



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF HOSPITALITY AND TOURISM MANAGEMENT

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR, DIPLOMA IN
FOOD SCIENCE TECHNOLOGY**

DFT 059 – INDUSTRIAL SANITIZATION AND WASTE MANAGEMENT

DURATION: 2 HOURS

DATE:

TIME:

Instructions to candidates:

1. Answer question One and Any Other Two questions
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a) List at least four importance of proper cleaning of equipments, utensils and work surfaces in a food processing environment (4 marks)
- b) Define the following terms
 - i. Biofilm (1 mark)
 - ii. Chelating agent (1 mark)
 - iii. Sanitizing (1 mark)
- c) State at least three factors that affect the choice of cleaning chemicals (3 marks)
- d) List at least two examples of highly alkaline detergents used in many circulating clean in place systems (CIP) (2 marks)
- e) Highlight at least three advantages of using hot water sanitization method in waste management (3 marks)
- f) Outline at least five types of sanitizers available in the market (5 marks)
- g) Explain how the floor of a food plant design for enhanced sanitation should be built (5 marks)
- h) Highlight at least five methods of disposal in solid waste management (5 marks)

SECTION B - ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

- a) Describe the collection of waste water in waste management (4 marks)
- b) List the various stages of a modern waste water treatment plant (5 marks)
- c) Highlight five steps for preliminary treatment of waste water (5 marks)
- d) State at least three advantages and three disadvantages of trickling filters in water recirculation (6 marks)

QUESTION THREE (20 MARKS)

- a) Explain seven environmental factors that influence the health and growth of micro-organisms (14 marks)
- b) Describe the requirements for the construction of ponds (6 marks)

QUESTION FOUR (20 MARKS)

- a) List the four methods for sludge water reduction (4 marks)
- b) Outline the processes of water treatment and disinfection (5 marks)
- c) State two micro-organisms used as a test for effectiveness of sanitization (2 marks)
- d) Discuss the following methods of water disinfection:
 - i. Chlorination (3 marks)
 - ii. UV light treatment (2 marks)
 - iii. Ozone treatment (2 marks)
 - iv. Reverse osmosis filtration (2 marks)