



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE
IN MICROBIOLOGY
1st YEAR 1st SEMESTER 2018/2019 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

COURSE CODE:	SBT 834
COURSE TITLE:	PATHOGENIC MICROORGANISMS
EXAM VENUE:	STREAM: (MSC)
DATE:	EXAM SESSION:
TIME: 2 HOURS	

Instructions:

- 1. Answer Question 1 (Compulsory) and two other questions**
 - 2. Candidates are advised not to write on question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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QUESTION ONE (Compulsory) (30 MARKS)

- a) Explain three factors that enhance the virulence of microbial pathogens (3 marks)
- b) Briefly outline roles of the following bacterial adherence factors
- i) S-layer
 - ii) Glycocalyx
 - iii) Fimbriae (3 marks)
- c) State three ways by which pathogenic micro-organisms penetrate the host's epithelial membrane (3 marks)
- d) Use examples to explain genetic regulation of bacterial virulence factors (3 marks)
- e) Explain three mechanisms by which viruses evade host defenses (3 marks)
- f) Explain the concept of '*pathogenicity islands*' (3 marks)
- g) Explain the roles of mucosal associated lymphoid tissue in host defense systems (3 marks)
- h) Outline the process of artificial production of β -exotoxins from *Bacillus thuringiensis* (3 marks)
- i) Use a diagram to explain the process of lymphocyte development (3 mark)
- j) State the role of the small intestines in providing resistance to microbial pathogens (3 marks)

QUESTION TWO (15 MARKS)

- a) Explain the distribution of normal microbiota in the following parts of the human body
- i) Nasopharynx (3 marks)
 - ii) Respiratory tract (3 marks)
 - iii) Small intestines (3 marks)
- b) Explain six reasons why the skin is an effective barrier to microorganisms (6 marks)

QUESTION THREE (15 MARKS)

- a) Describe the methods of transmission of infectious diseases (7 marks)
- b) Discuss four emerging and re-emerging infectious diseases (8 marks)

QUESTION FOUR (15 MARKS)

- a) State two functions of the specific immune system (1 mark)
- b) State four differences between specific and non-specific immunity (4 marks)
- c) Discuss the structure and functions of cells of the human immune system (10 marks)

QUESTION FIVE (15 MARKS)

- c) Describe the negative effects of mycotoxins to humans (7 Marks)
- d) Discuss methods used by bacteria to evade host defenses (8 Marks)