



SNS COLLEGE OF TECHNOLOGY



(An Autonomous Institution)

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1. What are the Principles of food safety?

Four Steps to Food Safety: Clean, Separate, Cook, Chill.

2. Explain Cleaning principle in detail

Wash your hands and surfaces often.

- Germs that cause food poisoning can survive in many places and spread around your kitchen.
- Wash your hands for at least 20 seconds with soap and warm or cold water before, during, and after preparing food and before eating.
 - Always wash hands after handling uncooked meat, chicken and other poultry, seafood, flour, or eggs.
- Wash your utensils, cutting boards, and countertops with hot, soapy water after preparing each food item.
- Rinse fresh fruits and vegetables under running water.

3. Explain Separating principle in detail

Don't cross-contaminate.

Raw meat, chicken and other poultry, seafood, and eggs can spread germs to ready-to-eat food unless you keep them separate.

- a. When grocery shopping, keep raw meat, poultry, seafood, and their juices away from other foods.
 - b. Keep raw or marinating meat, poultry, seafood, and eggs separate from all other foods in the refrigerator. Store raw meat, poultry, and seafood in sealed containers or wrap them securely so the juices don't leak onto other foods.
 - c. Use one cutting board or plate for raw meat, poultry, and seafood and a separate cutting board or plate for produce, bread, and other foods that won't be cooked.
 - d. Raw chicken is ready to cook and doesn't need to be washed first. Washing these foods can spread germs to other foods, the sink, and the counter and make you sick
4. Explain Cooking principle in detail

Cook to the right temperature.

Food is safely cooked when the internal temperature gets high enough to kill germs that can make you sick. The only way to tell if food is safely cooked is to use a food thermometer.

- Whole cuts of beef, veal, lamb, and pork, including fresh ham: 145°F (then allow the meat to rest for 3 minutes before carving or eating)
 - Fish with fins: 145°F or cook until the flesh is opaque and separates easily with a fork
 - Ground meats, such as beef and pork: 160°F
 - All poultry, including ground chicken and turkey: 165°F
 - Leftovers and casseroles: 165°F
5. Explain Chilling principle in detail

Refrigerate promptly.

Bacteria can multiply rapidly if left at room temperature or in the “Danger Zone” between 40°F and 140°F.

Keep your refrigerator at 40°F or below and your freezer at 0°F or below, and know when to throw food out before it spoils. If your refrigerator doesn’t have a built-in thermometer, keep an appliance thermometer inside it to check the temperature.

6. How food hazard is categorized
Three Types:
Physical, Chemical and Biological.
7. What is Physical Hazard?
- a) Stones, wood and plastic pieces
 - b) Glass pieces
 - c) Bones, shell pieces etc.
 - d) Metallic objects
8. What is Chemical Hazard?
- Heavy metals
 - Pesticide Residues
 - Antibiotic residues
 - Hormone residues
9. What is Biological Hazard?
- E. coli
 - Staphylococcus aureus
 - Specific pathogens
10. List out the source of spoilage?
- Proper Cleaning
 - Washing of Utensils
 - Through air
 - Through Water
11. List out the Microorganism responsible for spoilage?
- Bacteria
 - Fungi
 - Mold
12. Name any two bacterial microorganism responsible for food poisoning

Salmonella is the most common bacterial cause of food poisoning in the U.S. and is responsible for the highest number of hospitalizations and deaths from food poisoning.

E. coli: Usually found in undercooked meat and raw vegetables, *E. coli* bacteria produces a toxin that irritates your small intestine.

13. Name any two fungal microorganism responsible for food poisoning?

The toxins produced by the fungi such as penicillin, *Rhizopus*, *Aspergillus* are called mycotoxins. These are chemical substances. Mycotoxicosis is an illness caused by the ingestion of food containing the fungal toxin. Mycotoxins which can be extremely harmful or sometimes lethal to humans and also to animals.

