) It is organic.	(ii) It is inorganic.
(iii) It adds humus to the soil.	(iii) It does not add humus.
(iv) It is not nutrient specific.	(iv) It is nutrient specific.
(v) It is cheap.	(v) It is costly.
(vi) It is prepared in the fields.	(vi) It is prepared in factories.

Q 5 . Long Answer questions–

i) Identify the instrument shown below and write a short note on it –



Ans – The instrument is Seed drill.

Seed drill is used in sowing of seeds with the help of tractors. Seed drill ensures that seeds are sown uniformly at equal distance and depth. While sowing , seed drill covers the seed with soil which protects seeds from being eaten by birds.

ii) Describe in brief about animal husbandry.

Ans – Animal husbandry is the branch of agriculture concerned with animals that are raised for meat, fibre, milk , eggs, or other products.

It includes day-to-day care, selective breeding and the raising of livestock like plants, animals.

They are provided with proper food, shelter and care .

iii) Describe two methods of irrigation which conserve water.

Ans - The two methods of irrigation which conserve water are-

(a) Sprinkler system- This system is useful in uneven land where sufficient water is not available. The perpendicular pipes having rotating nozzles on top are joined to the main pipeline at regular intervals. When water flows through this pipe at high pressure, it escapes through the nozzles and sprinkle in all directions.

(b) Drip system- In this system water falls drop by drop just at the position of roots. It is mainly used for watering fruit plants, gardens and trees. In this method water is not wasted at all. It is mainly used in water deficient areas.

iv) Why is it necessary to control weeds? How can we control them?

Ans. The weeds have to be removed, otherwise our own crop plants may not get sufficient water, nutrients, space and light. So, they are removed either by manual method or by using weedicides.

The manual removal includes physical removal of weeds by uprooting or cutting them close to the ground from time to time. This is done with the help of a khurpi or harrow.

By using weedicides also, we can remove weeds. These weedicides only damage weeds and do not harm crops.

HOTS

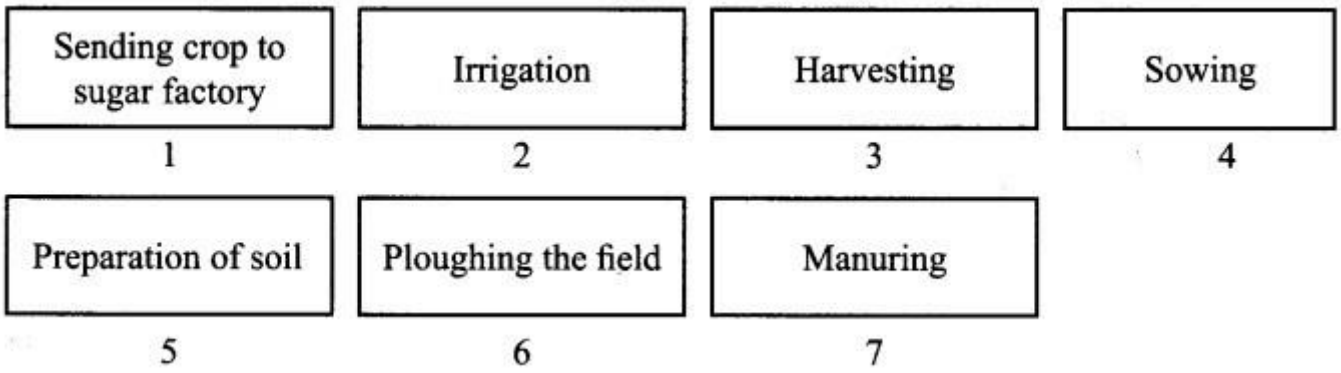
i) Beera , wants to practice crop rotation in his field. Suggest a Rabi crop and a Kharif crop which will replenish his field with nitrogen. Which crop replenishes nitrogen and why ?

Ans - Beera can grow the crops of leguminous plants because these plants have rhizobium bacteria in them which help to replenish the soil with nitrogen . Example of rabi crops : Pea and wheat . Example of kharif crops are : rice and soyabean

