LAUSD
Food Services Division
ServSafe Certification
Study Guide

Great Food, Great Body, Great Mind

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2015 - 2016 School Year
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**Introduction**

The ServSafe Class helps to prepare you for the ServSafe Food Protection Manager Certification exam. The class covers the following concepts:

- The Importance of Food Safety
- Good Personal Hygiene
- Time and Temperature Control
- Preventing Cross-Contamination
- Cleaning and Sanitizing
- Safe Food Preparation
- Receiving and Storing Food
- Methods of Thawing, Cooking, Cooling and Reheating Food
- HACCP (Hazard Analysis and Critical Control Points)
- Food Safety Regulations
- Practice Test
SECTION 1

Providing Safe Food

A foodborne illness is a disease transmitted to people by food. A foodborne illness outbreak is when two or more people get the same illness after eating the same food.

Cost of foodborne illnesses: Foodborne illnesses cost the United States billions of dollars each year. Foodborne illness outbreak can cost an operation thousands of dollars and:

1. Loss of customers and sales
2. Loss of reputation
3. Negative media exposure
4. Lowered staff morale
5. Lawsuits and legal fees
6. Staff missing work
7. Increased insurance premiums
8. Staff retraining

Populations at High Risk for foodborne illnesses

1. Elderly people: People’s immune system weaken with age
2. Infants and preschool-age children: very young children have not built up strong immune systems
3. People who are seriously ill, on certain medication, and organ-transplant recipients
Food that support the rapid growth of Microorganisms

1. Contains moisture
2. Contains protein
3. Has a neutral or slightly acidic pH
4. Requires time-temperature control to prevent the growth of microorganisms

Time Control for Safety (TCS Food)

How Food Becomes Unsafe

The Central of Disease Control (CDC) has identified some common factors that are responsible for foodborne illness. These include:

1. Purchasing food from unsafe sources
2. Failing to cook food to the required minimum internal temperature
3. Holding food at improper temperature
4. Using contaminated equipment
5. Poor personal hygiene
Food Contaminants are

1. Biological: Pathogens are the greatest threat to food safety. They include viruses, parasites, fungi, and bacteria

2. Chemical: Foodservice chemicals can contaminate food if they are used incorrectly. This group includes cleaners, sanitizers, polishes, machine lubricants and toxic metals

3. Physical: Foreign objects like hair, finger nail, dirt, bandages, fish bones, metal staples, and jewelry

How Food Becomes Unsafe

1. Time-temperature abuse: Food stayed out too long at room temperature

2. Cross-contamination: Pathogens can be transferred from one surface of food to another

3. Poor personal hygiene: Food handlers can cause a foodborne illness if they fail to wash their hands after using the restroom, come to work sick, cough or sneeze on food, touch or scratch wound, and then touch the food
Section one (1) Study Questions

1. The three categories of food safety hazards biological, physical, and
   A. Temporal
   B. Practical
   C. Chemical

2. The three keys to food safety are practicing good personal hygiene, preventing cross-contamination, and
   A. Toxic-metal leaching
   B. Pathogen measurement
   C. Time-temperature control

3. According to Center of Disease Control, the five common causes for foodborne illnesses are failing to cook food adequately, holding food at incorrect temperature, using contaminated equipment, practicing poor personal hygiene, and
   A. Reheating leftover food
   B. Using single-use, disposable gloves
   C. Purchasing food from unsafe sources

4. What action describes food handler leaves the restroom without washing his/her hands
   A. Time-temperature abuse
   B. Poor personal hygiene
   C. Cross-contamination

Answers
SECTION 2

THE MICROWORLD

Microorganisms are small, living organisms that can be seen only through a microscope. Harmful microorganisms are called pathogens. Some pathogens make you sick when you eat them; others produce poisons (toxins) that make you sick as well.

What pathogens need to grow?

FAT TOM

1. Food - that is high in protein such as milk, meat, poultry, fish, and eggs
2. Acidity – microorganisms typically grow best in food that has a neutral or slightly acidic pH 7.5 to 4.6
3. Temperature that is higher 41°F (cold food), or below 135°F (hot food)
4. Time – time to produce (if food left more than 4 hours at the TDZ).
5. Oxygen- aerobic (require oxygen), anaerobic (does not require oxygen)
6. Moisture – Food with plenty of water activity
Biological Hazards

Microorganisms That Can Contaminate Food And Cause Foodborne Illness

Bacteria

Viruses

Parasites

Fungi

Viruses
1. Viruses are the leading causes of foodborne illness and can survive cooler and freezer temperatures
2. Viruses can be transferred from person to person and from people to food-contact surfaces

Bacteria
1. Bacterial foodborne illnesses account for more than 90% of all foodborne related illness.
2. Bacteria are present especially on our hands.
3. Bacteria will multiply in great numbers if food left in the danger zone 41°F-135°F
4. **Bacteria will double every 20 minutes:**

Parasites
1. Parasites are organisms that live within or feed off another organism or host
2. Parasites can transfer from human to human and from animal to human
3. Roundworm found in pork that produces trichinosis

Fungi
1. Fungi mostly spoil food and found in air, plant, water
2. Molds can grow in the refrigerator, spoil food and cause illness
3. Yeast can spoil food, fruit juices and jellies
**Foodborne Infections**

**Foodborne Infections**: Result when a person eats food containing pathogens, which then grow in the intestines and cause illness

**Salmonellosis**

Salmonellosis is associated with poultry and eggs, dairy products and beef. It has also been found in ready-to-eat food, such as produce that has come in contact with animal farm. Since illness can occur after consuming only a small amount of this type of bacteria, it is critical to cook food properly and to prevent cross-contamination.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poultry</td>
<td>Avoid cross-contamination</td>
<td>Abdominal cramps</td>
</tr>
<tr>
<td>Meat</td>
<td>Cook food to the required minimum temperature</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Fish and shrimp</td>
<td>Purchase food from reputable suppliers</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Shell Eggs</td>
<td></td>
<td>Fever</td>
</tr>
</tbody>
</table>

**Shigellosis**

Shigellosis is found in the feces of humans with shigellosis. Illnesses occur when people consume contaminated food or water. Shigellosis can be transferred to food when food handlers fail to wash their hands after using the restroom.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contaminated water</td>
<td>Exclude food handlers if they have Diarrhea and or</td>
<td>Abdominal cramps and pain</td>
</tr>
<tr>
<td>Salads</td>
<td>Diagnosed with Shigellosis</td>
<td>Bloody diarrhea</td>
</tr>
<tr>
<td>Produce</td>
<td>Provide Handwashing and proper personal hygiene training to staff</td>
<td>Vomiting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fever</td>
</tr>
</tbody>
</table>
Listeria
Listeria is naturally found in soil, water and plants. Listeria is associated with ready-to-eat food products. Unpasteurized dairy products especially soft cheeses affect the elderly and the very young population.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready-to-eat food</td>
<td>Cook raw meat to required minimum internal temperature</td>
<td>Abdominal cramps and pain</td>
</tr>
<tr>
<td>Raw and deli meat</td>
<td>Prevent cross-contamination</td>
<td>Spontaneous abortion of fetus</td>
</tr>
<tr>
<td>Soft cheese</td>
<td>Discard product that has passed its use-by or expiration date</td>
<td>Meningitis</td>
</tr>
<tr>
<td>Unpasteurized milk and milk products</td>
<td>Use gloves before handling food</td>
<td>Pneumonia</td>
</tr>
</tbody>
</table>

Vibrio
Vibrio is associated with raw or partially cooked oysters harvested from warm water during the months of April to October. Preventing illness depends upon purchasing oysters from approved, reputable suppliers and cooking them to the required minimum internal temperature.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw or partially cooked oysters</td>
<td>Purchase oysters from approved, reputable suppliers</td>
<td>Abdominal cramps</td>
</tr>
<tr>
<td>Oysters harvest from warm water of Gulf of Mexico</td>
<td>Cook oysters to the required minimum internal temperature</td>
<td>Diarrhea, nausea, and vomiting</td>
</tr>
<tr>
<td>Oysters harvest from Atlantic and Pacific coasts during the month of April-October</td>
<td>Inform people at risk to consult a physician before consuming raw or partially cooked oyster</td>
<td>Skin lesions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fever and chills</td>
</tr>
</tbody>
</table>
Foodborne Intoxications

**Foodborne Intoxications** result when a person eats food containing toxins that cause illness. The toxin may have produced by pathogens found in the food or may be the result of a chemical contamination.

**Bacillus Cereus**

Bacillus Cereus is a spore forming bacteria found in soil. It is commonly associated with plants as cereal crops, such as rice. This illness can be prevented by cooking, holding and cooling food properly.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereal crops</td>
<td>Cook food to the required minimum</td>
<td>Abdominal cramps,</td>
</tr>
<tr>
<td></td>
<td>internal temperature</td>
<td>pain</td>
</tr>
<tr>
<td>Cooked rice, rice pudding and fried rice</td>
<td>Hold food at the proper temperature</td>
<td>Watery Diarrhea</td>
</tr>
<tr>
<td>Cooked corn, potatoes, vegetables and meat</td>
<td>Cool food properly</td>
<td>Nausea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vomiting</td>
</tr>
</tbody>
</table>

**Staphylococcal**

Staphylococcal is primarily found in humans- particularly in the hair, nose, throat, and sores. It is often transferred to food when people carrying this type of bacteria touch these areas and handle food without washing their hands.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salads containing tuna and chicken</td>
<td>Wash hands after touch hair, face, or body. Use gloves</td>
<td>Abdominal cramps</td>
</tr>
<tr>
<td>Salads containing macaroni</td>
<td>Cover cuts on hands and arms</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Deli Meats</td>
<td>Restrict foodhandler with infected cuts on hands or arms from working with or around food</td>
<td>Nausea</td>
</tr>
<tr>
<td></td>
<td>Cook, hold, and cool for properly</td>
<td>Vomiting</td>
</tr>
</tbody>
</table>

**Botulism**
Botulism is anaerobic bacteria that grow in the absence of oxygen. Botulism found in canned food, garlic & oil mixtures, baked potatoes that are wrapped in foil

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improperly canned food</td>
<td>Hold, cool and reheat food properly</td>
<td>Difficulty speaking</td>
</tr>
<tr>
<td>Reduced-oxygen-packaged food (ROP)</td>
<td>Inspect canned food for damage</td>
<td>Difficulty swallowing</td>
</tr>
<tr>
<td>Temperature-abused baked potato</td>
<td>Store canned food away from sunlight</td>
<td>Vomiting, nausea</td>
</tr>
<tr>
<td>Untreated garlic-oil mixtures</td>
<td>Rejected dented, swelled canned food</td>
<td>Double vision</td>
</tr>
</tbody>
</table>

**Food Sign symptoms**

-Difficulty speaking

-Reduced-oxygen-packaged food (ROP)

-Difficulty swallowing

-Vomiting, nausea

-Double vision

-Weakness

---

Foodborne Toxin-Mediated Infections

**Foodborne Toxin-Mediated Infections** result when a person eats food containing pathogens, which then produce illness-causing toxins in the intestines

**Clostridium Perfringens**

Clostridium Perfringens is found naturally in soil where it forms spores that allow it to survive. It is also carried in the intestines of both animal and humans

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat and poultry</td>
<td>Cook food to the required minimum internal temperature</td>
<td>Abdominal cramps, pain</td>
</tr>
<tr>
<td>Dishes made with meat</td>
<td>Hold food at the proper temperature</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Poultry with gravy</td>
<td>Cool food properly</td>
<td>Nausea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Vomiting</td>
</tr>
</tbody>
</table>
**Hemorrhagic Colitis (E. Coli)**

Hemorrhagic Colitis is naturally found in the intestines of cattle, which can contaminate the meat during the slaughtering process. Although it has been associated with contaminated produce and undercooked ground beef.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground beef</td>
<td>Cook food, particularly ground beef, to required minimum internal temperature</td>
<td>Abdominal cramps</td>
</tr>
<tr>
<td>Under cooked beef</td>
<td>Prevent cross-contamination</td>
<td>Bloody diarrhea</td>
</tr>
<tr>
<td>Contaminated produce</td>
<td>Exclude employees they have diagnosed with hemorrhagic colitis</td>
<td>Nausea</td>
</tr>
</tbody>
</table>

**Viruses**

Viruses are the smallest of the microbial contaminants. Viruses may survive freezing, can be transmitted from person to person, from people to food and from people to food-contact surfaces. Viruses can contaminate water supplies and food.

