

UNIVERSITY OF BOLTON

**SCHOOL OF CLINICAL AND BIOMEDICAL
SCIENCES**

BSc (Hons) MEDICAL BIOLOGY

SEMESTER ONE EXAMINATIONS 2022/23

MEDICAL MICROBIOLOGY

MODULE NO: BIO5010

Date: Wednesday 11th January 2023

Time: 2pm – 4.30pm

INSTRUCTIONS TO CANDIDATES:

Candidates are advised that the examiners attach importance to legibility of writing and clarity of expression. **YOU ARE STRONGLY ADVISED TO PLAN YOUR ANSWERS**

There are **EIGHT** questions on this examination paper.

There are **TWO** sections on this paper.

Section A: Answer ALL questions.

Section B: Answer ONE question.

Each section is worth **50** marks

This examination paper carries a total of **100** marks in total.

This examination is **TWO** hours and **THIRTY** minutes long.

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Answer **SIX** questions in total.

Answer **ALL** questions in Section A and **ONE** question from Section B.

Make use of labelled diagrams where appropriate.

Section A: Answer ALL of these questions

1. Discuss the four criteria of Koch's postulates.

10 marks

2. Describe, with the aid of a clearly labelled diagram, the cell envelope of Gram-negative bacteria.

10 marks

3. Describe the process of bacterial biofilm formation.

10 marks

4. Describe the bacteriophage lytic and lysogenic cycle.

10 marks

5. What is the significance of β -lactamases in antibiotic resistance?

10 marks

[Total for Section A: 50 marks]

PLEASE TURN OVER

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Section B: Answer ONE of these questions

6. Account for the pathogenesis mechanisms of enterohemorrhagic *Escherichia coli* (EHEC).

50 marks

7. Giving specific examples, outline antibiotic resistance mechanisms of bacteria.

50 marks

8. Explain how innate immunity protects against infection.

50 marks

[Total for Section B: 50 marks]

END OF QUESTIONS