



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE

(BIOLOGY)

SBT 414: MEDICAL MICROBIOLOGY

DATE: 2/8/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer ALL questions in section A and any other TWO in section B

SECTION A (COMPULSORY)

1.
 - a) Explain any **three** types of microbial virulence factors. (6 marks)
 - b) Describe the Surface Plating method used in isolation of pathogenic *Clostridium botulinum*. (5 marks)
 - c) Explain any **two** mechanisms of bacterial resistance to antibiotics. (6 marks)
 - d) With aid of a well labelled diagram, describe the structure of a bacteriophage. (5 marks)
 - e) Describe the Direct Immunofluorescence Assay method used in detection of viral pathogen in a clinical specimen. (5 marks)
 - f)
 - i. Mention any **two** pathogenic species of genus *Ebolavirus*. (1 mark)
 - ii. Highlight any **four** major symptoms associated with Ebola disease. (2 marks)

SECTION B: ANSWER ANY OTHER TWO QUESTIONS

2.
 - a). Explain any **two** challenges faced by public health system in controlling of microbial infections. (4 marks)
 - b) Discuss any **four** non-immunological defence mechanisms employed by Public Health Officers in controlling of microbial diseases. (16 marks)

3. Discuss human practises that contribute to the spread of antibiotic resistance in *Mycobacterium tuberculosis*. (20 marks)
4. Discuss any **five** strategic measures that pathogenic microorganisms utilizes to evade host immunological responses. (20 marks)
5. Using a diagram, describe the lytic cycle of viral replication. (20 marks)