**Hepatitis A**

Hepatitis A is primarily found in the feces of people infected with the virus. The virus is more commonly associated with ready-to-eat food items and found in shellfish contaminated by sewage.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready-to-eat food</td>
<td>Wash hands properly</td>
<td>Abdominal pain</td>
</tr>
<tr>
<td>Deli meats, produce, and salad</td>
<td>Exclude employees from the establishment who have jaundice or diagnosed with hepatitis A</td>
<td>Weakness and nausea</td>
</tr>
<tr>
<td>Raw and partially cooked shellfish</td>
<td>Purchase shellfish from approved reputable suppliers</td>
<td>Fever</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jaundice</td>
</tr>
</tbody>
</table>
Norovirus
Norovirus is primarily found in the feces of people infected with the virus. It has also found in contaminated water and ready-to-eat food like Hepatitis A. The virus is very contagious and is often transferred to food when infected food handlers touch the food with fingers containing feces.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready-to-eat food</td>
<td>Wash hands properly</td>
<td>Abdominal Cramps</td>
</tr>
<tr>
<td>Shellfish contaminated by sewage</td>
<td>Exclude food handlers with diarrhea and vomiting</td>
<td>Nausea</td>
</tr>
<tr>
<td></td>
<td>Exclude food handlers that diagnosed with norovirus from establishment</td>
<td>Vomiting</td>
</tr>
<tr>
<td></td>
<td>Purchase shellfish from approved reputable suppliers</td>
<td>Diarrhea</td>
</tr>
</tbody>
</table>

Parasites
Parasites are living organisms that need a host to survive. They infect cows, chicken, pigs, fish, and can be transmitted to humans.

Anisakiasis
Anisakiasis is a worm-like parasite found in certain fish and shellfish. An illness can develop when raw or undercooked seafood containing the parasite is eaten.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw and undercooked:</td>
<td>Cook fish to required minimum internal temperature</td>
<td>Stomach pain</td>
</tr>
<tr>
<td>Herring, cod, halibut</td>
<td>Purchase fish from approved reputable suppliers</td>
<td>Tingling in throat and coughing up worms</td>
</tr>
<tr>
<td>Mackerel and pacific salmon</td>
<td>If fish will be served raw, purchase sushi-grade fish</td>
<td>Vomiting and nausea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diarrhea</td>
</tr>
</tbody>
</table>
**Giardia Duodenalis**
Giardia Duodenalis is a parasite that has been found in improperly treated water. It can be found in the feces of infected people. It is common for the parasite to be spread from person to person in day-care centers.

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improperly treated water</td>
<td>Use properly treated water</td>
<td>Fever</td>
</tr>
<tr>
<td></td>
<td>Exclude food handlers with diarrhea from the establishment</td>
<td>Loose stools</td>
</tr>
<tr>
<td></td>
<td>Wash hands properly to minimize risk of cross-contamination</td>
<td>Abdominal cramps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nausea</td>
</tr>
</tbody>
</table>
Section Two (2) Stud Questions

1. Foodborne pathogens grow well at temperatures
   A. Below 32°F
   B. Between 41°F to 135°F
   C. Above 212°F

2. FAT TOM stands for Food, Acidity, Time, Temperature, Oxygen and
   A. Meat
   B. Moisture
   C. Management

3. Viruses such as Norovirus and Hepatitis A can be spread when food handlers fail to
   A. Wash their hands
   B. Determine the correct moisture level
   C. Staphylococcus

4. What commonly linked with contaminated ground beef and contaminated produce?
   A. Bacillus cereus
   B. Salmonella
   C. Shiga toxin-producing E.coli

5. Which practice can reduce salmonella in poultry to safe levels?
   A. Storing food at 55°F
   B. Cooing food to the right temperature
   C. Purchasing oysters from approve suppliers

6. Which foodborne illness has been linked to with ready-to-eat food and shellfish
   contaminated by sewage?
   A. Hepatitis A
   B. Botulism
   C. Shigellosis

Answers
SECTION 3

FOOD CONTAMINATIONS

FOOD ALLERGENS AND ILLNESS

Food Contaminations

Food is considered contaminated when it contains hazardous substances. These substances may be biological, chemical, or physical. The most common food contaminants are biological that belong to bacteria, parasites, viruses, and fungi. (See Section 2)

Foodborne intoxication occurs when a person eat food that contains toxins. Toxins in seafood, plants and mushrooms are responsible for many cases of foodborne illness in the United States each year.

Fish Toxins

Scombroid Poisoning

Some fish toxins are produced by the fish itself. Pufferfish, moray eel, and freshwater minnow all produce toxins. Scombroid poisoning (known as histamine) is an illness caused by consuming high levels of histamine.

<table>
<thead>
<tr>
<th>Fish Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuna</td>
<td>Purchase fish from approved suppliers</td>
<td>Reddening of the face/nick</td>
</tr>
<tr>
<td>Bonito</td>
<td>Prevent time-temperature abuse during receiving, storage, and preparation</td>
<td>Burning of throat or mouth</td>
</tr>
<tr>
<td>Mackerel and Mahi Mahi</td>
<td></td>
<td>Vomiting and nausea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diarrhea and headache</td>
</tr>
</tbody>
</table>
**Ciguatera Fish Poisoning**

Ciguatoxin is found in certain marine algae. Ciguatoxin is commonly associated with predatory reef fish. The toxin accumulates in these fish when they consume smaller fish that have eaten the toxin algae.

<table>
<thead>
<tr>
<th>Fish Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barracuda</td>
<td>Purchase reef fish from approved suppliers</td>
<td>Hot and cold sensations</td>
</tr>
<tr>
<td>Grouper</td>
<td>Prevent time-temperature abuse during receiving, storage, and preparation</td>
<td>Tingling in fingers, lips, toes</td>
</tr>
<tr>
<td>Jacks and Snapper</td>
<td></td>
<td>Vomiting and nausea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Joint and muscle pain</td>
</tr>
</tbody>
</table>

**Paralytic and Neurotoxic Poisoning**

Some types of shellfish can become contaminated as they filter toxic from algae from the water. People get sick with neurotoxic shellfish poisoning when they eat these shellfish. The toxins cannot be smelled or tasted and it is not destroyed by cooking or freezing.

<table>
<thead>
<tr>
<th>Shellfish Involved</th>
<th>Prevention</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clams and Mussels</td>
<td>Purchase fish from approved suppliers</td>
<td>Vomiting and nausea</td>
</tr>
<tr>
<td></td>
<td>Prevent time-temperature abuse during receiving, storage, and preparation</td>
<td>Tingling of mouth, face, arms and legs</td>
</tr>
<tr>
<td>Oysters and Scallops</td>
<td></td>
<td>Diarrhea</td>
</tr>
</tbody>
</table>
Mushroom Toxins

Foodborne illnesses associated with mushrooms are always caused by the consumption of toxic, wild mushrooms collected by amateur mushroom hunters. Cooking or freezing will not destroy toxins found in the wild mushrooms.

Plant Toxins

Plant toxins are another form of biological contamination. Foodborne illnesses from plant toxins have occurred from consumption of the following:

<table>
<thead>
<tr>
<th>Plants Involved</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fava bean</td>
<td>Red Kidney beans</td>
</tr>
<tr>
<td>Jimsonweed</td>
<td>Water hemlock</td>
</tr>
<tr>
<td>Water kernels</td>
<td>Rhubarb leaves</td>
</tr>
</tbody>
</table>

Toxic Metals

Utensils and equipment that contain toxic metals such as lead in a pewter pitcher, copper in a saucepan, or zinc in a galvanized bucket can cause toxic metal poisoning. Do not cook any food that contain tomato sauce or any acid food product as vinegar.

Carbonated-beverage dispensers that are improperly installed can also create a hazard. If carbonated water is allowed to flow back into the copper supply lines, it could leach copper from the line and contaminate the beverage.

Food Allergy

Nearly seven million Americans have food allergies. Food allergy caused by the body’s negative reaction to a particular food protein. Designate one person per shift to fully describe each of the menu items to your customers. If you or your employees do not know if an item is allergen free, urge the customer to order something else.
## Common Food Allergy and Symptoms

<table>
<thead>
<tr>
<th>Food Involved</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk and dairy products</td>
<td>Itching in and around mouth, face and scalp</td>
</tr>
<tr>
<td>Eggs and egg products</td>
<td>Tightening in the throat</td>
</tr>
<tr>
<td>Fish and shellfish</td>
<td>Wheezing or shortness of breath</td>
</tr>
<tr>
<td>Wheat</td>
<td>Hives, welling of face, eyes and hands</td>
</tr>
<tr>
<td>Soy and soy products</td>
<td>Abdominal cramps, vomiting or diarrhea</td>
</tr>
<tr>
<td>Peanuts and tree nuts as pecans and walnut</td>
<td>Loss of consciousness or death</td>
</tr>
</tbody>
</table>
Section Three (3) Study Questions

1. Eggs, soy products, milk, and peanuts are dangerous for people with which condition?
   A. FAT TOM
   B. Chemical sensitivity
   C. Food Allergies

2. Cooking tomato sauce in a copper pot can cause which foodborne illness?
   A. Toxic-metal poisoning
   B. Foodborne infection
   C. Hemorrhagic colitis

3. Storing lemonade in a pewter pitcher can result in
   A. Physical contamination
   B. Chemical contamination
   C. Cross-contact

4. To prevent food allergens for being transferred to food
   A. Clean and sanitize utensils before each use with different food
   B. Avoid pewter tableware and cooper cookware
   C. Buy food from approved suppliers

5. To prevent chemical contamination, chemicals should be stored ___________ food and utensils
   A. Next to
   B. Above
   C. Separate from

6. In which liquid should wiping cloths be stored?
   A. Clear cold water
   B. Sanitizing solution
   C. Clear hot water

7. What is common food Allergen?
   A. Tea and coffee
   B. Crab legs, soybeans, pecan pie, peanut butter, and vanilla ice cream
   C. Squash and eggplant

Answers

SECTION 4
THE SAFE FOODHANDLER

Food Handler

At every step in the flow of food through the operation, food handlers can contaminate food and cause customers to become ill. Good personal hygiene is a critical protective measure against foodborne illness and customers expect it.

