



## SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. State six roles of microbiologists in the food industry (3 marks)
2. Outline three advantages of microorganisms in industry over other living organisms (3 marks)
3. Use specific examples to distinguish between spore-forming and non-spore forming *Firmicutes* of importance in the food industry (3 marks)
4. Describe the roles of three yeasts in food production (3 marks)
5. Explain three types of fermentation of food products (3 marks)
6. Explain how water sources can contribute to food contamination and state measures that can be used to reduce their incidence in food (3 marks)
7. Explain the mode of action of the following microbial metabolites in food preservation
  - i) Propionic acid (1 mark)
  - ii) Reuterine (1 mark)
  - iii) Hydrogen peroxide (1 mark)
8. Distinguish between the processing of ripened and un-ripened cheese (3 marks)
9. Explain the nutritional composition and quality of cow's milk. (3 marks)
10. Explain the following techniques for determining microbial contamination of foods
  - i) Enumeration of colony forming units (1 mark)
  - ii) Phase-contrast microscopy (1 mark)
  - iii) Molecular characterization (1 mark)

## SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Describe the role of microorganisms in food preservation (20 marks)
12. Describe the industrial process of beer brewing (20 marks)
13. Discuss the roles microorganisms in biological nitrogen fixation (20 marks)
14. Discuss the microbiology of yoghurt fermentation (20 marks)

