

CHAPTER-V

Food Quality and Food Safety

2marks Answer Questions:

1. Define Toxicity:

- **Answer:** Toxicity is the capacity of a substance to cause harm or injury under any conditions.

2. Name One Physical Hazard in Food:

- **Answer:** Stones are an example of physical hazards found in food.

3. What Does GMP Stand For?

- **Answer:** GMP stands for Good Manufacturing Practices.

4. Identify an International Organization for Food Standards:

- **Answer:** ISO (International Organisation for Standardisation) is an international organization for food standards.

5. Explain the Term "Adulterants":

- **Answer:** Adulterants are substances used to make food unsafe for human consumption.

4 marks Answer Questions:

1. Define Food Safety:

- **Answer:** Food safety refers to the assurance that food is suitable for human consumption according to its intended use, without causing harm or injury.

2. Differentiate Between Contamination and Adulteration:

- **Answer:** Contamination is the presence of harmful substances in food, while adulteration is the lowering of food quality by adding inferior materials or extracting valuable ingredients.

3. Explain the Purpose of HACCP (Hazard Analysis Critical Control Point):

- **Answer:** HACCP is a preventive approach to food safety, identifying and controlling hazards at critical points during food processing to ensure the production of safe and high-quality products.

4. What is the Role of Codex Alimentarius Commission (CAC)?

- **Answer:** CAC establishes international food standards to protect consumer health and facilitate fair practices in food trade.

5. Mention Two Biological Hazards in Foods:

- **Answer:** Examples of biological hazards are food-borne pathogens like Salmonella and toxins produced by bacteria such as Staphylococcus aureus.

7 MARKS QUESTIONS

1. Explain why food safety and quality are of global concern.

Food safety and quality are of global concern due to several reasons:

- **Public Health:** Contaminated or unsafe food can lead to foodborne illnesses, affecting the health of individuals and communities. Globalization of food trade has increased the risk of spreading foodborne diseases across borders.
- **Economic Impact:** Food safety incidents can have severe economic consequences, affecting trade, businesses, and the overall economy. Contaminated products may result in recalls, loss of consumer trust, and financial losses.
- **International Trade:** With the expansion of global food trade, adherence to common food safety standards becomes crucial to facilitate international trade. Harmonized standards ensure that products meet minimum safety requirements for consumers worldwide.
- **Consumer Confidence:** Consumers today are more aware and concerned about the safety and quality of the food they consume. Global standards and regulations help build and maintain consumer confidence in the food supply chain.

- **Prevention of Hazards:** Collaborative efforts on a global scale are essential to address emerging food safety hazards. Sharing information, research, and best practices helps prevent and control hazards that may arise during food production, processing, and distribution.

2. Explain the terms: hazard, toxicity, contamination, food quality, adulteration.

- **Hazard:** A hazard is any agent or condition that has the potential to cause harm. In the context of food safety, hazards can be physical, chemical, or biological and may lead to adverse effects on the health of consumers if not controlled.
- **Toxicity:** Toxicity refers to the capacity of a substance to produce harm or injury under any conditions. It measures the harmful effects of a substance, and the degree of toxicity depends on factors such as dosage, exposure, and susceptibility.
- **Contamination:** Contamination occurs when harmful or objectionable foreign substances, such as chemicals, microorganisms, or dilutants, are present in food. Contamination can happen at any stage of the food production and distribution process.

- **Food Quality:** Food quality encompasses attributes that influence a product's value to consumers. It includes both negative attributes like spoilage, contamination, and positive attributes such as color, flavor, texture. Quality is a holistic concept that considers nutritional traits, sensory properties, safety, and social considerations.
- **Adulteration:** Food adulteration is the process of lowering the quality of food by adding inferior materials or extracting valuable ingredients. It includes intentional or unintentional actions that lead to a degradation of the quality of food products.

3. What is Codex Alimentarius?

Codex Alimentarius is an international body formed to establish international standards for food safety and quality. It aims to protect the health of consumers and facilitate fair practices in food trade. The Codex Alimentarius includes standards, codes of practice, guidelines, and recommendations related to food safety and quality. It serves as a reference for different countries to develop their national standards.

4. Discuss the significance of HACCP.

- **Preventive Approach:** HACCP (Hazard Analysis Critical Control Points) is a preventive approach to ensure food safety. It identifies and addresses potential hazards at critical points in the food production process, minimizing or eliminating risks before they occur.
- **Efficient Resource Utilization:** HACCP enables producers, processors, distributors, and exporters to utilize resources efficiently and cost-effectively for ensuring food safety. It focuses on preventing issues rather than relying on end-product inspection and testing.
- **Consistent Quality:** Implementation of HACCP ensures consistently good quality products by proactively managing and controlling potential hazards throughout the food chain.
- **Legal Compliance:** In many countries, including India, the Food Safety and Standards Act (FSSA) places the primary responsibility for safe food on producers and suppliers through HACCP, Good Manufacturing Practices (GMP), and Good Handling Practices (GHP).
- **Consumer Protection:** HACCP contributes to consumer protection by preventing hazards and ensuring the safety and wholesomeness of food products. It is crucial for international food trade and building consumer trust.