How foodhandlers can contaminate food
Food handlers can cause illness when they transfer microorganisms to food they touch:
1. When they do not wash their hands
2. When they have a foodborne illness
3. When they have wounds that contain a pathogen
4. When they have contact with a person who is ill
5. When they have diarrhea, vomiting or jaundice

Components of a good Personal Hygiene
Good personal hygiene is a key to the prevention of foodborne illness and includes:
1. Hand washing for at least 20 seconds. (spend at least 10-15 seconds scrubbing hands)
2. Clean clothing, hair restraints and jewelry limited to a plain band
3. No medical bracelet allowed- Let your manager know if any medical needs
4. Food handler with long hair must restrain all his/her hair
5. Short, clean fingernails, no nail polish, wear a bandage over wounds
6. Cover all hand cuts and wounds with clean bandages. Finger cot and clean gloves should be worn at all times to prevent bandage from falling off into food
7. Eliminate bare-hand contact with ready-to-eat food
8. Remove aprons when leaving food-preparation area (using restroom/taking garbage out)

Foodhandlers must wash their hands before they start work and after:
1. Using the restroom
2. Handling raw meat, poultry and fish
3. Touching the hair, face, or body
4. Sneezing, coughing, or using a tissue
5. Smoking, eating, drinking, or chewing gum
6. Handling chemicals that might affect the safety of food
7. Taking out garbage

Proper Handwashing Procedure
Wet hands with running water (at least 100°F)

Apply soap

Vigorously scrub hands and arms for 10-15 seconds

Rinse thoroughly under running water

Dry hands and arms with a single-use paper towel. Use a paper towel to turn off the faucet and open the door

** Vigorously scrub hands and arms for 10-15 seconds

** The whole handwashing process should take approximately 15-20 seconds

** Hand antiseptics (sanitizers) must be approved by FDA
Glove use
Gloves can help keep food safe by creating a barrier between hand and food. Gloves must never be used in place of Handwashing. Hands must be washed before putting gloves on and when changing to a new pair.
Foodhandler should change their gloves:
1. As soon as they become soiled or torn
2. Before beginning different task
3. At least every four (4) hours during continual use, and more often when necessary
4. After handling raw meat and before handling cooked or ready-to-eat food

Policies regarding eating, drinking, chewing gum, and tobacco
Small droplets of saliva can contain thousands of disease-causing microorganisms. Foodhandlers should eat, drink, chew gum or use tobacco products only in designated area

Policies for reporting health issues
Small droplets of saliva can contain thousands of disease causing microorganisms. In the process of eating, drinking, chewing gum, or smoking, saliva can be transferred to the food handler’s hands or directly to food being handled

1. Restrict the foodhandler form working with or around food if they have a sore throat with a fever.- Assigned staff to other tasks away from food
2. Exclude the foodhandler form operation if he or she has vomiting, diarrhea and jaundice
3. Exclude the foodhandler from operation and notify the local regulatory authority if he or she diagnosed with Hepatitis A, Norovirus, Salmonella Typhi, shigella,sigha toxin-producing E. Coli
Section Four (4) Study Questions

1. What should food handlers do if they cut their fingers while prepping food?
   A. Cover the wound with a bandage
   B. Cover the wound with a bandage and a glove and or a finger cot
   C. Stay away from food and pep areas

2. Food handlers who work in a nursing home can’t work in the operation if they have which symptom?
   A. Soreness with fatigue
   B. Headache with soreness
   C. Sore throat with fever
   D. Thirst with itching

3. When should hand antiseptics be used and who approved
   A. After washing hands, FDA approve hand antiseptics
   B. In place of washing hands
   C. In place of wearing gloves

4. Which one piece of jewelry can be worn by a food handler?
   A. Diamond ring
   B. Plain band ring
   C. Medical bracelet

5. What should food handlers do before using the restroom?
   A. Wash their hands
   B. Take off their hats
   C. Take off their aprons

Answers

The Flow of Food
Many things can happen to a product on its path through the establishment, from purchasing and receiving through storing, preparing, cooking, holding, cooling, reheating, and serving.

Preventing Cross-Contamination
A major hazard in the flow of food is cross-contamination, which is the transfer of microorganisms from one food or surface to another. Microorganisms move around easily in a kitchen, they can be transferred from food or unwashed hands to prep tables, equipment, utensils, cutting boards, or other food.

1. Assign specific equipment to each type of food product
2. Clean and sanitize all work surfaces, equipment, and utensils after each task
3. When using the same prep table, prepare raw meat, fish, and poultry and ready-to-eat food at different times
4. Do not handle food with bare hands- use clean gloves

Time and Temperature
One of the biggest factors responsible for foodborne-illness outbreaks is time-temperature abuse. Foodborne microorganisms grow at temperature between 41°F-135°F which is why this range is known as the temperature danger zone. Potentially hazardous food (TCS) can be time-temperature abused as it flows through the establishment. This can occur when it is not:

1. Cooked to the required minimum internal temperature – check recipe for cooking temperature
2. Cooled properly- cool hot food from 135°F to 70°F within two (2) hours and from 70°F to 41°F in additional four (4) hours
3. Reheated properly- Reheat all food to 165°F
4. Held at the proper temperature - hold hot food to 135°F or higher. Hold cold food to 41°F or lower
Preventing Time-Temperature abuse
The best way to avoid time-temperature abuse is to establish procedures employees must follow and then monitor the. Make time-temperature control part of every employee’s job.
To be successful, you should:
1. Determine the best way to monitor time and temperature in the establishment
2. Make sure the establishment has the right kind of thermometers available
3. Make sure employees regularly record food temperature and the times they are taken
4. Develop a set of corrective actions

Monitoring time and Temperature
To manage both time and temperature, you need to monitor and control them. The thermometer may be the single most important tool you have to protect your food.

Common Thermometers

Bimetallic stemmed thermometers
1. Can check temperature form 0°F to 220°F, must be accurate within +/-2°F
2. A Bimetallic stemmed thermometer measures temperature through its metal stem
3. When checking temperatures, insert the thermometer stem into the food up to the dimple
4. Bimetallic thermometers are designed to take hot and cold food temperature

Infrared
1. Infrared thermometers measure the temperature of food and equipment surfaces
2. Infrared thermometers can reduce the risk of cross-contamination and damage to food products because they do not require to contact with food
3. They should not be used to measure air temperature or the internal temperature of food

Thermocouples and Thermistors
1. They measure temperature through a metal probe or sensing area and display results on a digital readout
2. They are designed to take temperature of equipment and food

Immersion, surface, and penetration probe thermometers
1. Immersion probes are designed to measure temperature of liquids, such as soups, sauces or frying oil
2. Surface probes measure temperature of flat cooking equipment like griddles
3. Penetration probes are used to measure the internal temperature of food
**Time-Temperature Indicators (TTI)**
The time-temperature indicator is a self-adhesive tag that is attached to food shipment to determine if the temperature has exceeded safe limit during shipment or later storage.

**Thermometers Calibration**

**Boiling water method**

1. Bring clean tap water to a boil in a deep pan
2. Put the thermometer stem into the boiling water so the sensing area is completely submerged, wait for 30 seconds until the indicator stops moving
3. Hold the calibration nut securely with a wrench or other tool and rotate the head of the thermometer until it reads 212°F

**Ice-point method**

1. Wash, rinse, and sanitize bimetallic thermometer
2. Fill a large container with 50% crushed ice and 50% tap water
3. Put the thermometer stem into the ice water, wait 30 seconds until the indicator stops moving
4. Do not let the stem or probe touch the container’s bottom or sides
5. Adjust the thermometer so it reads 32°F.
6. Store thermometers in clean container or their storage case
7. Calibrate thermometers daily to ensure accuracy. Thermometers recalibrated any time they dropped, or after an extreme change in temperature

**How to check food temperature**

When checking the temperature of food, insert the probe into the thickest part of the food. This is usually in the center. Also take another reading in a different spot. The temperature may vary in different areas.

- Plastic thick package - insert thermometer between two packages
- Meat, poultry and fish insert clean calibrated thermometer in the thickest part of the food
- Fold the soft package in half and insert thermometer in the middle without puncture the package
- Carton – open the carton and insert thermometer
Meat, Poultry, Fish

liquids soft package (pouches)

Thick Packaged

Carton liquid
Section five (5) Study Questions

1. At what temperatures do foodborne pathogens grow most quickly?
   A. Between 130°F and 165°F
   B. Between 70°F and 125°F
   C. Between 0°F and 41°F

2. Which of these practices can help prevent cross-contamination?
   A. Using a designated cutting board when prepping meat
   B. Calibrating thermometers
   C. Preparing small batches of food at one time

3. Which thermocouple probe should be used to check the temperature of a large stockpot of soup?
   A. Air probe Surface probe
   B. Immersion probe
   C. Glass thermometer

4. A foodhandler has finished trimming raw chicken on a cutting board and needs it to prep vegetables. What must be done to the cutting board?
   A. It must be dried with a paper towel
   B. It must be washed, rinsed, and sanitized
   C. It must be turned over to the other side

5. Infrared thermometer should be used to measure the
   A. Air temperature in a cooler
   B. Internal temperature of a turkey
   C. Surface temperature of a grill

Answers

SECTIONS 6

Purchasing and Receiving and Storing

Purchasing and Receiving

Even though federal and state agencies regulate and monitor the production and transportation of food such as meat, poultry, seafood, eggs, dairy products, and canned goods, it is your responsibility to purchase food from reputable suppliers and check the food that comes into your establishment. **Food safety start with purchasing food from reputable suppliers**

General purchasing and Receiving Principals

1. Purchase food only from suppliers who get their products from approved sources. An approved food sources is one that has been inspected and is in compliance with local, state and federal law

2. Schedule deliveries for off-peak hours and receive only one delivery at a time

3. Make sure enough trained staff are available to promptly receive, inspect, and store food

4. **Use calibrated thermometers to sample temperature of received food items**

5. **Check shipment for intact packaging and signs of refreezing, prior wetness, insect, and pest infestation**

6. Inspect deliveries immediately and put items away as quickly as possible- date, rotate

7. **Receive all cold food at 41°F except shellfish and shell eggs 45°F**

8. **Receive all hot food at 135°F**

General Storage Guidelines

1. Rotate food using first-in-first-out
2. Store items with the earliest use-by or expiration date.
3. Store food in clean, airtight containers that intended for food storage
4. Containers should be durable, leak proof, and able to be sealed or covered.
5. Keep all storage areas clean and dry. Store food 6” of the floor, away from walls, and out of direct sunlight
6. Keep temperature of the dry-storage area between 50°F and 70°F
7. Do not overload coolers of freezers. Storing too many food items prevents good airflow
8. Store food in ways that prevent cross-contamination, top-to-bottom order: ready-to-eat food, seafood, whole cuts of beef and pork, ground meat and ground fish, last on the bottom are whole and ground poultry

Labeling, Marking and storing TCS food that prepped in- house
1. Store under cold refrigeration and date mark previously cooked ready-to-eat TCS food for no longer than 24 hours. (Leftover ground meat or sausage that will be used to make pasta sauce for the following day.)

2. Store under cold refrigeration and date mark TCS ready-to-eat food prepped in-house (today) for no longer than 7 days. (Sandwiches or salads.)

