



**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DEGREE IN ENVIRONMENTAL HEALTH**  
**FINAL EXAMINATION PAPER 2021**

- TITLE OF PAPER** : FOOD INSPECTION
- COURSE CODE** : EHS 407
- DURATION** : 2 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : ANSWER QUESTION ONE AND ANY OTHER THREE
  - : 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. Milk in bottles exposed to the sun develops "sunlight" flavor due to light induced fat oxidation.
2. Cartoned pasteurized milk may be kept at room temperature for six to eight weeks without spoilage.
3. High sodium in food is associated with high blood pressure.
4. A customer submits a complaint to your office, while opening dried milk powder, a brown to black stains was observed. You tell the customer to discard the product because the brown/black growths are molds.
5. Molds may appear as white or green clumps on the surface of yogurt. yet yeast spoilage will show a strained convex cap in yogurt due to carbon dioxide.
6. In sulfide spoilage, the can is flat, and when you open it, there is a rotten egg smell.
7. Food with a pH of less than 3.5, is likely to be spoiled by yeasts and molds
8. *Bacillus stearothermophilus* will cause flat sour in canned food, resulting to bulged can.
9. It is a good practice to wrap hot bread loaf in a plastic bag in order to prevent contamination
10. A soft drink label, written sugar free, has less than 0.5g sugar.

### 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. Ox spleen
  - C. Hamburger
  - D. Fish fillet
  - E. Ox liver
  
4. When you put an egg in a cup full of water, the egg float and this is due to;
  - A. the viscosity of the albumen
  - B. the size of the air cell
  - C. the presence of mold or bacteria in the yolk
  - D. the presence of meat spots
  - E. the age of the egg
  
5. Which condition of canned food stuff spoilage is **not likely** to result in blown can;
  - A. Thermophilic spoilage
  - B. *Clostridium botulinum* spoilage
  - C. Lacquer stripping
  - D. Metallic taint
  - E. Oxidation
  
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. the risk of oxygen presence
  - C. contamination by insects through the holes
  - D. the risk of microbial entry
  - E. all of the above
  
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. Thermophilic spoilage
  - B. Lacquer stripping
  - C. Survival and growth of *Clostridium botulinum*
  - D. Survival and growth of *Bacillus cereus*
  - E. Survival and growth of *Staphylococcus aureus*
  
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. The use of disinfectants
  - C. pH control
  - D. Hot holding temperatures
  - E. Low temperature

9. Which of the following has the shortest storage time at refrigeration (-2 to 1.5deg C) temperatures
- A. Beef steak
  - B. Brisket meat
  - C. Beef spleen
  - D. Chicken fillet
  - E. equal storage time since there are all meat
10. The storage of canned food stuff in warm and poor air circulation store room can results in;
- A. *Staphylococcal aureas* growth
  - B. Thermophilic spoilage
  - C. Bulging due to microbial growth
  - D. Bulging due to hydrogen gas
  - 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. 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
13. Ropines in milk is likely to have been caused by,
- A. A diseased udder
  - B. Sourness in milk
  - C. *Alcaligenes viscolactis*
  - D. Soapiness in milk
  - E. Milk oxidation
14. Which of the following foods would be more suspect as the vehicle for botulism?
- A. Canned peaches
  - B. Canned pineapples
  - C. Home roasted beef
  - D. Fried chicken dust
  - E. Home canned green beans

15. Factors that cause inhibition and death of microorganisms in carbonated beverages are;

- A. carbon dioxide and low pressure
- B. carbon dioxide and pH
- C. pH and water activity
- D. reduced oxidation-reduction potential and water activity
- E. water activity and sugar content

[25 Marks]

**Question 2**

- a. The technique of sampling food for laboratory analysis has failed to ensure food safety in the food industry. Why is that so? [5]
- b. Explain the causes of lacquer stripping and its effects in canned food stuffs. [5]
- c. Explain the relationship between hydrogen swell, metallic taint and lacquer stripping in canned food. [6]
- d. During food inspection, you find many canned foods spoiled while kept in the store room; explain the likely cause. [5]
- e. It is important to know the pH of the food before the canning process. Explain why? [4]

[25 marks]

**Question 3**

- a. During an inspection, you find a blown pineapple canned food, what would be the most likely cause, explain. [5]
- b. A food label is written, fortified vitamin 'D', what does that mean? [2]
- c. What is a health claim? [3]
- d. Give the guidelines necessary for a health claim to be valid in prepackaged food? [5]
- e. Why is *Byssochlamys fulva* associated with canned fruits spoilage? [4]
- f. Name the microorganisms that are associated with the following food spoilage? [6]
  - i. vinegar odor spoilage in food
  - ii. ropiness in canned peaches
  - iii. vigorous fermentation in tomato sauce

[25 Marks]

**Question 4**

- a. Using good examples, explain misdemeanor in a food label. [4]
- b. During food inspection, you find a food package written sodium free or very low or low. What do these terms mean? [3]
- c. In which four foods does a health claim not apply? [4]
- d. Why are traceability systems necessary in food production? [5]

- e. Explain the causes of leaker spoilage in canned food. [4]  
f. What is a food processing aid? [5]  
[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, give a health reason why each condition is unfit for human consumption.

[25 Marks]