FAQs (Frequently asked questions)

Q.1 what are the nutrients that are essential for the growth and normal functioning of a microbe?

Ans. 1.Water
2. Source of energy
3. Sources of nitrogen
4. Vitamins and related growth factors
5. Minerals

As a sources of energy, food borne microorganisms may utilize sugar, alcohols and amino acids. Some few microorganisms are able to utilize complex carbohydrates such as starches and cellulose as sources of energy by first degrading these compounds to simple sugar.

Q.2 Elucidate the general classes of factors that are imperative for the growth of microbes?

Ans. Microbial growth depends on following factors:

1. **Intrinsic Factors** (physical and chemical properties of the food): pH, Water activity, Redox potential, Nutrient content, antimicrobial constituents, Biological (antimicrobial) structures.

2. **Extrinsic Factors**: these include properties of storage environment such as Temperature of storage, Relative humidity of the environment, Presence and concentration of gases, Presence and activities of other microorganisms.

Q.3 Explain the term microbial interference?

Ans. Microbial interference refers to general nonspecific inhibition or destruction of one microorganism by other members of the same habitat or environment.

Q.4 Discuss the Hurdle concept.

Ans. Hurdle technology is a method of ensuring that pathogens in food products can be eliminated or controlled. This ensures the food products to be safe for consumption with an extended shelf life. The hurdle concept is applied in food preservation is also described in different ways such as; Barrier Technology, Combination Preservation or Combined Methods. In this technique, in order to grow the organisms must “hurdle” a series of barriers. A large number of factors are known that can be applied to food systems as hurdles.

Q.5 what are antibiotics?

Ans. These are the secondary metabolites produced by microorganisms that are used to inhibit or kill a wide spectrum of pathogenic microorganisms e.g. kanamycin, niacin etc.

Q6 what do you understand by antimicrobial activity of foods and how it is useful for food preservation?

Ans. Antimicrobial activity is the presence of chemical substances in certain foods that may inhabit or kill pathogenic microorganism. Some traditional food preservation techniques like drying, freezing, heating, fermentation, salting can extend the shelf-life of food products, but recontamination may occur that may render the food unpalatable for the consumers. Antimicrobial packaging system is a novel development which incorporates antimicrobial agent into a polymer film to suppress the activities of targeted microorganisms that are contaminating foods.

Q7 what is the optimum pH level and temperature ideal for the growth of bacteria in food?

Ans. An acidic environment above pH 4.6 and a temperature between 41^{o}C and 140^{o}C is ideal for the growth of bacteria in food.

Q 8 What is food poisoning?

Ans. Food borne illness, more commonly referred to as food poisoning, is the result of eating contaminated, spoiled, or toxic food. The most common symptoms of food poisoning include nausea, vomiting, and diarrhoea.

Q 9 what do mean by the biological structure in the context of the microbial growth?

Ans. Plant and animal derived foods, especially in the raw state, have biological structures in the form of physical barriers which include testa of seeds, skin of fruits and vegetables, shell of nuts, animal hide, egg cuticle, shell, and membranes.

Q 10 How do you define the generation time?

Ans. It is the average time between two consecutive generations in the lineage of a population. It is also referred to as doubling time, which is the period of time required for a quantity to double in size or value.