



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2015/2016

THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY AND BACHELOR OF SCIENCE IN FOOD SCIENCE AND NUTRITION

### AFT 3328: FOOD AND INDUSTRIAL MICROBIOLOGY

DATE: NOVEMBER 2015

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) Explain the structure of a DNA molecule. (4 Marks)
- b) Explain the steps in gene cloning. (6 Marks)
- c) Differentiate between solid state and submerged state fermentation. (4 Marks)
- d) Explain the important characteristics of a medium used for large scale fermentation in food industry. (4 Marks)
- e) Explain the desirable characteristics of cloning vectors. (5 Marks)
- f) Discuss the “Pros” and “Cons” of GM foods. (7 Marks)

#### QUESTION TWO (20 MARKS)

Citing a specific example discuss upstream and downstream processes in food fermentation industry. (20 Marks)

**QUESTION THREE (20 MARKS)**

- (a) Explain application of biotechnology in the environment. (5 Marks)
- (b) Discuss the application of modern biotechnology in agriculture. (15 Marks)

**QUESTION FOUR (20 MARKS)**

Discuss how Recombinant DNA technology has been applied in food processing. (20 Marks)