UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2019

TITLE OF PAPER	:	FOOD SAFETY & INSPECTION
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 statements about caffeine is not correct?
   A. It is alkaloid which stimulates the cortex of the brain
   B. It also activate the kidney to increase water elimination
   C. Caffeine makes the muscles to be less susceptible to fatigue
   D. Instant coffee is easy to dissolve and has it has strong high caffeine content
   E. The finest coffee comes from Coffee arabica and it has low caffeine content.

4. 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 n 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.

5. 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

6. 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

7. Which statement is **not correct** in relation to carbon dioxide addition in soft drinks?
   A. It gives the sparkle and zest of carbonated beverages
   B. It gives the black color in coca cola flavored soft drinks
   C. It improves flavor and contribute to acidic preservation
   D. It gives the sparkling effervescent appearance
   E. It produces a tingling mouth-feel

8. During the making of cheese, ... is responsible for the curdling of the cheese.
   A. moisture reduction
   B. aging or ripening of the cheese
   C. lipase enzyme
   D. rennet enzyme
   E. pepsin enzyme

9. 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

10. 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*

11. Methylene blue test in fresh milk is a method for testing;
    A. the completeness of pasteurization in milk
    B. the presence of *Mycobacterium bovis* in milk
    C. the presence of coliforms in milk
    D. bacterial load in raw milk
    E. bacterial load in pasteurized milk.

12. Phosphatase test is done in milk to check the;
    A. the bacterial load
    B. the completeness of pasteurization
    C. the presence of Mycobacterium bovis
    D. the presence of coliforms
    E. the amount of fat

13. Which beverage is likely to have the highest alcohol content?
    A. Wine
    B. Brandy
    C. Beer
    D. Rum
    E. Vodka

14. Which alcoholic drink (s) can be made from maize grains;
    A. Wine
    B. Vodka
    C. Beer
    D. Rum
    E. Brandy

15. 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

16. "Candling" of eggs is concerned with;
    A. Thermostabilization
    B. Flaming the outside shell to reduce bacterial count
    C. Coating egg shells with wax
    D. Examination for internal defects
    E. Making the surface hot so that there is no hand handling

17. 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

18. 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

19. 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. Leakage of insects through the holes
    D. Risk to microbial contamination
    E. Aesthetic reasons

20. 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 H_2 gas
    C. Thermophilic spoilage
    D. Survival and growth of *Bacillus cereus*
    E. Survival and growth of *Clostridium botulinum*

21. Blanching vegetables has several useful applications in food processing, but it does not;
    A. fix their colors
    B. inactivate enzymes
    C. kill most molds and yeasts
    D. reduce bulkiness
    E. destroy spores of most bacteria

22. Which classes of microorganisms have the lowest risk in egg spoilage?
    A. ascaris worms
    B. gram-positive
    C. gram-negative
    D. molds
    E. yeasts

23. Avidin and lysozyme are intrinsic antimicrobial substances that are found in;
    A. garlic
    B. fish
    C. meat
    D. milk
    E. eggs

24. What is the primary factor in the preservation of fermented foods?
    A. acidity
    B. alkalinity
    C. chemical preservatives
    D. heat
    E. water activity

25. Cheese may be ripe, unripe, or aged and these characteristics will affect the texture and flavor. Which of this cheese is unripe?
    A. cheddar
    B. gouda
    C. leiden
    D. mozzarella
    E. colby

[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. When is a food manufacturer allowed to display a health claim label on the food package? [6]
c. Using appropriate examples, explain misdemeanor in food labeling. [5]
d. Design a label for any food of your choice. [10]

[25 marks]

Question 3

a. Using good examples, explain the meaning of the following; food additive, food ingredient, and adulteration, when used in food. [8]
b. You find a label on a prepackaged food container with the following words; cholesterol free or low or reduced; sodium free or low or very low or reduced; define the meaning of the terms. [14]
c. You opened canned meat food stuff, and you observe a brown discoloration. Explain the cause of this discoloration. [3]

[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. [6]

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. [5]

d. Using good examples, write short notes on dietetics beverages. [5]

e. Give the starter culture for the manufacture of yogurt. [4]

[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.

GMP (Good Manufacturing Practice) is a system to ensure that products meet food safety, quality and legal requirements. It is a systematic program to assure food safety. Food manufacturers should have GMPs in place. GMPs may be used as pre-requisite for HACCP (Hazard Analysis and Critical Control Point.

List at least (10) GMPs and explain how these assure food safety and quality.

[25 Marks]