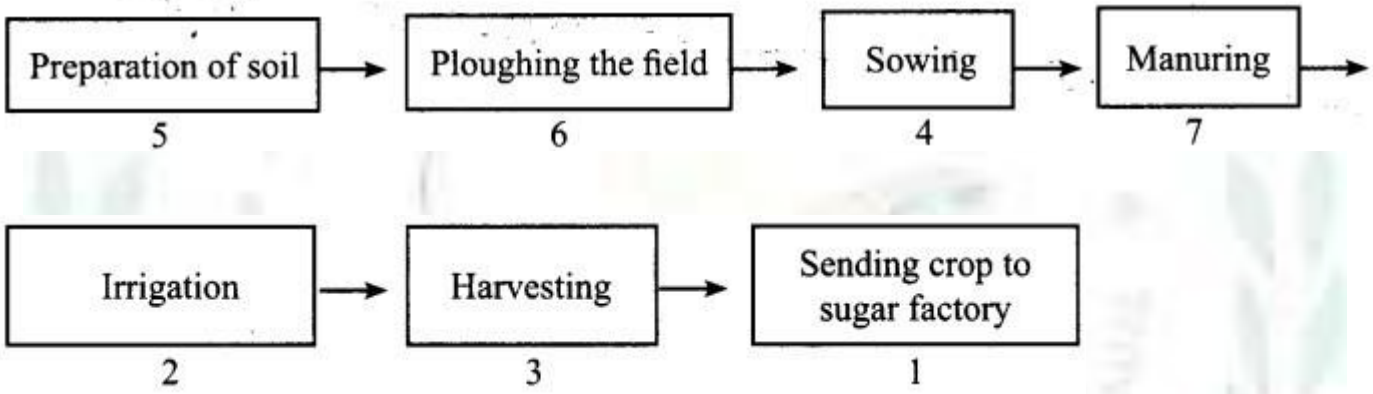
ii) If wheat is sown in the Kharif season. What would happen? Discuss.

Ans. Kharif crops need lot of rainfall, whereas wheat needs winter season and not heavy rainfall. So, if wheat were sown in Kharif season, the crops will get damaged due to heavy rainfall and water logging in the field.

iii) Arrange the following boxes in proper order to make a flow chart of sugarcane crop production -



Ans -



CH – 2 MICROORGANISMS FRIEND AND FOE

Micro-organisms: Micro-organisms are too small and are not visible to the unaided eye.

- They can survive under all types of environment, ranging from ice cold climate to hot springs and deserts to marshy lands. They are also found inside the bodies of animals including humans.
- Micro-organisms are found in air, water and in the bodies of plants and animals.
- They may be unicellular or multicellular.
- Micro-organisms are classified into four major groups. These groups are bacteria, fungi, protozoa and some algae.
- Viruses are quite different from other micro-organisms. They reproduce only inside the host organism; bacterium, plant or animal cell.

- Based on the significance, micro-organisms can be useful or harmful to us.

Uses of microorganisms

- Protozoan cause serious diseases like **dysentery and malaria.**
- Some bacteria and blue green algae present in the soil fix nitrogen from the atmosphere and convert into nitrogenous compounds.
- Certain bacteria convert compounds of nitrogen present in the soil into nitrogen gas which is released to the atmosphere.
- **Pathogens:** Some of the microorganisms cause diseases in human beings, plants and animals. Such disease causing microorganisms are called pathogens.
- **Cleaning of Environment:** The microorganisms decompose dead organic waste of plants and animals converting them into simple substances. These substances are again used by other plants and animals. Microorganisms can be used to degrade the harmful and smelly substances and thereby clean up the environment.

Q1. Tick the correct option –

(a) Yeast is used in the production of

(i) Sugar (iii) hydrochloric acid

(ii) alcohol (iv) oxygen

Ans – (ii) alcohol

(b) The following is an antibiotic

(i) Sodium bicarbonate (iii) Streptomycin
(ii) Alcohol (iv) Yeast

Ans – (iii) Streptomycin

(c) Carrier of malaria-causing protozoan is

(i) Female Anopheles mosquito (iii) housefly
(ii) cockroach (iv) butterfly

Ans – (i) Female Anopheles mosquito

(d) The most common carrier of communicable diseases is

(i) ant (iii) dragonfly
(ii) housefly (iv) spider

Ans – (ii) housefly

(e) The bread or idli dough rises because of

(i) heat (iii) growth of yeast cells
(ii) grinding (iv) kneading

Ans – (iii) growth of yeast cells

(f) Some plants have nitrogen-fixing bacteria in their root nodules. What are these bacteria called?
(i) Blue green algae (iii) Nitrosomonas
(ii) Azotobacter (iv) Rhizobium

Ans - (iv) Rhizobium

Q 2. Fill in the blanks.

(a) Microorganisms can be seen with the help of a **microscope**.

(b) Blue-green algae fix **nitrogen** directly from air to enhance fertility of soil.

(c) Alcohol is produced with the help of **yeast**.

