



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH
FINAL EXAMINATION PAPER 2017

TITLE OF PAPER : FOOD HYGIENE & PRESERVATION

COURSE CODE : EHM 309

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. In meat stored in hot holding temperature, which group of spoilage organisms is likely to survive in temperatures above 60deg C?
 - A. gram positive cocci
 - B. gram negative rods
 - C. gram positive rods
 - D. mold spores
 - E. mesophilic bacteria

2. Which type of microorganism is most resistant to UV irradiation?
 - A. bacterial spores
 - B. gram-positive cocci in chains
 - C. gram-positive cocci in clusters
 - D. gram-negative non-sporing rods
 - E. mold spores

3. Benzoic acid cannot be relied on to preserve foods capable of supporting bacterial growth because?
 - A. It can inhibit most yeast and molds
 - B. It is an antimycotic agent
 - C. Many spoilage bacteria are much more resistant to it
 - D. Food poisoning and spore-forming bacteria are generally inhibited by 0.01-0.02 % of the undissociated acid
 - E. It is ineffective against catalase-negative bacteria

4. 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 bacterial count
 - B. a lower pH and a lower bacterial count
 - C. a higher pH and a higher bacterial count
 - D. a lower pH and a higher bacterial count
 - E. a neutral pH and no change in bacterial count

5. The main reason for not allowing smoking in food preparation areas is because:
 - A. the fingers become contaminated with saliva
 - B. smoke causes cancer
 - C. the smoke causes allergies to clients and other food handlers
 - D. ashtrays make the kitchen look dirty
 - E. all of the above

6. The main reason why hair must be covered in food premises is that:
- A. long hair gets in your eyes
 - B. hats are part of the kitchen uniform
 - C. hats look smarter
 - D. hats keep your hair clean
 - E. hair and dandruff can fall into food
7. Which one of the following statements explains what is meant by the term 'clean as you go'?
- A. Clean down before you leave for home.
 - B. Clean up every hour throughout the day
 - C. Once a year thoroughly clean the premises
 - D. Clean before moving on to the next task
 - E. Clean before going home
8. Factors inherent in a food that can influence microbial growth are known as:
- A. extrinsic factors
 - B. intrinsic factors
 - C. nutritional factors
 - D. physicochemical factors
 - E. processing factors
9. Which one of these agents is a solvent for cleaning agents and a carrier for the removal of soil?
- A. alcohol
 - B. inorganic acids
 - C. organic acids
 - D. mild alkalis
 - E. water
10. Which type of agents is used to loosen and soften charred food residues on ovens?
- A. abrasive compounds
 - B. amphoteric compounds
 - C. anionic wetting compounds
 - D. cationic wetting compounds
 - E. nonionic wetting compounds
11. The direct or indirect transmission of objectionable matter to a food product is called by which of these names?
- A. adulteration
 - B. contamination
 - C. food infection
 - D. pollution
 - E. food poisoning

12. 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 given a leave until wound heals
13. 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
14. Reports of food borne disease indicate that the implicated food was usually;
- A. a canned food
 - B. a food held for long periods at temperatures favorable to bacterial multiplication
 - C. an improperly cooked food
 - D. a food stored too long in the refrigerator
 - E. an unwrapped food that has been handled by unwashed hands
15. What is the major source of staphylococcal infection?
- A. excreta of human
 - B. excreta of animals
 - C. unwashed hands
 - D. the nose of food handlers
 - E. use of contaminated water
16. Which classes of microorganisms are likely to cause spoilage in foods kept at temperatures between (2 to -5deg C).
- A. Psychophilic microbes
 - B. Mesophilic microbes
 - C. Gram-positive bacteria
 - D. Gram-negative bacteria
 - E. Both A and C
17. Anionic wetting agents are good detergents but they will not;
- A. wet surfaces well
 - B. emulsify fats, waxes and pigments
 - C. destroy bacteria
 - D. penetrate crevices and woven fabrics
 - E. both C and D

18. 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. Dish washing control
 - C. pH control
 - D. Hot holding temperatures
 - E. Low temperature
19. Alternate partial thawing and refreezing of foods under 5 deg C results in a marked loss of quality. Which of the following statements is **inconsistent** with current knowledge about defrosting?
- A. Defrost of any degree adversely affects the quality of frozen foods.
 - B. Observed loss in quality due to defrost is operative even when the numbers of microorganisms are low.
 - C. Chemical and physical changes due to defrost take place which cannot be reversed.
 - D. Refreezing will stop quality deterioration
 - E. Freezing delay the multiplication of microorganisms
20. Which of the following has the longest recommended storage time at refrigeration (-1 to 2.5 deg C) temperature
- A. Chicken
 - B. Pork
 - C. Beef
 - D. shellfish
 - E. Fish
21. A major disadvantage of ionizing irradiation of foods is that:
- A. foods cannot be irradiated in the frozen state.
 - B. considerable heat is produced.
 - C. enzymes in foods are not inactivated .
 - D. residues of non-food material are produced.
 - E. mutagenic, teratogenic, carcinogenic, and toxic factors are induced in foods
22. Which of the following microorganisms are more sensitive to ionizing radiation?
- A. bacterial spores
 - B. gram- positive cocci
 - C. gram -positive rods
 - D. gram-negative bacteria
 - E. yeasts

23. Sensitivity to irradiation is highest in:
- A. aerobic atmosphere
 - B. anaerobic atmosphere
 - C. dry foods
 - D. cooked foods
 - E. frozen foods
24. Sulfur dioxide is added to foods for all but which one of these reasons?
- A. to control microorganisms
 - B. as an antioxidant
 - C. to reduce enzymatic browning
 - D. to prevent loss of thiamine
 - E. to reduce non-enzymatic browning
25. Which of these foods has the lowest a_w ?
- A. canned fruit in heavy syrup
 - B. chocolate
 - C. strawberry jam
 - D. sweetened condensed milk
 - E. bread

[25 Marks]

Question 2

- a. Why are disinfectants not relied on or depended on to sterilize the items or equipment to which they are applied? [5]
- b. Cleaning programs should be designed to suit the needs or requirements of a particular product and process. How is that to be effected? [4]
- c. How does cleaning agents or sanitizers assist the cleaning process? [6]
- d. The design and layout of food premises must follow a "linear flow" so that cross-contamination in food establishment is either reduced or eliminated. Explain this statement. [10]

[25 Marks]

Question 3

- a. In the canning process of beef, explain three (3) common risk factors that may result in foodborne illness. [10]
- b. In what type of food would you add sodium nitrate and why? [4]
- c. Explain the likely risk posed by the use of nitrate in food. [4]
- d. If you add sorbic acid in food with a mixed population of microorganisms, what effect will it cause on the microorganisms? [4]
- e. How does microwave oven reheat foods? [3]

[25 Marks]

Question 4

- a. Discuss the role of food preservation in ensuring food security in rural community [8]
 - b. Explain the intrinsic factors that prevent spoilage in shelled eggs. [5]
 - c. Explain the benefits and limitations on the use of gamma rays and ultra-violet (UV) rays in food preservation. [12]
- [25 marks]**

Question 5

- a. Discuss the reason behind the addition of food additives in food. [10]
 - b. Excluding microbial spoilage, what are the factors that may cause food to deteriorate or spoil during storage? [8]
 - c. Show the relationship between pKa and the preservation of foods by organic acids. [5]
 - d. What is the purpose of adding sulfur dioxide in wine? [2]
- [25 Marks]**