14. Name the mycotoxin associated with human food?

Mold or fungus can infect some foods with mycotoxins while the crop is growing or is being stored. Only certain molds and fungi produce mycotoxins that can make you sick if you eat them. Mycotoxins associated with human food include aflatoxins, patulin, fumonisin, ochratoxin A, and deoxynivalenol.

15. What is Cross Contamination?

Cross-contamination is the accidental introduction of something harmful from one food to another. It is defined as the transfer of harmful bacteria or other contaminants to food from other foods, cutting boards, and utensils. This happens most commonly when handling raw meat, poultry, eggs, and seafood. Most of the time it refers to transferring bacteria or pathogens but also includes dust, dirt, and other food products that are considered allergens, such as peanuts.

16. What are the three types of cross-contamination?

1. Food to food. One food touching another food and contamination it
2. Utensil to food. A utensil, such as a knife or cutting board being used between foods without being properly cleaned.
3. People to food. People transferring germs by their hands or other means to food.

17. what is Adulteration

Food Adulteration can be defined as the practice of adulterating food or contamination of food materials by adding a few substances, which are collectively called adulterants.

18. Types of Adulteration

1. Incidental Adulteration

his occurs due to the ignorant nature of people when handling food products. For example, farmers accidentally leave behind residues of pesticides in food grains, items having rodent droppings, larvae growth, etc.

2. Intentional Adulteration

It is when someone intentionally adds similar-looking unwanted substances to add weight or increase the overall quantity of the product. Some common food adulterants used for this purpose are chalk powers, mud, sand, pebbles, stone, contaminated water, etc.

19. What is Food Additive?

Substances that are added to food to maintain or improve the safety, freshness, taste, texture, or appearance of food are known as food additives. Some food additives have been in use for centuries for preservation – such as salt (in meats such as bacon or dried fish), sugar (in marmalade), or sulfur dioxide (in wine).

20. Types of Food Additive

Based on this, the various classes of food additives

can be identified as:

antioxidants

preservatives

food colours

food flavours

emulsifiers and stabilizers

anti-caking agents

sequestrants

acid, bases and buffers

anti-foaming agents

sweeteners

enzymes, and

leavening agents.

21. What is Food Quality?

The term food quality represents the sum of all properties and attributes of a food item that are acceptable to the customer.

22. What is the importance Food Quality?

- Quality is the ultimate criterion of the desirability of any food product. The overall quality of a food depends on the nutritional and other hidden attributes, and sensory quality as assessed by means of human sensory organs. The absence of the nutritional qualities and possible presence of food toxins and chemical additives will affect the quality of food which in turn may harm the food consumer.
- For a food manufacturer the quality of raw material is very important as the end product quality entirely depends on it. For example red colour of tomato is a desirable quality to prepare tomato ketchup.
- The rapid urbanization and stretching the urban services beyond their limits, lead to inadequate supplies of potable water, sewage disposal and other necessary services. This scenario further stresses the food distribution systems, as greatly increased quantities of food need to transport from rural to urban locations in an environment that is not conducive to hygiene and sanitation. The foods thus transported may be subjected to contamination at various levels and subsequently the quality will be affected.
- Consumption of foods containing undesirable substances and microorganisms may lead to diseases frequently referred as food borne diseases.
- Outbreak of food borne diseases is a common occurrence in both developed and developing countries and has been termed as the most widespread health problem in the contemporary world and an important cause of diminished economic prosperity.
- In developing countries, food borne diseases continue to be a serious health hazard and an important cause of morbidity and mortality.
- In addition to physical suffering, loss of work output, earnings, cost of hospitalization and loss of food are socio-economic consequences of food borne diseases.
- Controlling the quality of food at national and global level is essential to safeguard the human health.

23. What is Classification of Quality Attributes

- Intrinsic
- Extrinsic

24. Role of Quality Attributes in Food Quality?

- Brand Value Can be maintained
- Quality products could be delivered to consumers

25. What are the Quality Attributes of Fruits and Vegetables?

- External aspects (presentation, appearance, uniformity, ripeness, and freshness)

- Internal quality (flavor, aroma, texture, nutritional value, and absence of biotic and non-biotic contaminants)

26. What are the Quality Attributes of Cereals?

Grain quality is defined by several factors such as physical (moisture content, bulk density, kernel size, kernel hardness, vitreousness, kernel density and damaged kernels), safety (fungal infection, mycotoxins, insects and mites and their fragments, foreign material odour and dust) and compositional factors (milling yield, oil content, protein content, starch content and viability).

