

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF APPLIED SCIENCES**

**MEDICAL SCHOOL**

**BACHELOR OF MEDICINE AND BACHELOR OF SURGERY DEGREE**  
**PART 1 SUPPLEMENTARY EXAMINATIONS**

**(MCM 1102) :** CELL STRUCTURES & MICROBIOLOGY

**DATE :** JANUARY 2006

**TIME :** 3 HOURS

**Instructions to Candidates**

- 1) Answer **all** questions.
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**SECTION A**

1. Describe the various structural components of a bacterial cell highlighting the chemical composition and function of each component. (20)
2. Compare the virion structure, viral properties and transmission of enveloped and non-enveloped viruses. (20)

**SECTION B**

3.
  - a) Describe the various phases in the growth curve of a bacterial population. (4)
  - b) Write short notes on the physical and chemical requirements for bacterial growth. (11)
  - c) Briefly explain any **five** (5) sterilization methods used in hospitals and laboratories to eliminate pathogenic microbes. (5)
4.
  - a) Describe the **two** (2) morphological forms that can be found amongst fungi. (9)

- b) What is thermal dimorphism? (3)
- c) Explain the mechanisms of action of the following antifungal agents:-
- (i) azoles (3)
  - (ii) polyenes (3)
  - (iii) 5-fluorocytosine (3)
5. a) Name **three** (3) species of parasites that cause schistosomiasis and what body sites they affect. (3)
- b) How are these 3 species distinguished in the laboratory? (6)
- c) What is the intermediate host in the life cycle of schistosomes? (1)
6. a) Name any **three** (3) species of parasites that cause severe diarrhea in immunocompromised hosts. (3)
- b) What is the route of transmission for each of the above-mentioned species? (3)
- d) What **two** (2) protozoal species cause human sleeping sickness and what is the vector for these parasites? (3)

**END OF EXAMINATION**