



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2019

- TITLE OF PAPER** : FOOD INSPECTION
- COURSE CODE** : EHS 407
- DURATION** : 2 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : ANSWER ONLY FOUR QUESTIONS
 - : QUESTION ONE IS COMPULSORY
 - : EACH QUESTION CARRIES 25 MARKS.
 - :
 - : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
 - :
 - : NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
 - :
 - : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

Question 1

A. True or False Questions Section

(Write true or false for each statement)

1. Leafy vegetables such as spinach, cabbage are stored at temperatures around 10deg C to prolong shelf life
2. Hot bread loafs should be packaged in plastic bags to protect it from contamination by customers
3. When you find moldy growths on the surface of cheese, you can either condemn the whole cheese bar or removed the moldy growth and pass it as fit for human consumption.
4. If you find minute holes on the “simba” chips package, you should reject it as unfit for human consumption
5. A fresh egg has a high percentage of thick white next to the yolk and a small amount of thin white beyond the thick white.
6. Best before date (BB), it's the last date of maximum quality, after this date the product is spoiled
7. Milk in bottles exposed to the sun develops “sunlight” flavor due to light induced fat oxidation.
8. Pasteurized milk can be kept at ambient temperature for 6 to 8 weeks without spoilage
9. Ultra Heated Milk (UHT) is not sterile, therefore it should be kept in the refrigerator to prevent spoilage
10. Low cholesterol food, means the food has 20 mg or less cholesterol.

B. Multiple Choice Questions Section

(Choose the Best Answer)

1. Reports of foodborne disease indicate that the most implicated food is usually;
 - A. a canned food
 - B. a food held for long periods at room temperatures.
 - C. an improperly cooked food
 - D. a food stored too long in the refrigerator
 - E. a food that has been handled by a sick food handler
2. Some countries consistently report more foodborne outbreaks and more cases than others. The most likely explanation for this observation is that:
 - A. The countries reporting high numbers of outbreaks have notoriously poor health departments
 - B. The environmental health officers “health inspectors” in these high reporting countries are lazy, inefficient, and poorly trained
 - C. These countries have higher rates because they encourage reporting and investigation of foodborne diseases.
 - D. The countries with higher rates have inferior sanitation practices in their food establishments.
 - E. These countries reporting higher rates are likely to be third world countries.

3. Under normal, comparable circumstances, which of the following would be expected to have the highest bacterial count per gram?
 - A. T-bone steak
 - B. Kidney steak
 - C. Hamburger
 - D. Drumstick
 - E. Liver meat

4. "Candling" of eggs is concerned with;
 - A. Thermostabilization
 - B. Flaming the outside shell to reduce bacterial count
 - C. Coating egg shells with wax to preserve them
 - D. Examination for internal defects
 - E. B and C

5. Which condition of canned food stuff spoilage is **not likely** to result in blown can;
 - A. Thermophilic microorganism
 - B. *Clostridium botulinum*
 - C. Lacquer stripping
 - D. Leaker spoilage
 - E. Metallic taint

6. During shop inspection, you observe that a packet of simba chips has small holes. You will condemn the packet for;
 - A. Dust contamination
 - B. Allowing the access of oxygen
 - C. Contamination by insects through the holes
 - D. Risk to microbial contamination
 - E. Aesthetic reasons

7. You discover a bulged canned beef in Big Bend Spar Supermarket; you reject the can as unfit for human consumption. What would have been the more likely reason to condemn;
 - A. Available oxygen expansion (oxidation)
 - B. Lacquer stripping, resulting in H₂ gas
 - C. Thermophilic spoilage
 - D. Survival and growth of *Bacillus cereus*
 - E. Survival and growth of *Clostridium botulinum*

8. The most effective measure which a food service manager can apply in the control of bacterial multiplication in the storage, preparation and service of food is:
 - A. Time- temperature control
 - B. Dish washing control
 - C. pH control
 - D. Hot holding temperatures
 - E. Low temperature

