



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2012/2013

THIRD YEAR, FIRST SEMSTER, EXAMINATIONS FOR DEGREE OF FOOD  
SCIENCE POSTHARVEST TECHNOLOGY AND FOOD SCIENCE AND NUTRITION

### AFS 2301: FOOD MICROBIOLOGY II

DATE: AUGUST 2013

TIME: 2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE – (30 MARKS)

- a) List any six potential sources of micro-organism in food product. ( 6 Marks)
- b) Discuss “intrinsic factors that affect microbial growth in foods”. ( 10 Marks)
- c) Discuss spoilage of fruits and vegetables. (8 Marks)
- d) Discuss surface sampling as used in microbial testing procedure and give at least 3 types of surface sampling methods. ( 6 Marks)

#### QUESTION TWO – (20 MARKS)

- a) Under the following headings: Infection, Transmission, Symptoms and Control. Briefly discuss the following viruses of concern in the food industry. (12 Marks)
  - i. Hepatitis A virus
  - ii. Roto virus
  - iii. Norwalk –like virus
- b) Briefly discuss five mould and 3 yeast genera of your choice that are important in the food industry. ( 8 Marks)

#### QUESTION THREE – (20 MARKS)

- a) What do you understand by the term “ mycotoxins” as used in food microbiology. ( 3 Marks)
- b) Discuss how you could reduce mycotoxicosis in humans when you have detected some mould on your food. ( 5 Marks)
- c) “For an intestinal pathogen to cause an illness there are several hurdles it must overcome”. Discuss the hurdles. ( 8 Marks)
- d) Differentiate between pathogenicity and virulence as used in food toxicology. ( 4 Marks)

**QUESTION FOUR – (20 MARKS)**

- a) What is a microbiological risk assessment in food. ( 2 Marks)
- b) Discuss the four distinct steps used in microbial risk assessment process. (8 Marks)
- c) Why is it necessary to conduct microbial risk assessment in the food industry ( 8 Marks)
- d) “Microbial quality indicator organism” are of importance in the food industry. List at least six criteria such organism should meet. (6 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Differentiate the following terms; (4 Marks)
  - i. Risk Analysis
  - ii. Hazard Analysis
- b) Discuss pathogenicity of bacteria and clearly bring out the difference between pathogenicity of gram positive and gram negative bacteria. ( 4 Marks)
- c) Discuss at least five factors that may affect heat resistance of micro-organisms. ( 10 Marks)
- d) Discuss briefly heat treatment for low acid foods. ( 2 Marks)