



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

**DEGREE IN ENVIRONMENTAL HEALTH**  
**SUPPLEMENTARY EXAMINATION PAPER 2017**

- TITLE OF PAPER** : FOOD HYGIENE & PRESERVATION
- COURSE CODE** : EHM 309
- DURATION** : 2 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
  - : ANSWER ALL FOUR (4) QUESTIONS
  - : EACH QUESTION CARRIES 25 MARKS.
  - : NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
  - : WRITE NEATLY & CLEARLY
  - : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

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

**Question 1**

Define the following terms commonly used in relation to food hygiene;

- |    |                                 |     |
|----|---------------------------------|-----|
| a) | D-value                         | [3] |
| b) | HACCP ( write in full)          | [2] |
| c) | Z-value                         | [3] |
| d) | Danger Zone of Bacterial Growth | [2] |
| e) | CFU (write in full)             | [2] |
| f) | Haloduric                       | [2] |
| g) | Cryogenic freezing              | [2] |
| h) | Fomites                         | [3] |
| i) | Ambient temperature             | [1] |
| j) | High risk foods                 | [2] |
| k) | Lag phase                       | [3] |
- [25 Marks]

**Question 2**

- a) In food processing plants, the main reason for cleaning both processing equipment and processing areas is to remove food debris and other soils which may contain food poisoning or spoilage microbes and thus contaminating the food. Describe the basic stages and sequence of wet cleaning and disinfection of equipment and utensils in food establishment. [10]
- b). In which foods are these food additives added and why?
- |      |                               |     |
|------|-------------------------------|-----|
| i)   | Butylated Hydroxyanisole[BHA] | [3] |
| ii)  | Nitrate or nitrite            | [5] |
| iii) | Monosodium glutamate[MSG]     | [3] |
| iv)  | Sodium diacetate              | [4] |
- [25 Marks]

**Question 3**

- a). What good use does ultraviolet (UV) irradiation have in the food establishment and what shortcomings does this method have? [7]
- b). How does (UV) irradiation affect microorganisms in food? [5]
- c). State the reasons why, organic acids are used in food preservation, as opposed to inorganic acids. [5]
- d). Discuss the effects of pH on food spoilage and pathogenic microorganisms.[8]
- [25 Marks]

**Question 4**

- a) How does food preservation ensure food security? [8]
- b). How does low temperature influence the type of microorganisms in food? [5]
- c) Giving good examples, show how intrinsic factors assist in the preservation of foods. [5]
- d) Besides being used to control microbial growth, sulfur dioxide is added to a variety of foods. Explain why? [4]
- e) Give three (3) disadvantages of cleaning out of place (COP) in plant hygiene. [3]

**[25 Marks]**