27. What are the Quality Attributes of Legumes?

Grain quality is defined by several factors such as physical (moisture content, bulk density, kernel size, kernel hardness, vitreousness, kernel density and damaged kernels), safety (fungal infection, mycotoxins, insects and mites and their fragments, foreign material odour and dust) and compositional factors (milling yield, oil content, protein content, starch content and viability).

28. What are the Quality Attributes of dairy products?

- quantity – measured in volume or weight;
- organoleptic characteristics – appearance, taste and smell;
- compositional characteristics – especially fat, solid and protein contents;

29. What are the Quality Attributes of meat?

The set of properties used to define the quality of meat intended for consumption as whole meat, rather than meat products, are those associated with our sensory perception; appearance, color, flavor, texture (especially tenderness), juiciness/water-holding, and odor.

30. What are the Quality Attributes of poultry?

The two most important quality attributes for poultry meat are appearance and texture.

31. What are the Quality Attributes of egg?

Grade AA: These are the highest grade with the most nutritional value. The whites of these eggs will be firm and thick and the yolks will be near perfectly round. These also have strong, oval-shaped shells.

Grade A: These eggs are considered equal with Grade AA, but the whites of these eggs may be a little less firm.

Grade B: This is the lowest grade, with runny whites and wider, flatter yolks. The shells of these eggs may have some stains or abnormalities.

32. What are the Quality Attributes of processed food?

Food products can be considered as bundles of multiple quality attributes (e.g., appearance, taste, price, organic production, food safety, origin, nutritional value)

33. What is Sensory Evaluation?

Sensory evaluation is defined as “the scientific discipline which encompasses all methods to evoke, measure, analyze and interpret human responses to the properties of foods and materials, as perceived by the five senses: taste, smell, touch, sight and hearing”

34. What are the requirements for conducting Sensory Evaluation

There are three major components for the successful implementation of sensory evaluation:

- a.) Adequate sensory laboratory facilities
- b.) Sensory panels and
- c.) Rigorous training programmes

35. Classify the different methods Sensory Evaluation

- a) Paired Comparison Test
- b) Duo-trio Test
- c) Triangle Test
- d) Multiple Sample Test

36. What is Paired Comparison Test?

It is a two products (A & B) test, and the panelist's job is to compare these and identify whether the samples are similar or different. If different, which attribute, such as sweetness, acidity, hardness, colour etc. is responsible for this difference. This part of the test is called as directional difference test. The test can be further extended and the preference component of

the panelist can be included. The paired comparison test is relatively easy to organize and implement. The two coded samples in order of AA, BB, AB, BA are served simultaneously, and panelist has to decide if there is any difference or not. Paired comparison is typically used in comparing new and old processing techniques, change of ingredients in a product, preference testing at the consumer level, etc.

37. What is Duo-trio Test?

This test is a modified paired comparison test. One sample identified as the reference (R) is first given to the panelists for evaluation. Subsequently two coded samples, one of which is identical to reference, are presented. The panelist is asked to indicate, which of the two samples is the same as 'R'. The test is suitable for products that have relatively intense odour, taste and/or kinesthetic effects such that sensitivity of evaluator is significantly reduced.

38. What is Triangle Test?

Triangle test is most well known and more frequently used out of the three difference tests. As its name implies, it is a three product test in which all the samples are coded and the panelist's task is to determine which two are most similar or which one is most different from the other two. Triangle test is more difficult test because the panelist must recall the sensory characteristics of two products before evaluating the third and then make a decision.

39. What is Multiple Sample Test?

Test involving more than 3 stimuli are classified as multiple sample tests. They may have equal (symmetrical) or unequal (asymmetrical) numbers of each stimulus. When they are applied as true difference tests, the judge is required to separate the sample into two groups of like samples. When they are applied as directional tests, the judge is asked to identify the groups of higher or lower intensity of a given criterion.