(d) Cholera is caused by **a bacteria**.

(e) The process of conversion of sugar into alcohol is called **fermentation.**

(f) Bread mould is an example of **fungi.**

Q 3. Answer in one or two word –

i) Name of the bacterium present in the curd.

Ans – Lactobacillus

ii) Name the plant disease which is caused by Bacteria.

Ans – Citrus Canker

iii) Name the pathogen which causes cholera.

Ans – Bacteria

iv) Which organisms are microscopic and dependent on host organisms for reproduction?

Ans – Viruses

v) Name any two serious diseases caused by protozoa.

Ans – Polio and chicken pox

vi) Name any two food preservatives.

Ans – Oil, Sugar, Vinegar

vii) Name any two communicable diseases.

Ans – Cholera , common cold

Q 4. Short answer questions –

i) What are microorganisms ?

Ans – Organisms that cannot be seen by naked eye are called microorganisms. They may be unicellular or multicellular.

ii) Why are viruses different from other microorganisms ?

Ans – Viruses are also microscopic but are different from other microorganisms. They reproduce inside the host cell which maybe a bacterium, plant or animal.

iii) What is Pasteurisation ?

Ans - Partial sterilization of a product such as milk at a high temperature about 70° C for 15 to 30 seconds is known as Pasteurization. By doing so, it prevents the growth of microbes.

iv) How is food poisoning caused ?

Ans - Food poisoning is caused due to the consumption of food spoilt by some microorganisms which produce toxic substances.

Q 5. Long Answer questions –

i) How can we prevent the following diseases?

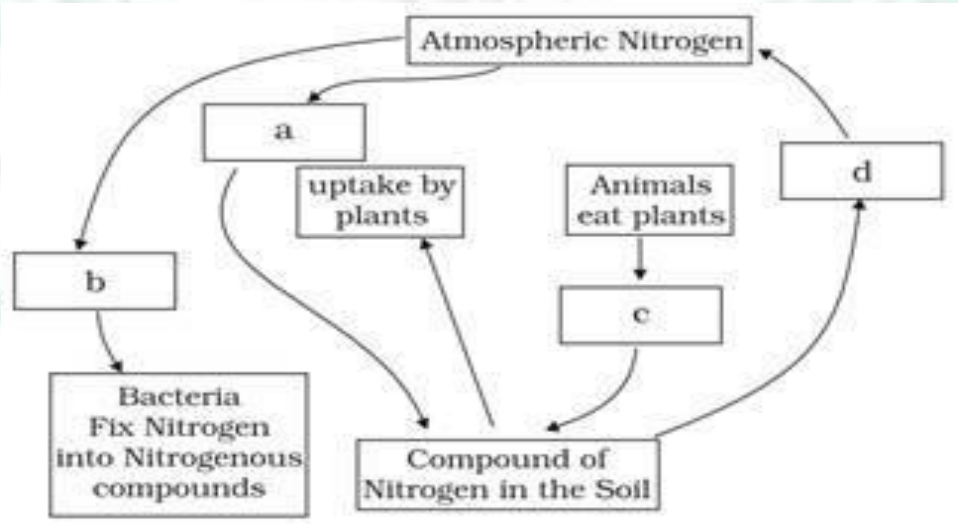
(a) Cholera
(b) Typhoid
(c) Hepatitis A

Ans.(a) Cholera: By drinking boiled water, cooking food well, eating covered food and keeping our surroundings clean.

(b) Typhoid: Eating properly cooked food, drinking boiled food, getting vaccinated against the disease.

(c) Hepatitis A: Drinking boiled water, washing hands thoroughly after using rest room and getting vaccinated against the disease.

ii) Complete the following cycle given as Fig. by filling the blanks (a), (b), (c) (d)



Ans.(a) Lightning fixes nitrogen.

(b) Nitrogen fixing bacteria and blue green algae fix atmospheric nitrogen.

(c) Nitrogenous waste from excretion and death.

(d) Bacteria turn compounds of nitrogen into gaseous nitrogen.

iii) What are the major groups of microorganisms?

Ans. The major groups of microorganisms are:

- **Bacteria:** They are single celled disease causing microorganisms. They can be spiral or rod shaped.
- **Fungi:** They are mostly multicellular disease causing microbes. Bread moulds are common examples of fungi.
- **Protozoa:** They mainly include organisms such as Amoeba, Plasmodium, etc. They can be unicellular or multicellular.
- **Virus:** Viruses are disease causing microbes that reproduce only inside the host organism.
- **Algae:** They include multicellular, photosynthetic organisms such as Spirogyra, Chlamydomonas, etc.

iv) Write a short paragraph on the harms caused by microorganisms.

