

**UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES**

BSC in ENVIRONMENTAL HEALTH SCIENCES

**FINAL EXAMINATION PAPER
MAY 2015.**

TITLE OF PAPER : FOOD HYGIENE AND PRESERVATION
COURSE CODE : EHM 309
DURATION : 2 HOURS
MARKS : 100

INSTRUCTIONS : ANSWER ONLY FOUR QUESTIONS
: QUESTION ONE IS COMPULSORY
: EACH QUESTION CARRIES 25 MARKS.
: WRITE NEATLY
: BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

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

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Question 1

Multiple Choice Questions

(Choose the most best answer)

1. Cooked foods not immediately served;
 - A. Offer no hazard in the transmission of foodborne diseases
 - B. If properly protected, need no refrigeration
 - C. Should be cooled quickly and stored at 5 ° C until served
 - D. Can be kept indefinitely at normal refrigeration temperature
 - E. B and C are true

2. Food handlers with boils or infected wounds should;
 - A. Be assigned jobs where there is little likelihood of transmission of infection
 - B. Be allowed to work with no restrictions
 - C. Be allowed to work with no restrictions if the wound is bandaged
 - D. Be discharged from work
 - E. Be transferred to another job

3. Nondisposable cloths and sponges used to clean surfaces should be handled in which one of the following ways at the end of each work day;
 - A. Rinsed and hung to air dry overnight
 - B. Boiled, washed and dried quickly
 - C. Washed, rinsed and dipped in a sanitizer solution
 - D. Kept in a disinfectant overnight
 - E. Kept in a refrigerator overnight

4. Basic steps for cleaning kitchen utensils are to;
 - A. Remove gross soil, apply detergent, scrub, rinse
 - B. Remove gross soil, wash, rinse and dry
 - C. Remove gross soil, apply detergent, scrub, apply disinfectant rinse
 - D. Remove gross soil, wash and disinfect in same step
 - E. Remove gross soil, apply detergent, scrub, rinse and apply disinfectant

5. Which kind of agents is used to loosen and soften burnt food residues on ovens;
 - A. chlorine based compounds
 - B. soak in water to loosen up
 - C. amphoteric compounds
 - D. abrasive compounds
 - E. enzymes to digest the residues

6. The direct or indirect transmission of objectionable matter to a food product is called;
 - A. adulteration
 - B. contamination
 - C. infection
 - D. infestation
 - E. pollution

7. Food containing foodborne disease bacteria are:
 - A. not necessarily decomposed in appearance
 - B. detectable by smell
 - C. detectable by taste
 - D. detectable by smell & taste
 - E. detectable by smell, taste & appearance

8. Bacterial contaminants:
 - A. Multiply rapidly in dehydrated foods
 - B. Resume multiplication when dehydrated 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.

9. A soap is an anionic wetting agent and a good detergents but it will not;
 - A. wet surfaces
 - B. emulsify fats, waxes and pigments
 - C. destroy bacteria
 - D. penetrate crevices and woven fabrics
 - E. remove microorganisms

10. Which sanitizer is appropriate for hand washing?
 - A. Quaternary ammonium compounds (Quats)
 - B. Anionic wetting agent (soap)
 - C. Amphoterics
 - D. Iodine based sanitizers
 - E. Both A and D

11. Which sanitizer can work better in heavily soiled equipment;
 - A. Chlorine based sanitizers
 - B. Iodine based sanitizers
 - C. Organic acids based sanitizers
 - D. Amphoterics
 - E. Quaternary Ammonium Compounds (Quats)

12. An agent that forms soluble complexes when combined with certain metal ions (such as calcium & magnesium) and is used to prevent formation of film on equipment is:
- A. an alkali
 - B. an anionic wetting agent
 - C. a peptizer
 - D. a sequestering agent
 - E. an emulsify
13. Sodium benzoate is added in soft drinks in Swaziland in order to;
- A. Destroy bacteria
 - B. Destroy molds
 - C. Inactivate enzymes
 - D. Restore the color of soft drinks
 - E. All of the above
14. 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
15. Reports of foodborne disease indicate that the implicated food was 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. food that has been handled by a sick food handler
16. Which of the following is not consistent with present knowledge of bacterial survival in frozen food?
- A. it is possible for food poisoning to occur from ingestion of a frozen product containing Staphylococcal toxins
 - B. pathogenic bacteria may survive freezing, but freezing destroys their ability to multiply
 - C. survival is affected by the speed and temperature of freezing
 - D. some multiplication of bacteria may occur in bulky batches during the freezing process.
 - E. in minced beef, salmonellae survived the freezing storage