9. Which of the following has the longest recommended storage time at refrigeration (-1 to 2.5deg C) temperatures
- A. beef
 - B. pork
 - C. chicken
 - D. fish
 - E. equal storage time
10. The storage of canned food stuff in warm and poor air circulation store room can result in;
- A. Thermophilic spoilage
 - B. Growth of *Clostridium botulinum* spores
 - C. Blown cans
 - D. Leakage spoilage
 - E. Rusty cans
11. Assume you prepared several batches of the same type of the salad under the same conditions, except that you added varying amounts of vinegar. In the salads with high vinegar content, you would expect;
- A. a higher pH and a lower bacteria count
 - B. a lower pH and a lower bacteria count
 - C. a higher pH and a higher bacteria count
 - D. a lower pH and a higher bacteria count
 - E. a neutral pH and no change in bacteria count
12. If beef prepared from the semi tropics climate, another beef from cooler climate areas are stored in a chiller? Which beef would store longer in the chiller before spoilage?
- A. Beef from semi tropics
 - B. Beef from cooler climate
 - C. Equal storage duration
 - D. Will depend on the number of microbes
 - E. Will depend on the presence of *Clostridium botulinum* spores
13. Bacterial contaminants;
- A. Multiply rapidly in dehydrated foods
 - B. Resume multiplication when dried foods are reconstituted.
 - C. Do not grow well in reconstituted dehydrated foods.
 - D. Are eliminated in foods during the dehydration process.
 - E. Are not found in dehydrated foods

14. If a canned foodstuff has both ends bulging but one end can be pushed back into place or else a can with one end bulged that when pressed in, it pops out on the other end. That condition is known as;
- A. a hard swell
 - B. a soft swell
 - C. a springer
 - D. a flipper
 - E. both C and D
15. During shop inspection, you find a loaf of bread with a yellow, white, and blue growths on the surface. What would be the likely cause?
- A. Lactic Acid Bacteria
 - B. Penicillium mold growths
 - C. Rhizopus mold growths
 - D. Mucor mold growths
 - E. Both Rhizopus and Mucor moldy growths

[25 Marks]

Question 2

- a. Spoilage of canned foodstuff is commonly caused by thermophilic spore formers. If you find that the spoilage has been caused by microbes that normally do not survive heat treatment, what will be the likely cause of the food spoilage? [4]
- b. The technique of sampling food for laboratory analysis has failed to ensure food safety in the food industry. Why is that so? [6]
- c. In high acid canned foods, bulging of the can is not always due to microbial growth. Explain the likely causes. [8]
- d. You open a canned solid packed cured meat product and find that it has a yellow or brown or black discoloration on the surface. What would be the possible cause?[5]
- e. Which microorganisms are associated with high acid food spoilage? [2]

[25 marks]

Question 3

- a. Low acid foods should be given a "Botulinum Cook". Using good examples, explain this statement. [5]
- b. What is a health claim? [3]
- c. Give the guidelines necessary for a health claim to be valid in prepackaged food? [5]
- d. Explain the causes of thermophilic spoilage in canned foods. [5]
- e. Describe flat-sour spoilage in canned foods. [5]
- f. Give one microorganism that is likely to cause blowing or gaseous spoilage in sweetened condensed milk. [2]

[25 Marks]

Question 4

- a. Although the canning process is designed to provide a sterile product, spoilage on these products still occur. Explain how it occurs? [10]
- b. Give at least five (5) things that should appear on all food labels. [5]
- c. What is a fluffy label? [2]
- d. Using good examples, explain misdemeanor in food label. [3]
- e. During food inspection, you find a meat package written extra lean meat. What does that mean? [3]
- f. On what food packages is a health claim not allowed? [2]

[25 Marks]

Question 5

During food inspection of a supermarket, which six (6) possible conditions that may lead you to condemn and seize canned foodstuffs and also give a health reason why each condemnation is unfit for human consumption.

[25 Marks]