Ans. Microorganisms cause diseases in animals. For example, in humans, bacteria cause diseases such as tuberculosis, cholera, typhoid, etc. In cattle, the foot and mouth disease is caused by a virus. Also, several microbes cause diseases in plants. For example, the productivity of wheat, orange, apple, etc. is reduced due to microbial diseases in plants. Certain microbes, on entering into our body, produce toxic substances. This leads to food poisoning. Some microorganisms such as fungus spoil our food. For example, bread when left unused under moist conditions gets spoilt by fungus, producing a white cotton like growth on the bread.

v) What are antibiotics? What precautions must be taken while taking antibiotics?

Ans. The medicines that kill or stop the growth of the disease-causing microorganism are called antibiotic. Streptomycin, tetracycline, erythromycin etc. are common antibiotics. They are manufactured by growing specific micro-organisms and are used to cure a variety of diseases.

Following precautions must be taken in using antibiotics-

- These medicines should be taken only on the advice of a qualified doctor.
- One must finish the course prescribed by the doctor.
- If anybody takes antibiotics when not needed, his or her body may develop resistance against that antibiotic.

HOTS

i) While returning from the school, Boojho ate chaat from a street hawker. When he reached home, he felt ill and complained of stomach ache and fell ill. What could be the reason ?

Ans – This could be due to the contaminated food. Often street food get contaminated by pathogenic micro – organisms. The unhygeinic condition of the shop attracts flies and help pathogens to grow. Sometimes the utensils which are used for serving also get contaminated.

ii) Find out some harmful and useful use of microorganisms from your daily life.

Ans -

S.No.	Name	Type of microorganisms	Useful / Harmful
1.	Lactobacillus for curd	Bacteria	Useful
2.	Yeast (Making of bread)	Fungi	Useful
3.	Yeast (Making of alcohol, wine)	Fungi	Useful
4.	Azotobacter, Rhizobium	Bacteria	Useful
5.	Malaria (Anopheles mosquito)	Protozoa	Harmful
6.	Streptococcus (disease)	Bacteria	Harmful
7.	Spoiling of bread	Fungi	Harmful

CH – 3 SYNTHETIC FIBRES AND PLASTICS

Key points:

- All synthetic fibres are man-made fibres that are prepared by a number of processes using raw material of petroleum origin, called petrochemicals. Synthetic fibres consists of many small units or monomers combine to form a larger unit called a polymer.
- While natural fibres are obtained from plants and animals, synthetic fibres are obtained by chemical processing of petrochemicals. Like natural fibres, these fibres can also be woven into fabrics.
- Synthetic fibres find uses ranging from many household articles like ropes, buckets, furniture, containers, etc. to highly specialized uses in aircrafts, ships, spacecrafts, healthcare, etc.
- Depending upon the types of chemicals used for manufacturing synthetic fibres, they are named as Rayon, Nylon, Polyester and Acrylic.
- The different types of fibres differ from one another in their strength, water absorbing capacity, nature of burning, cost, durability, etc.

Types of Synthetic Fibres:
(i) **Rayon:** It is made from cellulose obtained from wood pulp. It is used to make containers, car upholstery, etc.

(ii) **Nylon:** A polyamide made from petroleum. It is lightweight, strong and durable. The fabric allows easy evaporation and dries quickly. It is used in parachutes, flak vest, combat uniforms, tires, etc.

(iii) **Polyester:** A versatile and important man-made fabric. It has an outstanding characteristic of resisting wrinkle and springing back into its crisp, smooth shape. It is strong and soft. It is used in dresses, suits, rainwear, etc.

(iv) **Acrylic:** A fibre similar to that of wool and is used to make sweater, blankets, shawls, etc. It is lightweight, soft and warm. Also it is cheaper than natural wool. It is resistant to chemicals, moths and sunlight. Therefore, they are widely in use nowadays

Plastics: Like synthetic fibres, plastic is also a polymer. Some plastics have a linear arrangement of the units and some have a cross-linked arrangement of the units. Examples: Polythene. Today, life without plastics cannot be imagined. Be it home, or outside, plastic is every where.

Characteristics of Plastics:

(i) **Non-reactive:** Not affected by air, water, soil, etc.

(ii) **Light, strong and durable:** Light, strong and durable and can be moulded into different shapes and sizes.

(iii) **Poor Conductors:** Do not allow heat and electricity to flow through them.

