

**(Q.) Who discovered the fermentation?** (1 Mark)

(Ans) Louis Pasteur

**(Q.) What do you understand by microorganisms?** (1 Mark)

(Ans) Microorganisms are the living organisms which can not be seen with unaided eyes. They have a high degree of adaptability and can survive in all kinds of environment, like hot springs, ice cold water, saline water, desert soil, marshy land and even inside the human body.

**(Q.) “Virus are living or non-living.” Comment with reasons.** (1 Mark)

(Ans) Viruses are considered as the connecting link between living and nonliving.

1. The reasons for being nonliving are: they neither grow nor reproduce once out side the host.

2. They can be considered living as they multiply very fast and grow when entered the host.

**(Q.) Mention two important uses of fungi.** (1 Mark)

(Ans) - Helps in the formation of antibiotics.

- Helps in the decomposition of dead organic matter.

**(Q.) In which form microorganisms are used in vaccines?** (1 Mark)

(Ans) Dead or weakened microorganisms are used in preparation of vaccines.

**(Q.) Which bacteria is responsible for causing Anthrax disease?** (1 Mark)

(Ans) Bacillus anthracis.

**(Q.) Can we find a place without microbes in nature?** (1 Mark)

(Ans) No, we cannot find any place on the earth without microbes.

**(Q.) Which microorganism is used in the production of alcohol?** (1 Mark)

(Ans) Yeast.

**(Q.) Name any two food items that are prepared using yeast.** (1 Mark)

(Ans) Bread and dosa.

**(Q.) Name any three habitats of microorganisms.** (1 Mark)

(Ans) Soil, water and animal body.

**(Q.) Name the bacteria which is involved in the fixation of nitrogen in leguminous plants.** (1 Mark)

(Ans) Rhizobium helps to fix nitrogen in leguminous plants.

**(Q.) Name the bacteria which is responsible for the formation of curd.** (1 Mark)

(Ans) Lactobacillus bacteria is responsible for the formation of curd.

- (Q.) Name the insects, which carry the parasite of malaria and dengue?** (2 Marks)
- (Ans) Female Anopheles mosquito carries the parasite of malaria while Female Aedes mosquito acts as carrier of dengue virus.
- (Q.) What is to be called as preservatives?** (2 Marks)
- (Ans) Preservatives are the chemicals generally used to inhibit the growth of microorganisms. Sodium benzoate and sodium metabisulphite are common preservatives.
- (Q.) Define pasteurization?** (2 Marks)
- (Ans) Pasteurization is the process of heating liquids for the purpose of destroying viruses and harmful organisms such as bacteria, protozoa, molds, and yeasts.
- (Q.) Why generally dry fruits and even vegetables are sold in sealed air tight packets?** (2 Marks)
- (Ans) Generally dry fruits and even vegetables are sold in sealed air tight packets because air tight packets does not allow the entry of microbes and help in to prevent food from the attack of microbes.
- (Q.) What are the causes of food poisoning?** (2 Marks)
- (Ans) Microorganisms, which are present in food sometimes, produce toxic substances and make the food toxic. Consumption of this spoil food can cause food poisoning.
- (Q.) What do you mean by fermentation?** (2 Marks)
- (Ans) Fermentation typically refers to the conversion of sugar to alcohol using yeast under anaerobic conditions.
- (Q.) What are communicable diseases? Name few of them.** (2 Marks)
- (Ans) Disease caused by microorganisms and transmitted from an infected person or animal to a healthy person or animal are termed as communicable diseases. They are also known as infectious diseases, such as cholera, common cold, chicken pox and tuberculosis.
- (Q.) What do you understand by the term 'Pseudopodia'? Give it's one function.** (2 Marks)
- (Ans) The word 'pseudo' means false and 'podia' means feet. Pseudopodia are cytoplasmic extensions which can be extended or withdrawn. Pseudopodia enables the organism to move and ingest the food particle.
- (Q.) Mention the causative organism and mode of transmission of the following diseases:**
- (i) Tuberculosis
  - (ii) Polio
  - (iii) Malaria
  - (iv) Typhoid
  - (v) Hepatitis B

(vi) Chicken Pox

(3 Marks)

(Ans)

Human Disease	Caustive Microorganism	Mode of Transmission
Tuberculosis	Bacteria	Air
Polio	Virus	Air/Water
Malaria	Protozoa	Mosquito
Typhoid	Bacteria	Water
Hepatitis B	Virus	Water
Chicken Pox	Virus	Air/Contact

**(Q.) (i) What are antibiotics?****(ii) How are they manufactured?****(iii) How are they useful to mankind?**

(3 Marks)

(Ans) (i) There are many medicines that are made with the help of microorganisms. The medicines which kill or stops the growth of disease-causing microorganisms are called antibiotics such as penicillin, streptomycin, tetracycline, erythromycin, etc.

(ii) Antibiotics are manufactured by growing specific microorganisms like fungi and bacteria.