Receiving Criteria for ROP, MAP, Sous Vide UHT and Shellshock identification tags
1. Food products as ROP, MAP, Sous Vide, smoked/ Cured meat are require HACCP plan and Variance from Regulatory Authority
2. Follow the manufacturer’s guide lines when receiving and storing the above foods
3. Reduced oxygen packaging (ROP) - Packaging methods used to prevent the growth of microorganisms in packaged food by reducing oxygen in packaging
4. Modified atmosphere packaging (MAP) - Packaging methods by which the air inside of a package is altered using gases, such as carbon dioxide and nitrogen. Many fresh-cut produce items are packaged this way
5. Sous Vide- packaging method by which food is partially cooked and vacuum packed in individual pouches and then chilled. Frozen pre-cooked meals are often packaged this way
6. Ultra-High temperature (UHT) pasteurized food- Food that is heat-treated at very high temperatures to kill microorganisms. This food sealed under sterile condition to keep them from being contaminated as cheese and mild
7. Shellshock identification tags- each container of live, molluscan shellfish received must have an ID tag that must remain attached to the container until all the shellfish have been used. Tags must be kept on file for 90 days from the harvest date of the shellfish
Store Cold Food Safely

Store ready-to-eat food, seafood, whole cuts of beef, pork, ground meat and ground fish, whole and ground poultry inside the coolers in the following top-to-bottom order:
Sections Six (6) Study Questions

1. What is the most important factor in choosing an approved supplier?
   A. It has a HACCP program or other food safety system
   B. It has documented manufacturing and packing practices
   C. It has been inspected and complies with local, state, and federal laws

2. What is the maximum acceptable receiving temperature for fresh beef?
   A. 35°F  B. 41°F  C. 45°F

3. In top-to-bottom order, how should a fresh pork roast, fresh ground meat, fresh salmon, a carton of lettuce, and pan of fresh poultry be stored in a cooler?
   A. Lettuce, salmon, pork roast, ground meat, poultry
   B. Salmon, roast pork, poultry, ground meat, lettuce
   C. Salmon, lettuce, poultry, roast pork, ground meat

4. What is the acceptable receiving temperature for eggs?
   A. 32°F  B. 45°F  C. 50°F

5. An operation that has prepped tuna salad can store it at 41°F or lower form a maximum of how many days?
   A. 1 day  B. 14 days  C. 7 days

6. When storing food using the FIFO method, the food with the earliest use-by dates should be stored
   A. Below food with later use-by dates
   B. Behind food with later use-by-dates
   C. In front of food with later use-by dates

Answers

SECTION 7
FOOD PREPARATION

To protect food during preparation, you must handle it safely. The keys are time and temperature control and the prevention of cross-contamination.

General Preparation Practice

1. Make sure workstations, cutting boards, and utensils are washed, rinsed, and sanitized
2. Cook potentially hazardous food to the required minimum internal temperature
3. Reheat potentially hazardous food to an internal temperature of 165°F
4. Remove from the cooler only as much food as you can prep in a short period of time (Patch cooking)
5. Returns prepped food to the cooler, or cook it as quickly as possible
6. Never thaw food at room temperature, thaw food in a cooler at 41°F or lower, or submerge food under running water at 70°F or lower or thaw food in a microwave oven if it will be cooked just after thawing, or thaw food as part of the cooking process
7. Cool hot food from 135°F to 70°F within 2 hours and from 70°F to 41°F or lower in an additional 4 hours (total of 6 hours)
8. Safe methods for cooling food include: reducing the size of the food- cut roast to smaller pieces, divided large amount of soup into small portions , using ice-water
9. Wash fruit and vegetable thoroughly under running water as cantaloupe, melons, lettuce (before cutting, cooking or combining it with other ingredients)
10. Refrigerate and hold sliced melons and cut tomatoes at 41°F or lower
11. Store chicken, tuna, egg, pasta, and potato salads at 41°F or lower
12. Do not serve un-pasteurized juice, milk, soft cheese, raw seed sprouts to high-risk population
13. Use pasteurizes eggs if you mainly serve high-risk populations.
14. Discard any unused batters made with eggs or milk
15. Pooled eggs that are cracked open must store at 41°F or lower
16. Reheat all TCS food to 165°F. Hold all hot food to 135°F or higher
17. Use clean, sanitized containers and ice scoops to transfer ice form ice machine to other containers
18. Store ice scoops outside of the ice machine in a clean, protected location
## COOKING REQUIREMENTS FOR SPECIFIC FOOD

<table>
<thead>
<tr>
<th>Minimum Internal Temperature</th>
<th>Type of food</th>
</tr>
</thead>
</table>
| **165°F for 15 Seconds**     | Poultry - including whole or ground chicken, turkey, or duck  
Stuffed made with TCS  
Stuffed meat, stuffed seafood, stuffed poultry, or stuffed pasta  
Dishes that include **previously cooked** potentially hazardous ingredients |
| **165°F for 2 Minutes**      | Microwave cooking - meat, seafood, poultry and eggs  
Stir food halfway through the cooking process  
Let the food stand for at least **two minutes** to let the temperature even out |
| **155°F for 15 Seconds**     | **Ground meat** - include beef, pork, and other meat  
**Ground seafood**-including chopped or minced seafood  
Injected meat - including brined ham and flavor injected roasts  
Eggs that will be hot-held for **later service** |
| **145°F for 15 Seconds**     | Seafood - including fish, shellfish, and crustaceans (**whole**)  
Steak, chops of pork, beef, veal, and lamb  
Eggs that will be **served immediately** |
| **145°F for 4 Minutes**      | **Roasts** of pork, beef, veal and lamb |
| **135°F for 15 Seconds**     | **Fruit, vegetables**, grains (rice, pasta), and bean, refried beans that will be hot-held for service  
Commercially processed, ready-to-eat-food that will be hot-held for service.  
(cheese sticks, deep-fried vegetables) |
Section Seven (7) Study Questions

1. Beef stew must be cooled from 135F to 70F within --------------- hours and
   From 70F to 41F or lower in the next -------------------------- hours
   A. 2-3 hours       B. 2-4 hours       C. 4-2 hours

2. What is the minimum internal cooking temperature for eggs that will be hot-held for later service?
   A. 135F           B. 155F           C. 120F

3. What is the danger when thawing food at room temperature?
   A. Cross-contamination
   B. Time-temperature abuse
   C. Poor personal hygiene

4. What must you do immediately after thawing food in a microwave?
   A. Hold it       B. Freeze it       C. Cook it

5. What is the minimum internal cooking temperature for stuffed pork chops?
   A. 145°F         B. 155°F         C. 165°F

6. What are the time and temperature for reheating TCS food for holding?
   A. 135°F for 15 seconds within 2 hours
   B. 165°F for 15 seconds within 2 hours
   C. 145°F for 15 seconds within 2 hours

7. What is the minimum internal cooking temperature for eggs, meat, poultry, and seafood cooked in a microwave?
   A. 165°F        B. 155°F        C. 135°F

8. What is the correct way to cool a 25 pound turkey?
   A. Put the hot turkey inside the cooler
   B. Leave the hot turkey on prep table
   C. Divide the turkey into small portions and place it into ice path

Answers

SECTION 8

SERVING FOOD SAFELY

Safe food handling does not stop once food is properly prepared and cooked. To make sure the food you serve is safe, you must continue to protect it from time-temperature abuse and contamination until it is eaten.

**Holding hot potentially hazardous food**
1. Hold hot food at an internal temperature of 135°F or higher.
2. Use only equipment that can maintain this temperature.
3. Never use hot-holding equipment to re-heat food.
4. Check internal temperature using a calibrated thermometer.
5. Check temperature at least every four hours.
6. Protect food from contaminants with covers/sneeze guards.
7. Prepare food in small batches so it will be used faster.

**Holding cold potentially hazardous food**
1. Hold cold food at an internal temperature of 41°F or lower.
2. Do not store food directly on ice.
3. Use only equipment that can maintain this temperature.
4. Check internal temperature using a calibrated thermometer.

**Minimizing Contamination during Service**
1. Use clean and sanitized utensils for serving.
2. Store serving utensils handle up.
3. Minimize bare-hand contact with food that is cooked or ready-to-eat (use gloves).
4. Practice good personal hygiene.

**Handling Glassware, Dishes and Utensils**
1. Food contact areas of plates, bowls, glasses, and cups should not be touched.
2. Dishes should be held by the bottom or the edge.
3. Cups should be held by their handles, and glassware should be held by the middle or bottom (do not touch the rim).
4. Do not stack glassware or dishes when serving. The rim of surface of one can be contaminated by the one above it.
5. Flatware and utensils should be held at the handle.
6. Stack utensils inside the dishwasher handle up.
7. Wash your hands after clearing table of dirty utensils.
Self-Service Areas - Buffets and Food Bars
1. Install sneeze guards to protect food
2. Label all food items, separate raw meat, fish, and poultry from cooked and ready-to-eat food
3. Hand out fresh plates to customers and do not let them use soiled plates
4. Maintain proper food temperatures. 41°F-135°F
5. Replenish food on a timely basis. (FIFO)

Re-Serving Food Safely
1. Menu items returned by one customer cannot be re-served to another
2. Never re-serve plate garnishes, such as fruit or pickles to another customer
3. Never re-serve uncovered condiments
4. Do not re-serve uneaten bread or rolls to another customer
5. Use clean linen for every new customer

When Delivering Food to Off-Site
1. Use insulated containers capable of maintaining proper temperature (41°F-135°F)
2. Store raw food and ready-to-eat food items separately.
3. Check internal food temperature regularly
4. Clean the inside of delivery vehicles regularly
5. Provide food safety guidelines for consumers

To Protect Food in Vending Machines
1. Keep potentially hazardous food at 41°F or lower and 135°F for higher
2. Dispense potentially hazardous food in their original container
3. Check product shelf life and discard food within seven days of preparation
4. Fresh fruit with edible peels should be washed and wrapped before being put in a machine
Section Eight (8) Study Questions

1. When serving, it is important to avoid touching the glass---------
   A. Rim  B. Bottom  C. Middle

2. When serving, it is important to avoid touching the --------------of a plate
   A. Top  B. Edges  C. Food contact area (side)

3. At what maximum internal temperature should all cold TCS food be held?
   A. 32°F  B. 41°F  C. 60°F

4. When returning to self-service lines for more food, customers should not -------- their dirty plates
   A. Refill  B. Overload  C. Stack

5. At what minimum internal temperature all hot TCS food should be held?
   A. 115°F  B. 125°F  C. 135°F

6. Where allowed, TCS hot food can be held without temperature control for maximum of --
   hours before being sold, served, or thrown out
   A. 2 hours  B. 4 hours  C. 8 hours

7. Where allowed, TCS cold food can be held without temperature control for maximum of
   hours before being sold, served, or thrown out
   A. 6 hours  B. 4 hours  C. 7 hours

Answers

SECTION 9

FOOD SAFETY MANAGEMENT SYSTEM

A food safety management system will help you prevent food borne illness by controlling hazards throughout the flow of food. Active managerial control focuses on establishing policies and procedures to control five common risk factors responsible for food borne illness: Purchasing food from unsafe sources, failing to cook food adequately, holding food at improper temperatures, using contaminated equipment, and poor personal hygiene.

