



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2018

- TITLE OF PAPER** : FOOD INSPECTION & FOOD SAFETY
- COURSE CODE** : EHM 410
- 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

Multiple Choice Questions (Choose the Best Answer)

1. Reduction of water content in liquid foods without conversion to a dry state is known as;
 - A. concentration
 - B. condensation
 - C. evaporation
 - D. extraction
 - E. sublimation

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. Which one of the following statement is **not correct**?
 - A. Too low temperature in storage of fruits and vegetables interferes with enzymatic system, allowing toxic substances to build up resulting in pitting
 - B. Excessive carbon dioxide accumulation during the storage of fruits and vegetables which results in chemical damage leading to brown heart in apples and pears.
 - C. Ascorbic acid is frequently added in fruits salads to minimize non-enzymatic browning
 - D. Too much low temperature may result in chilling injury in fruits and vegetables which may lead to woolen factor in peaches and brown color in bananas.
 - E. Drupes have one seed or one stone; examples include cherries, apricots, and plums.

4. 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

5. Sodium benzoate is added in soft drinks for;
- A. acidification in drinks so that pH remain low
 - B. inhibiting enzymatic coloring in soft drinks.
 - C. killing molds and yeasts growing in the soft drinks
 - D. killing bacteria likely to spoil soft drinks
 - E. destroy molds, yeasts and bacteria
6. Ropines in baked goods is likely to have been caused by,
- A. retrodegradation during storage
 - B. *Bacillus subtilis*
 - C. flour mite, *Tyroglyphus farinae*
 - D. *Alcaligenes viscolactis*
 - E. fat oxidation in the dough
7. Staling in bread is caused by;
- A. retrodegradation during storage
 - B. *Bacillus subtilis*
 - C. *Alcaligenes viscolactis*
 - D. Fat oxidation in the dough
 - E. Flour mite, *Tyroglyphus farinae*
8. Which beverage is likely to have the lowest alcohol content?
- A. Wine
 - B. Brandy
 - C. Beer
 - D. Rum
 - E. Vodka
9. Which alcoholic drink (s) can be made from maize grains;
- A. Wine
 - B. Vodka
 - C. Beer
 - D. Rum
 - E. Brandy
10. Under normal, comparable circumstances, which of the following would be expected to have the highest bacterial count per gram?
- A. T-bone steak
 - B. Rump steak
 - C. Hamburger
 - D. Drumstick
 - E. Ox-liver

11. 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
 - E. Home canned green beans
12. 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
13. 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
14. You discover a bulged canned beef can in Big Bend 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*
15. Which classes of microorganisms have the lowest risk in egg spoilage?
- A. ascaris worms
 - B. gram-positive
 - C. gram-negative
 - D. molds
 - E. yeasts
16. What is the primary factor in the preservation of fermented foods?
- A. acidity
 - B. alkalinity
 - C. chemical preservatives
 - D. heat
 - E. water activity

17. Fruits that are known as drupes, include;
- A. cherries and litchi
 - B. prunes and dates
 - C. cape gooseberry
 - D. loquat and cranberry
 - E. Both A and B
18. Which of these alcoholic beverages is made from the distillation of wine?
- A. Gin
 - B. Rum
 - C. Whiskey
 - D. Brandy
 - E. Vodka
19. Pineapples are a rich source of;
- A. Vitamin A and C
 - B. Vitamin A and B₁
 - C. Vitamin A and B₂
 - D. Vitamin A, B₁ and B₂
 - E. Vitamin A, B₁, B₂ and C
20. Enzymatic browning cannot occur in;
- A. tangerine
 - B. brinjal
 - C. mushrooms
 - D. cherries
 - E. dates
21. Sour rot or watery rot in pumpkin may be caused by;
- A. *Botrytis cinerea*
 - B. *Geotrichum candidum*
 - C. *Penicillium expansum*
 - D. *Colletotrichum coccodes*
 - E. *Rhizopus stolonifer*
22. Grey mold rot on grapes is likely to have been caused by;
- A. *Botrytis cinerea*
 - B. *Geotrichum candidum*
 - C. *Penicillium expansum*
 - D. *Colletotrichum coccodes*
 - E. *Rhizopus stolonifer*

23. Blue mold on apples or pear is more likely to have been caused by;
- A. *Botrytis cinerea*
 - B. *Geotrichum candidum*
 - C. *Penicillium expansum*
 - D. *Colletotrichum coccodes*
 - E. *Rhizopus stolonifer*
24. Fusarium species growing on potato or general vegetables is likely to result in;
- A. soft rot
 - B. blight
 - C. black rot
 - D. spraing
 - E. dry rot
25. Ropines in milk is likely to have been caused by;
- A. *Alcaligenes viscolactis*
 - B. *Bacillus subtilis*
 - C. *Bacillus lichiniformis*
 - D. *Pseudomonas marginalis*
 - E. Both B and C

[25 Marks]

Question 2

- a. A high acid canned food product is opened, and a glossy, shiny coloring on the surface of the food is observed? Explain the possible causes. [4]
- b. What do you understand by thermophilic spoilage in canned food stuffs? [6]
- c. Discuss the intrinsic factors that ensures shelled eggs are safe and health. [6]
- d. Why is wheat-flour more preferred than other cereal flour in the production of bread? [2]
- e. Showing good examples explain the difference in hard wheat and soft wheat? [4]
- f. Why dietetics are commonly referred to as more healthier than common sugar in soft drinks? [3]

[25 marks]

Question 3

- a. Using good examples, explain the meaning of the following;
 - i) Food processing aids [4]
 - ii) Food ingredient [2]
 - iii) Adulteration [3]
- b. You find a label on a prepackaged food container with the following words; cholesterol and sodium free; high fiber and low fat. [9]

- c. A routine sampling program at Spar Supermarket by their quality assurance officers revealed that their product, raspberry cream bars, tested positive for *Listeria monocytogenes*. Discuss the measures the company has to take to ensure food safety and the health of their customers. [7]
[25 Marks]

Question 4

- a. In wine manufacture, sulfur dioxide is added to destroy microbes and inhibit enzymatic and non-enzymatic browning. Using good examples, discuss non-enzymatic and enzymatic food spoilage. [8]
b. Through a Ministry of Health request, the "VAT" is not charged on brown bread. Why is that so? [5]
c. The technique of sampling food for laboratory analysis has failed to ensure food safety in the food industry. Discuss this statement. [6]
d. How is alcoholism associated with impotence in males? [4]
e. Most enzymes are destroyed during the blanching of fruits and vegetables. Give two enzymes that are likely to survive the blanching. [2]
[25 Marks]

Question 5

Food producing manufacturers are required to follow strict hygiene standards and procedures in order to assure food safety and high quality products. Standard boards have produced requirements for the production of safe food. Good Manufacturing Practices (GMPs) play an important role in assuring that food is safe and of high quality.

GHP (Good Hygiene Practice) is a system to ensure that products meet food safety standards. It is a systematic program to assure food safety. Food manufacturers should have GHPs in place. GHPs may be used as pre-requisite for HACCP (Hazard Analysis and Critical Control Point).

List at least (10) GHPs and explain how these assure food safety standards.

[25 Marks]