(iii) Antibiotics are used to cure variety of diseases. They are mixed with the feed of livestock and poultry to check microbial infection in animals. They are also used to control many plant diseases.

**(Q.) (i) What is nitrogen fixation?****(ii) Which organisms are able to fix atmospheric nitrogen?****(iii) What is the need of converting atmospheric nitrogen into compounds of nitrogen?**

(3 Marks)

(Ans) (i) Nitrogen fixation is the process by which nitrogen is taken from its natural, relatively inert molecular form (N<sub>2</sub>) in the atmosphere and converted into nitrogen compounds.

(ii) Some bacteria and blue green algae are able to fix nitrogen from the atmosphere. The bacterium Rhizobium involved in the fixation of nitrogen in leguminous plants such as beans and peas, with which it has a symbiotic relationship.

(iii) Atmospheric nitrogen can not be taken directly by plants and animals. Certain bacteria and blue green algae present in the soil fix nitrogen from the atmosphere and convert it into compounds of nitrogen. Once nitrogen is converted into usable form, it can be utilised by plants from the soil through roots.

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**(Q.) (i) What are pathogens?**

**(ii) How can they enter in our body?**

(3 Marks)

(Ans) (i) There are some microorganisms that are harmful for our health and cause diseases. Such disease caused by microorganisms are called pathogens.

(ii) Pathogens can enter our body through the air we breathe, the water we drink or the food we eat or direct contact with an infected person can also transmit these pathogens.

**(Q.) Describe the role of salt, sugar, oil and vinegar in preservation of food?**

(3 Marks)

(Ans) Preservation by salt: Common salt is used to preserve meat and fish, as it checks the growth of bacteria. Salting is also used to preserve amla, raw mangoes, tamrind, etc.

Preservation by sugar: Sugar is used as preservative as it reduces the moisture and inhibit the growth of bacteria. Mainly jams, jellies, squashes are preserved with the help of sugar.

Preservation by oil and vinegar: Oil and vinegar are used as a preservative for fruits, vegetables, pickles, fish, meat, etc. as it prevents their spoilage because bacteria cannot live in such an environment.

**(Q.) (i) What are the affects caused by disease causing microorganisms?**

**(ii) What measures can be taken to control them?**

**(iii) Name some plant diseases with their causative organism.**

(3 Marks)

(Ans) (i) Some microorganisms causes disease in plants like wheat, rice, potato, sugarcane, which destroys the whole crop and also decrease the yield of the crop.

(ii) They can be controlled by using chemicals which kills these microbes.

(iii) Few plant disease:

Plant Diseases Micro- organism Transmission

Citrus canker Bacteria Air

Rust of wheat Fungi Air, seeds

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**(Q.) How can high and low temperature affects the growth of microorganisms? (3 Marks)**

(Ans) High temperature kills many microorganisms. Various practises like boiling of milk and water before drinking, cooking raw vegetable before eating kills many microorganisms.

1. Normally, we boil the milk at 100°C but pasteurized milk, which is heated at about 70°C for 15 to 30 second, and then suddenly chilled and stored are also free from harmful microbes and this process is called as pasteurization.

2. While low temperature inhibit the growth of microorganisms that's why we keep our food in refrigerator. Generally low temperature slow down the process of growth of microorganisms.

**(Q.) Describe the useful and harmful effects of microorganisms. (5 Marks)**

(Ans) Useful effects:

1. They help in formation of curd, cheese, etc.
2. Convert the fruit juices into vinegar and wines.
3. Decompose the complex organic material into simple inorganic molecules.
4. Help in tanning of the leather.
5. Some help in fixing atmospheric nitrogen.
6. Some of them present in the intestine help in the process of digestion.

Harmful effects:

1. They cause a large variety of diseases in plants, animals and human beings.
2. They spoil food items as well as cloths, leather, etc.

**(Q.) (i) What are communicable diseases?**

**(ii) With help of examples explain the spread of diseases through carriers.**

**(iii) How can we prevent the spread of malaria and dengue? (5 Marks)**

(Ans) (i) Diseases that can spread from an infected person to a healthy person through air, water, food or physical contact are called communicable diseases. Diseases like cholera, common cold, chicken pox, tuberculosis, etc. are some of the communicable diseases.

(ii) Few insects and animals act as carriers of disease causing microbes like:

- Housefly is a common carrier. Pathogens stick to the flies body when it sit on the garbage and animal excreta. When these flies land on uncovered food, they may transfer these harmful pathogens and contaminate the food. When this contaminated food is eaten by a healthy person, he is likely to get sick.

- Female Anopheles mosquito is another example of carrier, which carries the parasite of malaria.

- Female Aedes mosquito acts as a carrier of dengue virus.

(iii) Malaria and dengue spread through mosquitoes and all mosquitoes breed in water. Thus, we should not allow water to stand in our surroundings in coolers, tanks, tyres, pots etc. We can prevent mosquitoes from breeding by keeping our surroundings clean and dry.