· The waste created by plastics is not environment friendly. On burning plastics release poisonous gases. On dumping in the ground they may take years to degenerate. This is because of their non-biodegradable nature.· We need to use synthetic fibres and plastics in such a manner that we can enjoy their good qualities and at the same time minimise the environmental hazards for the living communities.·.· ·

· **Effect of Plastics on Environment**: Natural materials like wood and paper are biodegradable (bio = living; degradable = able to broken down). In contrast, most plastics do not decay, therefore, they are non-biodegradable. The lightweight nature of plastics can also be a problem. Burning of plastics also release poisonous fumes into the atmosphere. This way plastics pollute the environment.

Q 1. Tick the correct option –

i) 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.

ii) Plastic used for coating non-stick pans is
(a) PVC (b) polyester (c) Bakelite (d) melamine

Ans – (d) melamine

iii) Wood pulp is used to make
(a) plastic (b) wool
(c) jute (d) rayon

Ans – (d) rayon

iv) Melamine is
(a) thermoplastic polymer (b) thermosetting polymer
(c) fibre (d) elastomer

Ans – (b) thermosetting polymer

v) Fibre produced in factories is called
(a) man-made fibre (b) natural fibre
(c) synthetic fibre (d) both (a) and (c)

Ans – (d) both (a) and (c)

vi) The strongest synthetic fibre is
(a) nylon (b) rayon
(c) polyester (d) acrylic

Ans – (a) nylon

vii) The plastic which cannot be recycled is
(a) jute (b) rayon
(c) petrochemicals (d) bakelite

Ans – (d) bakelite

Q2. Fill in the blanks –

i. Synthetic fibres are synthesised from raw material called **petrochemicals**.

ii. Like synthetic fibres, plastic is also a **polymers**.

iii. **Terylene** is a popular polyester.

Q 3 . State True or False -

i. Thermoplastics can bent easily. **True**

ii. Polymers are made up of many bigger units. **True**

iii. PET is a very familiar form of polyester. **True**

iv. Polyester fabrics do not get wrinkled easily. **True**

v. Fabric obtained from silk fibre is very cheap. **False**

Q 4. Answer in one or two word –

i. Name the material used for making ropes for rock climbing.
Ans - Nylon.

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

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

iv. Which material is best suited for covering electric wires?

Ans – PVC

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

Ans – Cotton

Q 5. Short answer questions –

i. 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 pens, plastic bowls, plastic covering on electrical wires, plastic chairs, electrical switches.

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

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

Ans. Plastics are non-reactive in nature, even with strong chemicals. Hence, they don't get corroded and are therefore non-corrosive in nature.

For example:

(1) Phenyl or acids, used for household work are stored in plastic bottles.

(2) Buckets, bottles etc. don't react with water stored in them.

iii. Give reason , why plastic containers are favoured for storing food.

Ans: The main advantages of using plastic for storing food are -
a. Plastic has light weight.
b. Good strength.
c. Easy to handle.

iv. Explain the difference between thermoplastic and thermosetting plastics.

Ans:

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

v. Give reason , why some fibres are called synthetic.

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

vi. What are the disadvantages of wearing synthetic fabrics ?

Ans - Synthetic fabric catches fire very easily. It melts and sticks to the body of the person wearing it.

During summers, synthetic fibres do not absorb sweat and a person wearing it feels uncomfortable.

Q 6. Long answer questions –

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

Ans - The said statement is correct to a certain extent. The forests would be conserved if synthetic fibres are used, but other effects of synthetic fibres are more harmful. Disposal of synthetic fibres causes lot of environmental pollution. When synthetic fibres bum, lot of smoke is produced.

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

Ans - Plastics are very useful, but it causes serious environmental and health concern :

- Plastics are non-biodegradable.
- Careless disposal of plastic bags, chokes, drains and blocks the soil.
- If eaten by cows, it can kill them.
- Plastic bags can also contaminate foodstuffs due to poisonous dyes getting absorbed into food.

iii. Explain why the following are made of thermosetting plastics.

(a) Saucepan handles **(b) Electric plug/ switches /plug boards**

Ans: (a) Saucepan Handles: Saucepan handles are made from the thermosetting plastics because these are bad conductors of heat. They do not bend or deform on heating.

(b) Electric plug/Switches/Plug Boards: Electric plug/switches/plug boards are made from thermosetting plastics because thermosetting plastics are bad conductor of heat and electricity also. Hence it is used to make such articles.

HOTS

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

Ans - 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.

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

Ans - 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.

iii. 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 ?

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