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5. List the national and international food standards.

• National Standards (India):

- Food Safety and Standards Authority of India (FSSAI) sets national standards under the Food Safety and Standards Act, 2006.
- Bureau of Indian Standards (BIS) issues standards, including the ISI mark for processed foods.
- Agmark is a voluntary scheme for certification of agricultural products.

• International Standards:

- Codex Alimentarius Commission (CAC) publishes international standards, codes of practice, guidelines, and recommendations.
- International Organization for Standardization (ISO) develops international standards, including ISO 9000 for quality management.
- World Trade Organization (WTO) oversees trade agreements covering goods, services, and intellectual property with implications for food standards.

Multiple Choice Questions (MCQs):

1. What is the main purpose of HACCP (Hazard Analysis Critical Control Point)?

- A. Post-production inspection
- B. Ensuring food safety through preventive measures
- C. Controlling food prices
- D. Monitoring food aesthetics

Answer: B. Ensuring food safety through preventive measures

2. Which organization establishes international food standards to protect consumer health?

- A. WHO (World Health Organization)
- B. ISO (International Organisation for Standardisation)
- C. FSSAI (Food Safety and Standards Authority of India)
- D. CAC (Codex Alimentarius Commission)

Answer: D. CAC (Codex Alimentarius Commission)

3. What does GMP stand for in the context of food safety?

- A. General Manufacturing Principles
- B. Good Manufacturing Practices
- C. Global Market Protocol
- D. General Management Procedures

Answer: B. Good Manufacturing Practices

4. Which of the following is an example of a physical hazard in food?

- A. Pesticide residues
- B. Bacteria
- C. Stones
- D. Food colors

Answer: C. Stones

5. What term is used to describe the capacity of a substance to produce harm or injury under any conditions?

- A. Hazard
- B. Toxicity
- C. Contamination
- D. Adulteration

Answer: B. Toxicity

6. Which biological hazard is associated with infections and can result from the ingestion of live pathogenic organisms?

- A. Food intoxication
- B. Food infection
- C. Parasitic infestation
- D. Chemical hazard

Answer: B. Food infection

7. Which international organization develops standards for quality management, including food safety?

- A. CAC (Codex Alimentarius Commission)
- B. WHO (World Health Organization)
- C. WTO (World Trade Organization)
- D. ISO (International Organisation for Standardisation)

Answer: D. ISO (International Organisation for Standardisation)

8. What does FSSAI stand for in the context of Indian food safety regulations?

- A. Food Safety and Standards Authority of India
- B. Food Standards and Safety Authority of India
- C. Food Security and Standards Association of India
- D. Food and Safety Standards Agency of India

Answer: A. Food Safety and Standards Authority of India

9. Which act consolidates various laws related to food safety in India?

- A. Prevention of Food Adulteration Act
- B. Food Safety and Standards Act
- C. Indian Food Quality Act
- D. Food Inspection and Safety Act

Answer: B. Food Safety and Standards Act

10. What term is used for substances that make food products unsafe for human consumption?

- A. Contaminants
- B. Adulterants
- C. Hazards
- D. Toxins

Answer: B. Adulterants

Fill in the Blanks:

1. _____ is the capacity of a substance to produce harm or injury under any conditions.

Answer: Toxicity

2. Physical hazards in food include materials not normally found in food, such as wood, stones, parts of pests, and _____.

Answer: Hair

3. Chemical hazards in foods may include pesticides, chemical residues, toxic metals, and various food additives like preservatives and food _____.

• **Answer:** Colors

4. _____ is a classic example of a food-borne pathogen causing food infection, often associated with raw milk and eggs.

• **Answer:** Salmonella

5. The Food Safety and Standards Act, 2006, consolidates various acts and orders, placing primary responsibility for safe food with producers and suppliers through _____, GMP, GHP.

• **Answer:** HACCP

summary

The provided content discusses food safety concepts, regulations, and hazards. Here's a summary:

The focus is on the importance of ensuring food safety through preventive measures, particularly the HACCP (Hazard Analysis Critical Control Point) system. This system aims to identify and address potential hazards in food production. International organizations like the Codex Alimentarius Commission (CAC) set standards to protect consumer health globally.

Good Manufacturing Practices (GMP) play a crucial role in maintaining food safety. Physical hazards, such as stones, are highlighted as potential threats, and the term "toxicity" is introduced to describe a substance's capacity to cause harm.

Biological hazards, like food infections associated with live pathogenic organisms, are discussed. The Food Safety and Standards Authority of India (FSSAI) regulates food safety in the country, with the Food Safety and Standards Act consolidating various laws related to this.

The content also covers chemical hazards, including pesticides and additives, as well as the significance of quality management standards, such as those developed by the International Organization for Standardization (ISO).

The summary provides a concise overview of key topics related to food safety, regulations, and different types of hazards.