17. Which of the following has the longest recommended storage time at refrigeration (-1 to 2.5 deg C) temperatures
- A. beef
 - B. pork
 - C. chicken
 - D. fish
 - E. equal storage time
18. . 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
19. . Which of the following are most susceptible to injury at temperatures below 5deg C?
- A. bacterial spores
 - B. gram-positive cocci
 - C. gram-positive rods
 - D. gram -negative rods
 - E. Psychrotrophs
20. In meat sausages, sodium nitrate and sodium chloride are added for the following reason; to
- A. prevent the germination of *Clostridium botulinum* spores
 - B. destroy viable *Clostridium botulinum* spores
 - C. destroy viable *Clostridium botulinum* cells
 - D. destroy all viable spores in sausages except *Clostridium botulinum* spores
 - E. to kill clostridia and staphylococcal species
21. Which of these foods has the lowest water activity (Aw)
- A. Simba chips
 - B. Dried fruits
 - C. Dried beef
 - D. Cereals products
 - E. Straw berry jam
22. Once a can containing food has been opened and partially used.
- A. the remaining food should be discarded after 6 hours
 - B. the remaining food becomes poisoned if left in the can
 - C. the remaining food should be covered and refrigerated in the can
 - D. the remaining food should not be eaten unless boiled for 30 minutes
 - E. the remaining food can be eaten since the can is sterile and it was canned under hygienic conditions

23. If beef is prepared from the semi tropics climate (warm), and another beef from cooler climate areas are stored in a chiller? Which beef would store longer in the chiller before spoilage?
- Beef from semi tropics
 - Beef from cooler climate
 - Equal storage duration
 - Will depend on the number of microbes
 - All of the above
24. Some countries consistently report more foodborne outbreaks and more cases than others. The most likely explanation for this observation is that:
- The countries reporting high numbers of outbreaks have notoriously poor health departments
 - The environmental health officers "health inspectors" in these high reporting countries are lazy, inefficient, and poorly trained
 - These countries have higher rates because they encourage reporting and investigation of foodborne diseases.
 - The countries with higher rates have inferior sanitation practices in their food establishments.
 - These countries reporting higher rates are likely to be third world countries.
25. Blanching of vegetables has several useful applications in food processing, but does not:
- destroy spores of most bacteria
 - fix their color
 - inactivate enzymes
 - kill most molds and yeast
 - reduce bulkiness

[25 Marks]

Question 2

- Using appropriate examples explain the prolongment of the shelf-life of foods by low temperature. [6]
- In which type of food would you add Butylated Hydroxyanisole [BHA] and why? [3]
- Explain the selective antimicrobial activity of sulfur dioxide in food. [4]
- Write short notes on food preservation by the use of;
 - ultraviolet(UV) irradiation [4]
 - Gamma rays [8]

[25 Marks]

Question 3

- a) Explain the factors that may influence the choice of kitchen floor finish? [5]
- b) Discuss the advantages and disadvantages of the ceramic tiles as a food establishment floor finish. [5]
- c) What is the main purpose of an extractor fan over the cooking area in restaurant kitchens? [3]
- d) Detergent and disinfectant agents play a very important role in the quest to control food borne infection in food outlets. Explain how? [6]
- e) Discuss the effects of pH on food safety. [6]

[25 Marks]

Question 4

- a). Explain the most important principle that should be adhered to when designing a food establishment. [6]
- b) In fruits or vegetables canning or bottling, explain three (3) stages where the food is at most risk. [8]
- c) Explain the antimicrobial activity of organic acids in food preservation. [4]
- c) Explain why Polyvinyl chloride tiles are not suitable for food establishments. [4]
- d) What is commercially sterilization? [3]

[25 Marks]

Question 5

- a). What is likely to happen if you add calcium sorbate salt to a mixed population of microorganisms in food? [5]
- b). Discuss the contributions by nitrates in food preservation. [6]
- c). Explain how the standard of hygiene maintained in food premises has a direct bearing on the quality of the final food product. [8]
- d). What is thermophilic food spoilage and how could it be prevented? [6]

[25 Marks]