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University Examinations 2012/2013

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

AFS 2303: FOOD AND INDUSTRIAL MICROBIOLOGY

DATE: AUGUST 2013

TIME: 2 HOURS

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

QUESTION ONE – (30 MARKS)

- a) Briefly explain the meaning of the following terms;
- i. Fermentation (3 marks)
 - ii. Trophophase (3 Marks)
 - iii. Inoculum (3 Marks)
 - iv. Primary metabolites (3 Marks)
 - v. Downstream processing (3 Marks)
 - vi. Genetic engineering (3 Marks)
- b) Explain six (6) factors that affect growth of microorganism in food (12 Marks)

QUESTION TWO – (20 MARKS)

- a) Explain the difference between traditional and modern biotechnology and give two (2) examples of application of each, (10 Marks)
- b) Name any five (5) medically important proteins produced by genetically engineered microorganism and their uses. (10 Marks)

QUESTION THREE – (20 MARKS)

You have been newly appointed as quality Assurance manager in XYZ Ltd; a food manufacturing company. As part of your first assignment, you have been tasked to brief the board of directors on important microorganisms normally associated with food. Name and discuss five (5) important microorganisms associated with food (20 Marks)

QUESTION FOUR – (20 MARKS)

Microbiology plays an important role in the production of alcoholic beverages. Discuss this statement with reference to either beer or wine production. In your answer discuss the key biochemical steps involved in ethanol production (20 Marks)

QUESTION FIVE – (20 MARKS)

- a) Give any two (2) process where each of the following culture is used.
 - i. Pure monocultures (2 Marks)
 - ii. Mixed culture (2 Marks)
- b) Name two (2) advantages and one (3) disadvantages of;
 - i. Pure monoculture (3 Marks)
 - ii. Mixed culture (3 Marks)
- c) Instability is one of the major reasons that can lead to rejection of a culture at industrial scale. Explain why and give at least one example of cultures where this is common. (3 Marks)
- d) Quality assurance technologist routinely performs microbial testing to assure compliance with government regulations. Basic techniques of microbial isolation and identification are key components of microbial quality assurance. Briefly explain seven (7) techniques used for microbial identification in the industry (7 Marks)