



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

**DEGREE IN ENVIRONMENTAL HEALTH**  
**FINAL EXAMINATION PAPER 2020:**

- TITLE OF PAPER** : FOOD INSPECTION
- COURSE CODE** : EHS 428
- 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. Best before date (BB), it's the last date of maximum quality, after this date the product is spoiled
2. Milk in bottles exposed to the sun develops "sunlight" flavor due to light induced fat oxidation.
3. Cartoned pasteurized milk may be kept at room temperature for six to eight weeks without spoilage.
4. High sodium in food is associated with high blood pressure.
5. 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.
6. Molds may appear as white or green clump on the surface of yogurt. yet yeast spoilage will show a strained convex cap in yogurt due to carbon dioxide.
7. *Bacillus coagulans* may cause flat sour in low and medium acid canned foods
8. Flat sour spoilage in canned foods, is manifested by a blown can and acid production.
9. In canned foods, a bulged can is an indication that microorganisms are growing and multiplying in the can.
10. Hot food can be kept above 50 deg C to ensure safety from spoilage by thermophilic microorganisms.

### 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. The water method in egg spoilage examination is concerned with;
  - A. the viscosity of the albumen
  - B. the size of the air cell
  - C. the consistence of the yolk
  - D. the presence of meat spots
  - E. the amount of molds
  
5. Which condition of canned food stuff spoilage is **not likely** to result in blown can;
  - A. Thermophilic spoilage
  - B. *Clostridium botulinum*
  - 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. 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. 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 aureas*
  
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 on surfaces
  - C. pH control
  - D. Hot holding temperatures, above 60 deg.C
  - E. Low temperature, below 5 deg.C

9. Which of the following has the shortest storage time at refrigeration (-2 to 1.5deg C) temperatures
- A. Beef steak
  - B. pork ribs
  - C. chicken livers
  - 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 intoxication due to pre-process contamination
  - B. Growth of *Clostridium botulinum* spores
  - C. Thermophilic spoilage due to non-pathogenic spores germination
  - D. Can bulging due to hydrogen gas production
  - E. Rusty cans due to moist air in the store room
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 temperature between -1 and 2 deg C? Which beef would spoil first?
- A. Beef from semi tropics
  - B. Beef from cooler climate
  - C. Same time spoilage
  - D. Will depend on the number of microbes
  - E. Answer is A or D
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. Which definition explains the condition known as soft swell bulging, in canned food stuffs?
- One end of the can is made convex by striking or beating
  - A can with both ends bulged that may be dented by pressing with the fingers
  - A can with both ends bulged, when one or both ends remain concave or when one end is pushed in and the other pops out.
  - Both ends bulged, so that neither end can be dented by hand
  - One or both end(s) bulged,
15. Which statement is **not correct** in relation to yeast food spoilage?
- High sugar foods are likely to be attacked by yeast.
  - Low pH or acid foods, restricts the growth of competing bacteria, thereby increasing the risk of yeasts food spoilage.
  - Compared to bacteria and molds, yeast play a minor role in food spoilage
  - Cheese and fermented dairy products have a small risk of yeast spoilage
  - Yeasts have a high risk to grow in salad dressings

[25 Marks]

**Question 2**

- Give at least two microbes that are likely to spoil high acid foods. [2]
- The technique of sampling food for laboratory analysis has failed to ensure food safety in the food industry. Why is that so? [5]
- Canned food stuffs spoilage is either microbial or non-microbial; explain three likely causes of microbial canned food spoilage. [9]
- You open a canned solid pack meat product, and the surface is covered by a black stain. Explain the possible causes of the black stain. [5]
- What do you understand by flat sour food spoilage in canned foods? [4]

[25 marks]

**Question 3**

- High acid canned food products spoilage is unlikely to have been caused by microorganisms. Why, explain this statement. [5]
- What is a health claim? [3]
- Give the guidelines necessary for a health claim to be valid in prepackaged food? [5]
- How can thermophilic spoilage in canned foods be controlled or prevented [4]
- Why is *Byssochlamys fulva* associated with canned fruits spoilage? [4]
- Name the microorganisms that maybe associated with the following food spoilage? [4]
  - vinegar odor spoilage in food
  - ropiness in canned peaches
  - vigorous fermentation in tomato sauce

[25 Marks]

**Question 4**

- a. Design a label that is appropriate for canned food stuff. [8]
- b. Using good examples, explain misdemeanor in a food label. [4]
- c. During food inspection, you find a food package written sodium free or very low or low. What do these terms mean? [3]
- d. In which four type of foods does a health claim not apply? [4]
- e. Why are traceability systems necessary in food production? [6]

[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]