Food Safety System built on the following
1. Good personal hygiene
2. Facility design
3. Supplier selection and specification
4. Cleaning and sanitation
5. Equipment maintenance
6. Manager and employee food safety training

HACCP Philosophy: If significant biological, chemical, or physical hazards are identified at specific points with a product’s flow through the operation, they can be prevented, eliminated and or reduced to safe levels
HACCP System must be based on a written plan that is specific to each facility’s menu, customers, equipment, processes, and operation

The Seven HACCP Principles

Principle 1: Conducting a Hazard Analysis
1. During this step, you will be identifying and assessing potential hazards in the food you serve by taking a look at how it is processed, or flows through the establishment.
2. Preparing, cooking, holding, and serving. (Cooking chicken)
3. Poor personal hygiene and or improper cooking and hot holding temperature.

Principle 2: Determine Critical Control Points
Find the points in the process were the identified hazard can be prevented, eliminated, or reduced to safe levels.
Proper cooking is the only step that will prevent, eliminate or reduce bacteria to safe levels.
Principle 3: Establish Critical Limits
1. Establish minimum and maximum limits for each CCP that must be met to prevent, reduce and or eliminate the hazard to a safe level.
2. Cook the chicken to a minimum internal temperature of 165°F for fifteen seconds. (cooking chicken to 165°F to prevent hazard)

Principle 4: Establish Monitoring Procedures
1. Identify who will monitor the procedures and how often.
2. In this case inserting a clean, calibrated, and sanitized thermometer into the thickest part of the chicken (breast) and make sure it has reached a minimum internal temperature of 165°F.

Principle 5: Identify Corrective Actions
1. Identify steps that must be taken when a critical limit is not met and determine these steps in advance.
2. For example, if the chicken has not reached 165°F during cooking, employees must continue to cook it until it does and record this corrective action in the temperature log

Principle 6: Verify that the System Works
1. Determine if the plan is working as intended. Evaluate on a regular basis the cooking charts, temperature logs, and records
2. Flow diagram: A systematic representation of the sequence of steps or operations used in the production of a particular food item.
3. Determine if the plan adequately prevents, reduces, and or eliminate identified hazards

Principle 7: Establish Procedures for Record Keeping
Keep time and temperature logs, corrective action records, and receiving invoices on files

Keep records obtained:
1. Whenever a corrective action is taken
2. When equipment is validated
3. When working with suppliers

HACCP Plan and Variance are required if an establishment
1. Smokes, cures, or used food additives to preserve food
2. Packages food using a reduced-oxygen packaging method
3. Offer live, molluscan shellfish from a display tank
4. Customer-processes animals for personal use
5. Packages unpasteurized juice for sale to customer without a warning label
Crisis Management

A food safety system is designed to help you take steps to ensure that the food you serve is safe. Despite your best efforts, however, a food borne-illness outbreak, food defense issues, product recalls, water interruption, power outage, sewage backup, and flood that may occur in your establishment.

The time to prepare for a crisis is before one occurs. The basis of a successful crisis management program is written a plan that identifies the resources required and list/explains the procedures that must be followed.

Crisis management plan should include: basic objectives, checklists with step-by-step procedure, specific tasks, roles, and resources.

In a large corporation, the crisis management team might be cross-functional, consisting of the heads of the major departments. In a smaller operation, the team might consist of the owner, general manager, and chef.

It is helpful to appoint a single spokesperson to handle all media queries and communication. Designating spokesperson results in a more consistent message.
Section Nine (9) Study Questions

Part one: Identify the HACCP principle defined by each statement. Select the number to match HACCP principal

<table>
<thead>
<tr>
<th>HACCP Principals</th>
<th>Select the number to match the principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Checking to see if critical limits are being met</td>
<td>1 Hazard analysis</td>
</tr>
<tr>
<td>B Keep HACCP plan documents</td>
<td>2 Critical control points</td>
</tr>
<tr>
<td>C Assessing risks within the flow of food</td>
<td>3 Critical limits</td>
</tr>
<tr>
<td>D Specific place in the flow of food where a hazard can be prevented, eliminated, or reduced to a safe level</td>
<td>4 Monitoring</td>
</tr>
<tr>
<td>E Predetermined step taken when a critical limit is not met</td>
<td>5 Corrective action</td>
</tr>
<tr>
<td>F Minimum or maximum boundaries that must be met to prevent a hazard</td>
<td>6 Verification</td>
</tr>
<tr>
<td>G Determining if the HACCP plan is working as intended</td>
<td>7 Record keeping and documentation</td>
</tr>
</tbody>
</table>

Study Questions- Part two

1. The temperature of a roast is checked to see if it has met its critical limit of 145f for 4 minutes. This is an example of which HACCP principle?
   - A. Verification
   - B. Monitoring
   - C. Record keeping
   - D. Hazard analysis

2. What is the first step in developing a HACCP plan?
   - A. Identify corrective actions
   - B. Conduct a hazard analysis
   - C. Establish monitoring procedures
   - D. Determine critical control points

3. A food safety management system is a group of ---------------for preventing foodborne illness
   - A. Managers and customers
   - B. Measurements and graphs
   - C. Procedures and practice
   - D. Detergents and sanitizers
4. An operation that wants to smoke food as a method of preservation must have a
   A. Current organization chart
   B. Crisis-management plan
   C. HACCP plan
   D. MSDS

5. What is the third step in active managerial control?
   A. File the documentation in case of a crisis
   B. Monitor the policies and procedures
   C. Revise the policies and procedures
   D. Determine staffing needs

6. Which is an example of when a HACCP plan is required?
   A. Serving smoked meat on a metal platter
   B. Serving chili made from a family recipe
   C. Serving wild game with cream sauce
   D. Serving raw oysters from a display tank

Answers – Part one - HACCP Principals

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<thead>
<tr>
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<tbody>
<tr>
<td>A. 4</td>
<td>B. 7</td>
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<td>D. 2</td>
</tr>
<tr>
<td>E. 5</td>
<td>F. 3</td>
<td>G. 6</td>
<td></td>
</tr>
</tbody>
</table>

Answers – Part two
1. B
2. B
3. C
4. C
5. B
6. A
SECTION 10
SANITARY FACILITY

An establishment that is difficult to clean will not be cleaned well. Sanitation efforts will be more effective if a facility is designed and equipped with ease of cleaning in mind.

When designing or remodeling a facility
1. Arrange equipment/fixtures to comply with sanitary standard.
2. Select materials that will be easy to clean.
3. Have plans reviewed by the local regulatory agency.
4. Make sure the building meets ADA (The Americans with Disabilities Act)

Flooring
Non-absorbent flooring should be used in
1. Food preparation areas
2. Ware washing Areas
3. Restrooms
4. Other areas subject to moisture, flushing, or spray cleaning
5. Carpeting is popular in dining rooms because it absorbs sound, beverage station, wait staff, and major traffic aisles
6. Coving is a curved, sealed edge placed between the floor and the wall to eliminate sharp corners or gaps that would be difficult to clean

7.
Hand Washing Stations required in
1. Food preparation areas
2. Service areas
3. Restrooms

Hand washing stations must be equipped with
1. Hot and cold running water (hand washing 100 °F)
2. Liquid, powdered soap
3. A means to dry hands (single use towel or s warm air dryer)
4. A waste container
5. Signage indicating employees must wash their hands

Purchasing Equipment with food-contact Surface that is
1. Safe and durable
2. Smooth and easy to clean
3. Nonabsorbent
4. Corrosion-resistant
5. Resistant to pitting, chipping, scratching, and decomposition

Nonfood-contact surface equipment
1. Smooth and nonabsorbent
2. Corrosion-resistant, easy to clean, and maintain
3. Free of unnecessary edges and crevices

Purchasing equipment
NSF International mark: Equipment has been evaluated, tested
Underwriters Laboratory (UL) mark: equipment is in compliance with NSF standard

Installing Ware washing machines
1. Keep water pipes short to prevent heat loss
2. Place the machine 6 inches of the floor to permit cleaning underneath
3. Post water temperature, conveyor speed, and chemical concentration information near the machines
Installing stationary floor equipment
1. Mounted 6 Inches of the floor OR
2. Sealed to a masonry base with a food-grade sealant

Installing stationary tabletop equipment
1. Mounted on legs with a 4 inches clearance between equipment base and tabletop OR
2. Sealed to a masonry base with a food-grade sealant

Maintaining equipment
1. It must receive regular maintenance
2. It must be maintained by qualified personnel
3. Follow the manufacturer’s recommendation

Acceptable sources of potable water include
Potable water must be used for dirking, cooking, cleaning, hand washing, thawing, and cooling
1. Public water mains
2. Regularly tested private sources
3. Bottled water
4. Water in on premise storage tanks
5. Water transport vehicles that are properly maintained
6. Private water well must be tested annually

Plumbing
1. Only licensed plumbers should install and maintain grease traps
2. Repair leaks from overhead pipes
3. Install Vacuum breaker to prevent the mixing of potable and non-potable water-piping

Cross connection is a physical link between safe water and dirty water, which can come from drains, sewer or running hose in a mop bucket

Backflow is a reverse flow of contaminants through a cross-connection into the potable water supply. Connecting water hose to faucet then inserting the end of the hose into dirty water in inside bucket (When the pressure in the potable water supply drops below the pressure of the contaminated supply)
Cross connection and Backflow

Water contamination prevention methods

Install Vacuum Breaker: A vacuum breaker is an attachment that is installed between two pips to prevent contaminated water from being siphoned backward into the public drinking water system. This prevents contamination should the public drinking water system's pressure drop.

Vacuum Breaker
**Air Gap:** is the area between the faucet and the sink rim. Air Gap is also between the short drainpipe of the sink and the floor drain.

The only completely reliable method for preventing backflow is creating an air gap. An air gap is an air space used to separate a water supply outlet from any potentially contaminated source.

**Sewage**
A backup of raw sewage is cause for immediate closure. The Problem must be correct as well as thorough cleaning and the county inspection must be completed before you re-open for business.