40. Define Descriptive Analysis

Descriptive method of sensory evaluation provides quantitative descriptions of a sensory attributes of a product taking into account all sensation that are perceived: visual, auditory, olfactory, gustatory, kinesthetic and so on. A descriptive method enables us to relate specific process variables to specific changes in some of the sensory attributes of a product, for example, the flavour changes in milk at high temperature processing. A descriptive test involves relatively few judges, who have been screened, selected and trained for the particular product category. Training of this group is primarily focused on development of descriptive language, which is used as a basis for scoring a new product, developing a definition of each attribute and familiarizing the judges with scoring procedures. There are numerous applications for descriptive analysis including monitoring competitions, storage stability/shelf life, product development, quality control, establishing physical/chemical and

sensory correlation. Some of the popularly used descriptive methods are flavour profile, texture profile etc.

41. What are the Objectives of Quality Control?

The primary objective of Quality Control is to identify and correct any deviations from the established quality standards. This process involves monitoring and inspecting products or services at various stages of production or delivery to ensure that they meet the desired level of quality.

42. List out the importance and functions of Quality Control?

Quality control is important to safeguard the company's reputation, prevent products from being unreliable, and increase trust on the side of consumers. It ensures that the company looks at evidence-based data and research rather than anecdotal observations to ensure that the services/products live up to the standards. It reduces cost and maximizes profit, operational efficiency, and customer satisfaction.

43. What are the Quality control specifications

A specification contains standards relating to the quality, appearance and delivery of the product: conditions under which it is to be grown or produced, packed, stored and transported; explicit descriptions regarding its size, weight, color and nutrient content; details of the inspection process; and specific packing and labeling requirements. All requirements for purchase of USDA food products are included in the specification.

44. What is FSSAI

FSSAI has been created for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption.

45. Who is the current Chairperson of FSSAI?

Rita Teatia is the current Chairperson of FSSAI.

46. What are the functions of FSSAI

- FSSAI sets rules, guidelines, and regulations which are necessary to be followed by all the food manufacturing companies, which includes keeping the food clean and hygienic.
- It is compulsory for any business that is related to food, to get permission, license, and certificate from FSSAI.
- The food manufactured by the food companies is tested and marked as the standard and quality of the food by the FSSAI only.
- FSSAI conducts regular inspections in food-producing and manufacturing companies to ensure the hygiene and standards of the food.

- The main work of FSSAI is to make the consumers aware to buy and take only those food products that are healthy, safe, and hygienic for consumption.
- All the registered food manufacturing companies are inspected regularly and a report is kept by the FSSAI which is updated regularly.
- FSSAI makes sure that the food manufacturing companies produce food according to their guidelines and regulations.
- If the FSSAI finds any food-related threat, it has to inform the government as soon as possible and the government authorities take proper action against it.

47. Importance of FSSAI

FSSAI takes care of the food standard and security in India. It aims to provide food to all but with good quality and standard. It ensures that the quality of food must be enjoyed by all. It makes good food accessible to all citizens in India. It also trains the street vendors to make them aware of the violations under the Food Safety and Standards Act 2006.

48. What is AGMARK?

AGMARK, or Agriculture Mark, is the certification mark to assure the quality of agricultural products in India. AGMARK acts as a third party guarantee for the agricultural products that are produced and consumed in India. The system traces its origin to 1934, where Archibald MacDonald Livingstone, Agricultural and Marketing Advisory to the Government of India, suggested that this certification come into force to benefit the local growers and prevent undue exploitation by the dealers of the produce.

49. What is the objective of AGMARK Grading Scheme?

The main objective is to provide consumers with quality, unadulterated products. The grading can be used for both domestic and export purposes.

50. What are the Benefits of AGMARK

- Farmers are benefited as the state offers more subsidies to those products that carry the mark.
- Marketing of the product finds a boost.
- The quality of the product is sustained by virtue of statutory compliances.