Question 1:- Differentiate b/w food contaminants and food adulterants. 2021

Food Contaminants:-

Food contaminants are substances that make food unsafe to eat. They can come from various sources and may pose health risks when consumed. These contaminants are classified into 3 main categories: biological, chemical, and physical.

Food Adulterants:-

Any substance that is intentionally added to food. It lowers the quality, safety, and nutritional value of the food. Such substances are added to food, in order to increase quantity of the product, improve appearance, and prolong shelf life.

Difference b/w food contaminants and food adulterants

Food Contaminants	Food Adulterants
1. unintentionally enter the food, either through environment, during processing or handling.	intentionally added to food, often to increase profit or quantity.

Food Contaminants	Food Adulterants
2, can be bacteria, pathogens, heavy metals, or pesticides	can be artificial colours, chemicals, food preservatives, or lower quality ingredients.
3, Their presence is not intentional and is usually regarded as a violation of food safety regulations.	often illegal or restricted in many countries.
4, Also regulated, but harder to control because their presence is a result of industrial or environmental factors.	In many countries regulated and restricted by governmental bodies, with strict rules about what can be added.
5, Often toxic and immediately harmful, especially in high concentration (eg, Pesticides).	may be often non-toxic but still harmful to health in large quantities or over time.
6, Introduced without intent, usually as a result of improper handling or environmental factors.	Added deliberately to alter color, taste, or texture of food.
7, Sometimes difficult to prevent due to environmental	Easily prevented by monitoring and regulations in the

Food Contaminants	Food Adulterants
factors or accidents during production.	Food production process.
8. Immediate & impact, often resulting in foodborne & illnesses, but some may also cause long term health problems if exposure is repeated.	Could lead to long term health problems such as cancer or chronic diseases.
9. Detected through microbidogical or chemical testing for harmful substances.	Can often be detected through specific testing methods for adulteration.
10. They degrade food safety and quality by causing decay or health hazards.	They decrease the food quality by intentionally by diluting or substituting expensive ingredient.

Question 2:- Discuss importance of preservatives and antioxidants in foods. 2016

Importance of Preservatives in food:

1. Preservatives help prevent the growth of bacteria, yeasts, and molds that can cause food to spoil. By controlling the microbial growth, they keep food fresh longer.

2, They extend shelf life of the food products, ensuring that food remains safe for longer periods.
3, Many preservatives help retain the nutritional quality of food. Without preservatives some food may lose vitamins, minerals, and other essential nutrients more quickly.
4, Certain preservatives help maintain the color of ~~fruits~~ food ~~and vegetables~~ such as fruits and vegetables, which can otherwise become dull or discolored.
5, By inhibiting the growth of harmful pathogens, preservatives reduce the risk of foodborne illnesses.
6, In global food distribution, preservatives ensure that food remains safe and fresh, even over long distances and extended time periods.
7, Some preservatives help maintain the taste and ~~texut~~ texture of foods, preventing it from becoming stale or sour.
8, Preservaties allow seasonal food, like fruits and vegetables, to be available round the year, even when they are out of season.
9, In case of natural disasters

ges, and more.

shelf life and enhancing the sensory qualities of food

or emergencies, preservatives ensure that food supplies remain safe and usable for extended periods.

10. Preservatives help reduce food waste by keeping food fresh longer, which is especially important in large-scale food production and consumption.

B. Importance of Antioxidants in food:

A) Antioxidants neutralize free radicals

1, Antioxidants help prevent the spoilage of food by protecting it from oxidation. Food, particularly oils and fats, are prone to oxidation, which causes them to become rancid.

2, Oxidation can cause discoloration of food and degrade flavor of food. ~~Anit~~ Antioxidants help prevent

discoloration and maintain flavor of food.

3, By preventing oxidative damages, antioxidants extend shelf life of foods perishable foods like fruits, vegetables, and oils.

4, Antioxidants help preserve essential vitamins and nutrients in food, protecting them from degradation due to oxidation.

5, They can inhibit the formation of harmful compounds like peroxides and free radicals that can be detrimental to health when consumed.

6, Certain antioxidants may reduce the formation of carcinogenic compounds in food and neutralize harmful one.

7, Antioxidants can neutralize heavy metals, environmental toxins, and pollutants that may be present in food.

8, In baked products, like bread, antioxidants can delay staling, and mold growth, keeping them fresher for longer.

9, In meat products, antioxidants such as ascorbic acid, help preserve freshness by reducing oxidation that causes spoilage or color changes.

10, In frozen products, antioxidents help protect against freezer

burns and preserve flavor and texture during storage.

11. Antioxidants like vitamin E help preserve the essential oils in spices, preventing them from deteriorating and losing flavors over time.