**Lighting intensity**
1. Minimum intensity: 50 foot candles, food preparation areas
2. Minimum intensity: 20 foot candles, hand washing, buffets and salad bar, wait stations, restrooms
3. Minimum intensity: 10 foot candles, inside walk-in refrigerators and freezers, dry storage areas, dining rooms
Prevent lighting from contaminating food, use
1. Shatter resistant light bulbs
2. Protective covers made of metal, mesh, or plastic
3. Shields for heat lamps

Garbage containers must be
1. Leak proof, waterproof, and pest proof
2. Lined with plastic bags.
3. Easy to clean
4. Covered at all times with tight fitting lids
5. Cleaned frequently inside and out

Recycle Bins
1. Covered at all times with tight fitting lids to prevent rodent entry
2. Easy to clean
Section Ten (10) Study Questions

Part 1

<table>
<thead>
<tr>
<th>Material inside operation</th>
<th>Select the needed Material for each area</th>
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<tbody>
<tr>
<td>1. Floors</td>
<td>A. Pitted</td>
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<tr>
<td></td>
<td>E. Dark colored</td>
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<tr>
<td>2. Walls</td>
<td>B. Smooth</td>
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<td>F. Light colored</td>
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<tr>
<td>3. Ceilings</td>
<td>C. Durable</td>
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<td></td>
<td>G. Easy to clean</td>
</tr>
<tr>
<td>4. Doors</td>
<td>D. Absorbent</td>
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<td></td>
<td>H. Nonabsorbent</td>
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</tbody>
</table>

Study questions Part 2

1. Operations that use a private water source, such as a well, must have it tested at least
   A. Every year
   B. Every 2 years
   C. Every 5 years

2. What is the only reliable method for preventing backflow?
   A. Ball valve
   B. Air gap
   C. Cross connection

3. When installing tabletop equipment on legs, the space between the base of the equipment and tabletop must be at least?
   A. 1 inch
   B. 2 inches
   C. 4 inches

4. How hot should the hot water at a handwashing station get?
   A. At least 70F
   B. At least 100F
   C. At least 130F

5. Foodservice equipment that has been certified as meeting certain standards may be stamped with ------------------- mark
   A. FDA
   B. NSF
   C. USDA
6. To keep food from being contaminated by lighting, use
   A. Shields on heat lamps
   B. Fluorescent and other energy-efficient lightbulbs
   C. Signage next to lights in food-contact area

7. Which is a source of potable water?
   A. Collected rain water
   B. Untested private water sources
   C. Water transported vehicles

8. Outdoor garbage and recycle containers should be
   A. Kept covered with tight-fitting lids to keep rodents out
   B. Lined with plastic paper
   C. Labeled with collection times

9. What is a cross-connection?
   A. Threaded faucet
   B. Device that prevents a vacuum
   C. Link between sources of safe and dirty water

10. Backflow is when contaminated water
    A. Flows in reverse because of water pressure
    B. Backs up in a drain because of grease condensation
    C. Flows in pipes behind a wall

**Answers Part 1**

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**Answers Part 2**

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SECTION 11
CLEANING and SANITIZING

Cleaning is the process of removing food and other types of soil from a surface. Sanitizing is the process of reducing the number of harmful microorganisms on a clean surface to safe level.

Food-contact surfaces must be washed, rinsed, and sanitized
1. After each use
2. Anytime you begin working with another type of food
3. After a task has been interrupted
4. At 4-hour intervals if items are in constant use
5. Food contact surfaces must be non-absorbent and easy to clean

Sanitizing methods

Heat: Hot water
The most common way to heat-sanitize tableware, utensils, and equipment is to immerse or spray them with hot water. The higher the heat, the shorter the time required to kill microorganisms.

1. Chemicals: Chlorine, Iodine, and Quats
2. Chemical sanitizers are regulated by state and Federal Environment protection Agency (EPA). Follow the manufacrures recommended

The concentration of the sanitizer influences it effectiveness
1. Low concentration: May fail to sanitize objects
2. High concentrations” May be unsafe, leave odor/bad taste, corrode metals
3. Concentration is measured using a sanitizer test kits

The temperature of the sanitizing solution influences it effectiveness
1. Sanitizers work best from 55°F to 120°F (manual dishwashing)
2. At 55°F or lower, sanitizers may not be effective. Replace sanitizing solution if water is cold
3. At 120°F or higher, sanitizers may corrode metals or evaporate
4. Sanitizer will not be effective in hard water
5. Quaternary Ammonium Compounds – provide 200 ppm and Iodine Compounds – provide at 12.5 to 25 ppm. Sanitizer strength is measured in parts per million (ppm)

**When using ware washing machines**
1. Check them for cleanliness
2. Clear foreign objects from trays/spray nozzles
3. Check detergent and sanitizer levels.
4. Scrape, rinse, or soak items before washing them
5. Load racks correctly
6. Check machine temperature/pressures
7. Air-dry all items and keep machine in good repair.

**High temperature ware washing machines**
1. Rely on hot water to clean and sanitize.
2. **The temperature of the final sanitizing rinse must be at least** 180° F.

**Chemical sanitizing machines**
1. Use chemicals to sanitize and often wash at much lower temperature than high temperature ware washing machines, but not lower than 120°F
2. Rinse water temperature in these machines should be between 75°F and 120°F for sanitizer to be effective

**Three compartments sinks**
Before cleaning and sanitizing items in a three-compartment sink, each sink and all work surfaces must be cleaned and sanitized
1. Rinse, scrape or soak all items before washing
2. Wash items in the first sink in a detergent solution at least 110°F
3. Rinse items in the second sink and remove all traces of detergent
4. Immerse items in the third sink in hot water or chemical-sanitizing solution
5. Items must be immersed in the sanitizer solution for thirty (30) seconds
6. Air-dry all items
7. Invert all dishes to prevent the possibility of contamination
Cleaners
Cleaners are chemicals that remove food, dirt, rust, stains, minerals and other deposits. Cleaners must be stable, noncorrosive, and safe to use. Follow manufacturer’s instructions carefully and never combine cleaners.

Types of Cleaners
Detergents: Is used in general-purpose to remove fresh dirt from floors, walls, ceilings, prep surfaces, equipment, dishes and utensils.
Degreasers: have ingredients for dissolving grease. They work well on burned grease, backsplashes, oven doors and range hoods.
Abrasives: Abrasive cleaners have a scouring agent that helps scrub hard-to-remove dirt. They used to remove baked-on food. Be aware that they can scratch surfaces.

Cleaning nonfood-contact surfaces
Floors: Sweep first. Use a scrub brush and full strength detergent on extra soiled areas to remove grease and dirt. Mop or pressures spray the area. Remove excess water with a damp mop. Rinse thoroughly.

Walls: Clean tile and stainless steel surfaces by spraying or sponging with a detergent solution. Use a nylon scrub brush to clean dried on soil, grease, or dirt, condensation that are caused by ventilation system. Rinse with clean water.

Ceilings: Wipe and rinse ceilings and light fixtures with a sponge or clothe.

Equipment: Clean daily or as often as recommended by the manufacturer.

Restrooms: Clean daily and or as often as needed. Have special cleaning schedule to clean vomiting and diarrhea in the facility.

When storing clean and sanitized tableware and equipment
1. Store it 6 inches off the floor
2. Clean and sanitize drawers/shelves before items are stored
3. Store glasses/cups upside down
4. Store flatware/utensils with handles up.
When storing cleaning tools and supplies
1. Clean and sanitize tools before storage
2. Place tools in a locked areas away from food and food preparation areas
3. Air-dry mops, buckets, rooms, and brushes on hooks
   4. Do not use hand washing and food preparation sinks to clean mops
   5. Use service sink (utility) to empty dirty water (do not empty dirty water inside toilet)

When handling chemicals
1. Only purchase those approved for restaurant use
2. Follow manufacturer’s instruction/local regulation when discarding.
3. Label containers with;
   a. Chemical’s name
   b. Manufacturer’s name and address
   c. Description of potential hazards
4. Keep Material Safety Data Sheet (MSDS) for each chemical.
5. MSDS is required by OSHA and must be kept on site

Develop a Cleaning program
1. Identify all surfaces, tools, and equipment in the facility that needs cleaning.
2. Look at the way cleaning is done currently.
3. Estimate the time and skills needed for each task.

Creating a master cleaning schedule:
1. What should be cleaned
2. Who should clean it
3. When it should be cleaned
4. How it should be cleaned
Section Eleven (11) Study Questions

1. What is Sanitizing?
   A. Reducing dirt from a surface
   B. Reducing pathogens to safe levels
   C. Reducing pH of a surface

2. If food-contact surfaces are in constant use, how often must they be cleaned and sanitized?
   A. Every 4 hours
   B. Every 6 hours
   C. Every 2 hours

3. What information does a chlorine test kit provide about a sanitizing solution?
   A. Temperature
   B. Concentration
   C. Time used

4. Material Safety Data Sheets (MSDS) should be
   A. Kept so employees can access them
   B. Memorized in case of an emergency
   C. Sent to local regulatory authority

5. Flatware and utensils that have been cleaned and sanitized should be stored
   A. With the handles facing up
   B. Above cleaning supplies
   C. Within six inches

6. Hand antiseptics must
   A. Be water-based
   B. Contain ingredients to soften hands
   C. Be approved by the FDA

7. An object must be immersed in quat for at least how many seconds to be considered sanitized?
   A. 15
   B. 30
   C. 45

Answers
SECTION 12

INTEGRATED PEST MANAGEMENT

Pests are a threat to establishment because they can carry and spread a variety of diseases. Once they have infested a facility, it can be very difficult to eliminate them. Developing and implementing an integrated pest management (IPM) program is the key. An IPM program uses prevention measures to keep pests from entering the establishment and control measures to eliminate any pests that do get inside.

Integrated pest management program
1. Uses prevention measure to keep pests from entering the establishment
2. Uses control measures to eliminate any pests that do infest it
3. Pest management program will be successful if you work closely with a licensed pest control operator (PCO)

The three rules of IPM
1. Deny pests access to the establishment
2. Deny pests food, water, and shelter
3. Work with a licensed PCO to eliminate pests.

To keep pests out of the establishment
1. Inspect deliveries for pests/pest infestation
2. Screen windows and vents
3. Seal cracks in floors and walls
4. Keep exterior openings closed tightly
5. Fill holes around pipes, ceiling, and walls
6. Install door self-closing doors
7. Denying pests food and shelter
Denying pests food and shelter

1. Dispose of garbage quickly
2. Keep garbage containers clean/tightly covered
3. Store recyclables away from buildings and keep lid tightly covered
4. Store food/suppliers away from walls and 6 inches off the floor
5. Clean the establishment thoroughly

Deliveries

Pests can enter an operation in one of two ways. Sometimes they are brought inside with deliveries. They can also enter through openings in the building. Prevent pests from entering by paying attention to the following areas

1. Use approved, reputable suppliers
2. Check all deliveries before they enter your operation
3. Refuse shipments in which you find insects, pests that include egg cases and body parts (legs, wings, etc.)

Signs of a cockroach infestation

1. A strong, oily odor.
2. Droppings similar to grains of pepper.
3. Capsule-shaped egg cases.

Signs of a rodent infestation

1. Shiny, black droppings
2. Evidence of gnawing
3. Tracks and rock piles
4. Nesting material (scraps of paper, cloth, hair)
5. Burrows in dirt or along foundation

Flies

Flies can transmit food borne illness as shigella because they are drawn to and feed on garbage and animal waste. Install self-closing devices on all doors. Replace window screens regularly and replace as needed
Birds
Bird dropping carries fungi and bacteria that can make people sick. Remove leftover food from outside dining areas as soon as customers leave their dining tables.

Pesticide use
1. Before your PCO applies pesticides
2. Remove all food and food-contact surfaces
3. Cover immovable equipment and food-food contact surfaces.
4. After pesticides have been applied
5. Wash, rinse, and sanitize food-contact surfaces
6. Keep corresponding MSDS on the premises

Storing pesticides
1. Keep them in original containers
2. Lock them in cabinets away from food-storage and food-preparation areas
3. Dispose of them as per local regulations
4. Keep corresponding Material Safety Data Sheet (MSDS) on the premises
Section Twelve (12) Study questions

1. Who should apply pesticides?
   A. Shit manager
   B. Person in charge
   C. Pest control operator

2. Cockroaches typically are found in places that are
   A. Cold, dry, and light
   B. Warm, dry, and light
   C. Warm, moist, and dark

3. If pesticides are stored in the operation, where should they be kept?
   A. In a secure location, away from food
   B. In a glass container, in a walk-in cooler
   C. In dry storage, on a shelf below the food

4. Openings around pipes that enter an operation from outside should be
   A. Stuffed with insulation
   B. Covered with aluminum foil
   C. Filled with concrete

5. In which liquid should wiping cloths be stored?
   A. Clear cold water
   B. Sanitizing solution
   C. Soapy hot water

6. What are the rules of Integrated Pest Management
   a. Deny pests-------
   b. Deny pests-------
   c. Deny pests-------

Answers
SECTION 13

FOOD SAFETY REGULATIONS AND STANDARDS

Government control regarding food safety in the United States is exercised at three levels: Federal, State, and Local. Regulations are written at the federal level by the Food and Drug Administration (FDA) in the form of the Food Code.

