



UNIVERSITI KUALA LUMPUR
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

FINAL EXAMINATION
OCTOBER 2025 SEMESTER

COURSE CODE : HDB20404
COURSE TITLE : PATHOGENIC MICROBIOLOGY
PROGRAMME NAME : BACHELOR OF BIOMEDICAL SCIENCE (HONOURS)
DATE : 23 JANUARY 2026
TIME : 9:00AM - 12:00PM
DURATION : 3 HOURS



INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. *Tick if applicable*
9. Refer to the attached Formula/ Appendies. *Tick if applicable*

THERE ARE 7 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 40 marks)

Answer ALL questions.

Please use the answer booklet provided.

Question 1

Various pathogens can cause skin infections, such as bacteria, viruses, fungi, and parasites. Infections can vary from mild to serious. People with a weakened immune system have a higher risk of skin infections and complications from skin infections.

- (a) List two (2) common types of normal flora of the skin. (4 marks)
- (b) How does cellulitis differ from erysipelas? (4 marks)
- (c) Explain three (3) defence mechanisms of the skin to protect an individual from infections. (12 marks)

Question 2

Meningitis is the inflammation of the tissues surrounding the brain and spinal cord. It is usually caused by bacteria, viruses and fungi infections.

- (a) List three (3) signs and symptoms of meningism. (6 marks)
- (b) List two (2) common types of bacterial pathogens cause meningitis. (4 marks)
- (c) Name two (2) vaccines to prevent bacterial meningitis. (4 marks)
- (d) State effects of bacterial meningitis on the white blood cells, protein and glucose levels of CSF. (6 marks)

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

A urinary tract infection is an infection that affects a part of the urinary tract. Lower urinary tract infections may involve the bladder or urethra while upper urinary tract infections affect the kidney.

- (a) List two (2) defence mechanisms of urinary tract system. (4 marks)
- (b) State the affected area of urinary tract system for the following diseases: (4 marks)
- i) Pyelonephritis
 - ii) Cystitis
- (c) Explain pathogenesis of urinary tract infections. (12 marks)

Question 2

Diphtheria is a disease caused by a bacterium that affects the upper respiratory tract and less often the skin. It is a vaccine preventable disease, but multiple doses and booster doses are needed to produce and sustain immunity.

- (a) Name the pathogen causes diphtheria. (2 marks)
- (b) Explain how diphtheria differ from other upper respiratory infections. (4 marks)
- (c) Name one systemic complication caused by diphtheria toxin. (2 marks)
- (d) Discuss the pathogenesis of diphtheria. (12 marks)

Question 3

The normal heart is relatively resistant to infection. Bacteria and fungi do not easily adhere to the endocardial surface, and constant blood flow helps prevent them from settling on endocardial structures. However, under certain conditions, infections can occur that may lead to infective endocarditis (IE).

- (a) Define the infective endocarditis (IE). (2 marks)
- (b) Name two (2) common causative agents of IE. (4 marks)
- (c) State one risk factor of IE. (2 marks)
- (d) Discuss the pathogenesis of IE. (12 marks)

Question 4

Rotavirus is transmitted via the fecal-oral route, commonly through contaminated hands, food, water, or surfaces.

- (a) State the main group of people that is most affected by Rotavirus infection.
(2 marks)

- (b) Which part of the gastrointestinal tract does rotavirus primarily infect?
(2 marks)

- (c) How does rotavirus differ from norovirus in causing diarrhea?
(4 marks)

- (d) Discuss the pathogenesis of rotavirus infection.
(12 marks)

END OF EXAMINATION PAPER

