

UNIVERSITY OF FORT HARE

APPLIED MICROBIOLOGY AND BIOTECHNOLOGY

MIC322

SUPPLEMENTARY EXAMINATIONS

JANUARY

2025

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Time: 3 HOURS

Subject: APPLIED MICROBIOLOGY AND BIOTECHNOLOGY

Marks: 100

This paper consists of 2 pages including the cover page

Internal Examiners

Mr N Ntozonke

External Examiners

Prof E Green

INSTRUCTIONS

Answer all questions.

Question 1 [25 marks]

2. Crude extract of *Caesalpinia ferrea* was fractionated and one of the fractions was suspected to have anti-coccidial activity. Describe an experiment to confirm this under the following headings:

- a. Coccidiosis and host range
- b. Preparation of primary chick kidney cell culture
- c. Preparation of oocysts from ceca pouch of infected chicken
- d. Infection of chick kidney cell culture with sporozoites and anti-coccidial testing
- e. Interpretation of results

[25 marks]

Question 2 [25 marks]

2. Lager beer is produced from barley however, sorghum seems a cheaper alternative. Hence, as an expert with industrial microbiological skills, describe the process of lager beer production using sorghum.

[25 marks]

Question 3 [25 marks]

3.1 Describe the following terms and give examples of at least 2 organisms involved in the process

- a. Bacterial food poisoning
- b. Bacterial food-borne infection
- c. Mycotoxicoses

[15 marks]

3.2 List 3 physical and 2 chemical techniques you can employ to extend the shelf-life, retain wholesomeness and ensure safety of the food by delaying or preventing microbial decomposition.

[10 marks]

Question 4 [25 marks]

4. Briefly give a schematic representation of a chemostat, describe at least three industrial applications and as well possible disadvantages.

[25 marks]