Regulations written at the state level are enforced at the city, county and local levels. Some agencies at the federal level, such as FDA and United State Department of Agriculture (USDA) are directly involved in the inspection process.

**Food safety regulations and standards**
Helps you evaluate whether you are meeting minimum sanitation and food safety standards. Regulations protect the public by requiring establishments to provide food that is safe, uncontaminated, and presented properly. Convey new food safety information to establishments.

### FDA Food Code Guidelines

<table>
<thead>
<tr>
<th>Food Safety Topics</th>
<th>Areas addressed</th>
</tr>
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<tbody>
<tr>
<td>Food handling and preparation</td>
<td>Criteria for receiving, storage, display, service, and transportation</td>
</tr>
<tr>
<td>Personnel</td>
<td>Health, personal cleanliness, clothing, and hygiene practice</td>
</tr>
<tr>
<td>Equipment and utensils</td>
<td>Materials, design, installation, and storage</td>
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<tr>
<td>Cleaning and sanitizing</td>
<td>Facilities and equipment</td>
</tr>
<tr>
<td>Utilities and services</td>
<td>Water, sewage, plumbing, restrooms, waste disposal, and integrated pest management</td>
</tr>
<tr>
<td>Construction and maintenance</td>
<td>Both mobile and temporary units</td>
</tr>
<tr>
<td>Compliance procedures</td>
<td>Food service inspections and enforcement actions</td>
</tr>
</tbody>
</table>
U.S. regulatory food system
1. Federal Level: FDA writes (model) Food Code
2. State Level: Food Service regulations are written based on the Food Code or some modified form of it
3. Local Level: State regulations are enforced by city, county or state health departments

The inspection process
All operations serving food to the public will receive an inspection. This includes everything from quick-service and fine-dining restaurants to delicatessens, hospitals, nursing homes, and schools.

Preparing for a health inspection
Know your local and state sanitation regulations. Perform continuous self-inspections to keep food safe. Ensure that your staff knows what to do in your absence

Guidelines in the inspection process
In most cases, inspectors will arrive without warning. They will usually ask for the manager of the operation. The following guidelines can help you get the most out of food safety inspection:
1. Ask for identification - Do not let anyone enter the back of the operation without the right identification
2. Cooperate with the inspector – Answer all the inspector’s questions to the best of your ability
3. Take notes – As you walk with the inspector, make note of any problems pointed out
4. Keep the relationship professional - Be polite and friendly and treat inspectors with respect
5. Prepared to provide records – purchasing records, pest control treatments, list of chemicals used in the operation, HACCP records and proof of ServSafe Certification
6. Discuss violations and time frames for correction with the inspector
7. Follow up by determining why each violation occurred
8. Establish new procedures or revise existing ones to correct the problem permanently

Closure of the operation
Your operation can be closed for any of the following health hazards:
1. Significant lack of refrigeration
2. Backup of sewage into the facility or its water supply
3. Significant infestation of pest
4. Long interruption of electrical or water services
5. Clear evidence of a foodborne-illness outbreak
Self-Inspection benefits
Well-managed operations have frequent self-inspections to keep food safe. These are done in addition to regulatory inspections. A good self-inspection program provides the following:

1. Safer food
2. Improved food quality
3. Cleaner environment for employees and customers
4. Higher inspection scores

Self-Inspection recommendations
1. Use the same type of checklist that the regulatory authority uses
2. Start the inspection outside the operation and then proceed inside
3. Identify risks to food safety in your operation
4. After the inspection, meet with staff to review any problems
Section Thirteen (13) Study questions

1. A backup of raw sewage and significant lack of refrigeration can result in
   A. A delay of an inspection until the situation is corrected
   B. Closure of the operation by the regulatory authority
   C. Improved inspection scores

2. A person shows up at a restaurant claiming to be a health inspector. What should the manager ask for?
   A. Inspection warrant
   B. Hearing to determine if the inspection is necessary
   C. Inspector’s identification

3. Which agency enforces food safety in a restaurant?
   A. State or local regulatory authority
   B. U.S. Department of Agriculture
   C. Food and Drug Administration

4. Which federal agency issues the Model Food Code?
   A. USDA
   B. FDA
   C. MSDS

5. Who is responsible for keeping food safe in an operation?
   A. Food and Drug Administration
   B. Health inspector
   C. Manager/operator

6. Managers must take which action when they suspect that a foodborne illness outbreak has occurred?
   A. Hire outside experts to evaluate the claim
   B. Contact the regulatory authority
   C. Refuse calls from the media

Answers

SECTION 14

EMPLOYEE FOOD SAFETY TRAINING

Employee food safety training
Food safety training provides employees with the knowledge and skills needed to handle food safely in your establishment. It is the manager’s responsibility to provide food safety training to all employees as it relates to their assigned job duties.

Benefits of food safety training
1. Avoiding the costs associated with food born-illness
2. Preventing the loss of revenue/reputation due to closure
3. Improving employee morale
4. Increasing customer satisfaction

Manager should
1. Provide initial and ongoing training for employees
2. Make food safety training specific to job duties
3. Use different tools to assess employee knowledge
4. Keep records documenting training

To develop and deliver an effective training program
1. Assess training needs
2. Establish learning objectives
3. Choose training-delivery methods
4. Select training material, session, and area
5. Prepare the trainer

How to identify training needs
1. Test employees’ food safety knowledge
2. Observe employees’ job performance
3. Question or survey employees to find their weaknesses

Methods for delivering training
1. Demonstrations, Lectures
2. Role plays, Job aids
3. One-on-one training
4. Technology-based training.
Key elements of successful training
Presentation is the delivery of content to the learner. It can be accomplished through a variety of methods. Once the content is presented, the learner must have the opportunity to practice, apply, or respond to the content in order to retain it.
No single delivery method is best for training all levels. Using several delivery methods will result in more effective learning. As a general rule, one-third of the training time should be devoted to the presentation of content, while the remaining two-thirds should be devoted to activities that allow trainees to apply what they have learned and to receive feedback.

Select an instructor who
1. Is knowledgeable of food safety practices
2. Understands the operation’s food safety challenges
3. Has demonstrated skill teaching others
4. Has a good communication skill

Other individual who may conduct training
1. Immediate supervisors
2. Staff trainers
3. Representatives of the local health department
4. Professional or educational organization

Training sessions should be
1. No longer than 20 to 30 minutes
2. Conducted during slow times
3. Conducted on-site to allow for demonstrations
4. Documented

When evaluating training
1. Measure performance against the objectives
2. Use both written and performance based tests

Reasons why training might be ineffective
1. The employee was improperly trained
2. The employee has the knowledge, but he or she is not applying it
3. The equipment used during training differs from equipment on the job
4. There are negative consequences for doing what was taught
Section Fourteen (14) Study questions

1. When should staff receive food safety training?
   A. Only when they request it
   B. When an employee is hired, and then periodically after that
   C. When a new FDA Food Code comes out

2. New employees must be trained in the critical areas of personal hygiene, safe food preparation, cleaning and sanitizing and
   A. Crisis management
   B. Equipment handling
   C. Safe chemical handling

3. The manager’s responsibility for staff food safety training is to
   A. Test staff’s food knowledge
   B. Provide all staff with videos and DVDs for training
   C. Make sure that staff has the knowledge and skills to keep food safe

4. All new staff should receive training on
   A. HACCP
   B. Crisis management
   C. Personal hygiene

5. In which training method does a trainer ask a series of questions to draw on the knowledge and experience of the learners?
   A. Information search
   B. Guided discussion
   C. Games

Answers

ServSafe Practice Test #1

1. A food handler has just finished storing a dry food delivery. Which step was done correctly?
   A. Stored food away from the wall  
   B. Stored food 4 inches off the floor  
   C. Stored food underneath a stairwell  
   D. Stored food in an empty chemical container

2. What symptom can indicate a customer is having an allergic reaction?
   A. Wheezing or shortness of breath
   B. Left arm pain
   C. Appetite Loss
   D. Coughing blood

3. Why are people who take certain medications at risk for foodborne illness?
   A. Their immune systems are compromised
   B. They have not built up strong immune systems
   C. They only eat TCS food
   D. They have hidden allergies

4. Which Food item has been associated with Salmonella Typhi?
   A. Eggs
   B. Produce
   C. Shellfish from contaminated water
   D. Undercooked ground beef

5. What should a food handler do with food after cooking it in the microwave?
   A. Cook it using conventional cooking equipment
   B. Cover the food to prevent it from drying out
   C. Check the temperature in at least 2 places
   D. Let the food stand for 2 minutes

6. What temperatures do infrared thermometers measure?
   A. Internal food
   B. Air
   C. Surface
   D. Oven

7. Food in self-service areas must be labeled specially when
   A. The food supports pathogen growth
   B. The food is prepared on the premises
   C. The manufacturer claims the food is healthy
   D. The food is prepared by another manufacturer
8. What is the minimum internal **cooking** temperature for veal or pork chops?
   A. 135 degrees F  
   B. 145 degrees F  
   C. 155 degrees F  
   D. 165 degrees F

9. What should a server do when taking a food order from customers who have **concerns about food allergies**?
   A. Describe each menu item to customers who ask, including any "secret" ingredients  
   B. Explain the symptoms of an allergic reaction to customers before they order  
   C. When customers arrive, tell them the food may cause allergic reactions  
   D. Tell customers with food allergies they will not be able to receive service

10. A food handler has cooled a container of chili to 70F in 1 hour. How much time is left to cool the chili to 41F?
   A. 2 hours  
   B. 3 hours  
   C. 4 hours  
   D. 5 hours

11. What must a food handler with an **infected hand wound** do to work safely with food?
   A. Place a bandage on the wound and wear a single-use glove  
   B. Avoid working with raw food until the wound is completely dry  
   C. Place a bandage on the wound  
   D. Apply hand sanitizer to the wound

12. What is the minimum internal **cooking** temperature for chicken breast?
   A. 135F for 4 minutes  
   B. 145F for 4 minutes  
   C. 155F for 15 seconds  
   D. 165F for 15 seconds

13. What must staff members do when transferring chemicals to a new container?
   A. Label the container  
   B. Complete and MSDS request  
   C. Log the transfer in the MSDS  
   D. Store the chemical in a locked cabinet

14. What symptom requires a food handler to be excluded from the operation?
   A. Sore Throat  
   B. Jaundice  
   C. Coughing  
   D. Stomach cramps
15. How **many hours** can **cold** foods are held **without refrigeration** (outdoors occasions) before it must be sold, served, or thrown out?
   A. 2 hours  
   B. 4 hours  
   C. 6 hours  
   D. 8 hours

16. Which item is a potential **physical contaminant**?
   A. Sanitizer  
   B. Jewelry  
   C. Sweat  
   D. Hand sanitizer

17. The **temperature** of clam chowder is **checked** during **holding**. According to the operation's policy, Which HACCP principle is being practiced?
   A. Hazard analysis  
   B. Verification  
   C. Monitoring  
   D. Corrective action

18. What is the **first step** in developing a HACCP plan?
   A. Identify corrective actions  
   B. Conduct a hazard analysis  
   C. Establish monitoring procedures  
   D. Determine critical control points

19. Which is most likely to be **contaminated** with the **virus** that causes hepatitis A?
   A. Garlic mashed potatoes  
   B. When the food handler's fever is over 100 degrees F  
   C. Cooked long grain rice  
   D. Raw oysters on the half shell

20. What is the minimum internal **temperature hot** food must be **held** at to prevent pathogens from growing?
   A. 115F  
   B. 125F  
   C. 135F  
   D. 145F

21. What **factors** influence the **effectiveness** of a chemical sanitizer?
   A. Concentration, temperature, contact time, pH, and water hardness  
   B. Concentration, absorbency, moisture, alkalinity, salinity  
   C. Concentration, protein, acidity, air temperature, strength  
   D. Concentration, water activity, reactivity, pressure, density
22. What **temperature** should the **water** be for manual **dishwashing**?
A. Must be at least 70F  
B. Must be at least 90F  
C. Must be at least 100F  
D. Must be at least 110F

23. Raw ground beef is being stored in a cooler with raw fish, cake, raw steak, raw crab, and raw poultry. The raw ground beef should be stored above the
A. Raw fish  
B. Cake  
C. Raw poultry  
D. Raw crab

24. The **temperature** of poultry is measured during cooking. This is an example of which **HACCP principle**
A. Hazard Analysis  
B. Verification  
C. Monitoring  
D. Critical Limit

25. What practice is useful for **preventing Norovirus** from causing foodborne illness?
A. Cooking food to minimum internal temperature  
B. Excluding staff with vomiting from the operation  
C. Cooling food rapidly  
D. Encouraging staff to get flu shots

26. How should **chemicals** be stored?
A. Above food  
B. Away from prep areas  
C. In food storage areas  
D. With kitchenware

27. What must an operation do before **curing** its own bacon?
A. Build a separate facility for the curing process  
B. Become certified in food safety  
C. Take a course on proper curing and smoking  
D. Obtain a variance from the regulatory authority

28. **Equipment approved** for use in the prep area should have a seal of approval **From**?
A. Quality of the food  
B. USDA  
C. Reheating instructions  
D. NSF
29. Which **action** should a food handler **take** if a sanitizing solution has weakened after 3 or 4 hours?
   A. Skip the sanitizing step  
   B. When his or her skin returns to a natural color  
   C. Replace the entire solution  
   D. Continue using the solution

30. Flavor **injected** beef **roast** must be **cooked** to a minimum temperature of
   A. $155^\circ$F  
   B. $128^\circ$F  
   C. $135^\circ$F  
   D. $165^\circ$F

31. Live **shellfish** must **be received** at a temperature no higher than?
   A. $25^\circ$F  
   B. $35^\circ$F  
   C. $45^\circ$F  
   D. $55^\circ$F

32. What should food handlers do **after leaving** and **returning** to the prep area?
   A. Put on gloves  
   B. Remove their apron  
   C. Wash hands  
   D. Apply hand antiseptic

33. What must a **manager consider** about the food when **choosing** a suitable probe for monitoring the **temperature of a hamburger** patty?
   A. Food flavors  
   B. Infrared thermometer  
   C. Thickness

34. What is the **first step of cleaning** and sanitizing stationary equipment?
   A. Take off removable parts  
   B. Unplug the unit  
   C. Spray the surface with cleanser  
   D. Wash the equipment surface using hot water

35. What should a server do after **clearing a table**?
   A. Apply hand antiseptic  
   B. Wash hands  
   C. Put disposable gloves back on  
   D. Rinse hands in warm water
36. What should staff do when receiving a delivery of food and supplies?
A. Inspect non-food items first
B. Use calibrated thermometer to check food temperature immediately
C. Visually inspect all food items
D. Stack the delivery neatly and inspect it within 12 hours

37. What temperature must cooked vegetables reach to be safely hot-held for service?
A. 135F
B. 145F
C. 155F
D. 165F

38. A food handler comes to work with diarrhea. What should the manager tell the food handler to do?
A. Do not work with food
B. Go home
C. Clean the restroom after each use
D. Only bus tables

39. What condition does not promote the growth of bacteria?
A. Potato salad
B. High level of moisture
C. Food held between 70 degrees and 125 degrees F
D. Food with a pH that is highly alkaline

40. The buildup of condensation and grease on the walls indicates a problem with
A. Cleaning schedule
B. Utility sink
C. Ventilation system
D. Food prep sink

41. A nursing home has place an order for 25 lunches to be served. In reviewing the ingredients for this sandwich, which item should be left off?
A. Honey mustard
B. Raw alfalfa sprouts
C. Pita bread
D. Chopped lettuce

42. Where should dirty mop water be disposed?
A. Toilets
B. Floor sink
C. Food prep sink
D. Service sink
43. What must food handlers do when handling ready-to-eat food?
   A. Wear single-use gloves
   B. Sanitize their hands
   C. Wear an apron
   D. Use bare hands

44. What type of eggs must be used when preparing raw or undercooked dishes for high-risk populations?
   A. Pasteurized
   B. Pooled
   C. Hard-boiled
   D. Shelled

45. What causes preschool-age children to be at risk for foodborne illness?
   A. Their immune systems are not strong
   B. They have not received all of their immunizations
   C. They only eat ready-to-eat food
   D. They have hidden allergies

46. Which must be in place if an operation wants to vacuum-package meat?
   A. Master cleaning schedule
   B. Occupational safety plan
   C. FDA approval
   D. HACCP plan

47. Before placing finely chopped, highly seasoned raw beef on its menu, an operation must
   A. Get a grading stamp from the meat supplier
   B. Post a consumer advisory
   C. Construct a special prep area in the kitchen for this dish only
   D. Serving size

48. Which is an example of physical contamination?
   A. Sneezing on food
   B. Touching dirty food-contact surfaces
   C. Bones in fish
   D. Cooking tomato sauce in a copper pan

49. Ready-to-eat TCS food previously prepped in-house must be date marked if it is held for more than how many hours?
   A. 12 hours
   B. 24 hours
   C. 48 hours
   D. 72 hours
50. Which **process requires a variance** from the regulatory authority?
A. Smoking food to enhance flavor
B. Service wild game
C. Serving imported cheese
D. Sprouting seeds or beans

51. How should staff make sure the **chemical sanitizer** being used on a food-prep surface is at the **correct strength**?
A. Rinse it from the surface and then apply it a second time
B. Test the surface first to confirm that there are no pathogens
C. Use a test kit to check the sanitizer's concentration when mixing it
D. Heat it to the temperature recommended by the manufacturer

52. What practice can help **prevent allergic reactions**?
A. Cooking different food types in the same oil
B. Telling customers how an item is prepared
C. Using parchment paper when baking cookies
D. Providing home delivery service

53. When **receiving** a shipment of **fresh poultry**, the most important factor the food handler should verify is that it is
A. Packaged in clean, new cartons
B. Throw it out
C. Labeled with a use-by date
D. At the correct temperature by using calibrated thermometer

54. **Parasites** are commonly associated with what **food**?
A. Mushrooms
B. Fish
C. Whole wheat
D. Dairy products

55. What **practice** should be used to **prevent seafood toxins** from causing a foodborne illness?
A. Cooking food to correct internal temperatures
B. Handwashing throughout the day
C. Purchasing food from approved, reputable suppliers
D. Microwaving fish to be served raw for 15 seconds

56. What must an **operation do** before **packaging fresh juice** on-site for sale?
A. Obtain a variance
B. Freeze the juice
C. Hold Juice at 41F or lower
D. Contact OSHA
57. In an operation, **handwashing sinks** must be located in which **area**?
A. Pancakes
B. Receiving
C. Dry-storage area
D. Dishwashing area

58. What should be done with a **package of flour** that is received with **signs of dampness on the bag**?
A. Reject the flour and return it to the supplier
B. Accept the flour and place in dry storage
C. Dry the bag thoroughly before use
D. Store the bag in a cooler at 41F or lower

59. How should an item that has been **recalled** by its manufacturer be **stored in an operation**?
A. Together with food that will be served
B. Remove food from inventory and store away until further instruction
C. In vacuum-packed bags
D. In self-draining containers

60. Which **action** helps **slow pathogen** growth?
A. Adding water as an ingredient
B. Serving a lemon wedge with the main dish
C. Cooking food to required minimum temperature
D. Roll the gloves up

61. When **transporting hot** food to off-site, what **temperature the hot food** should be received?
A. 165F or lower
B. Text or email message
C. 128F or lower
D. 135F or higher

62. How often **the linen** in bread basket **change**?
A. Do not re-serve uneaten bread
B. For every new customer
C. Recycle unused, uncovered butter for use in other food items
D. Clean and sanitize bread baskets between each customer

63. What temperature must a **high-temperature dishwasher's final** sanitizing rinse be?
A. At least 150F
B. At least 160F
C. At least 170F
D. At least 180F

64. The purpose of an **air gap between the faucet and the flood rim** of the three-compartment sink is to
A. Keep water from leaking onto the floor
B. Prevent contamination of the drinkable water
C. Stop non-drinkable water from flowing into the sink
D. Every 6 hours

65. The **first step in cooling** a large roast before refrigerating it is to
A. Cover the entire roast
B. Immerse the roast in an ice-water bath
C. Place the roast in a shallow pan
D. Cut the roast into smaller pieces

66. What temperature must **stuffed fish** be cooked to?
A. 135F
B. 145F
C. 155F
D. 165F

67. A local **nursing home** has a yearly barbecue for its residents. **Which food item** should not be served?
A. Cooke steak
B. Cold sandwich
C. Pasteurized juice
D. Rare hamburgers

68. Which **action** could lead to **cross-contamination**?
A. Touching more than one TCS food before washing hands
B. Buying bean sprouts from a reputable supplier
C. Washing hands for 20 seconds before taking out trash
D. Pasteurizing juice on-site

69. What **organization** requires a Material Safety Data Sheet (MSDS) to be included with hazardous chemicals?
A. Environmental Protection Agency
B. Occupational Safety and Health Administration
C. People for the Ethical Treatment of Animals
D. National Restaurant Association

70. Why should **food temperatures** be taken in **two different locations**?
A. To ensure the thermometer is calibrated correctly
B. It is required by the manufacturer
C. To ensure the thermometer is accurate to +/-2 degrees F or +/-1 degrees C
D. Temperature may vary in the food
71. Which **kind of lid** must outdoor trash container have

A. Self-closing  
B. Loose-fitting  
C. Tight-fitting  
D. Color-coded

72. Single-use **gloves** are **not required when**

A. The food handler has a latex sensitivity  
B. Prepping ready-to-eat food  
C. Washing produce  
D. Handling cooked food

**Answer Test #1**

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| 36. | 49. | 62. | B |
| 37. | 50. | 63. | D |
| 38. | 51. | 64. | B |
| 39. | 52. | 65. | D |

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