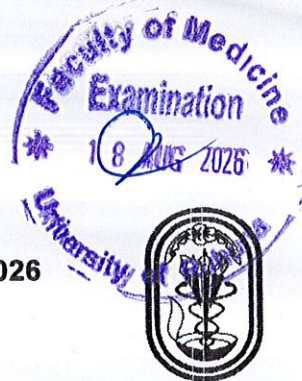




FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA
Third Examination for Medical Degrees Part I – August 2026
MICROBIOLOGY - Paper II



Question 1

18th August 2026

Answer all questions in the space provided

1.00 p.m. to 3.00 p.m. (2 hours)

Index number.....

1. A 50-year-old previously healthy prisoner was brought to the emergency treatment unit with 1-day history of fever, severe headache, and photophobia. On examination, he was febrile and hypotensive, with a widespread purpuric rash.

1.1 What is the most likely clinical diagnosis and the causative agent? (10 marks)

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.....

1.2 List **two (2)** microbiological investigations that should be performed to confirm the clinical diagnosis. (5 marks)

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1.3 Outline the specimen collection and transport of one of the investigations mentioned in 1.2. (15 marks)

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1.4 State the recommended antibiotic treatment for this patient. (5 marks)

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1.5 How should you manage the close contacts of this patient. (10 marks)

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1.6 State **three (3)** complications that can occur in this patient. (15 marks)

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1.7 Mention **four (4)** recommended infection prevention and control measures that should be followed in the ward setting. (20 marks)

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1.8 List **two (2)** risk factors that may result in severe infection with this organism. (10 marks)

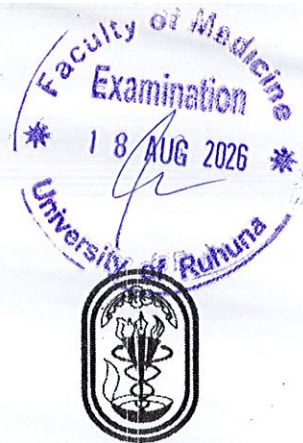
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1.9 State the pre-exposure prophylaxis that is available against this pathogen. (10 marks)

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Question 2

18th August 2026

Answer all questions in the space provided

1.00 p.m. to 3.00 p.m. (2 hours)

Index number.....

2. Scenarios related to the management, prevention and control of infectious diseases are given below.

2.1. Healthcare worker sustains a needle prick injury while drawing blood from a Hepatitis B positive patient. (35 marks)

2.1.1 State the risk of acquiring Hepatitis B virus infection following a needle prick injury. (3 marks)

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2.1.2 Outline the initial management of this injury. (6 marks)

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2.1.3 Classify the healthcare worker according to possible hepatitis B immune status categories. (10 marks)

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2.1.4. State the specific management in each of those categories of healthcare worker mentioned in 2.1.3. (16 marks)

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2.2. Waste management in healthcare settings. (30 marks)

2.2.1 Define infectious waste. (6 marks)

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2.2.2 State how infectious waste is discarded from the point of waste generation. (6 marks)

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2.2.3 Outline the features of a waste storage area. (10 marks)

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2.2.4 List four (4) features that should be present in the sharps bin. (8 marks)

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Index No:.....

2.3 Sterilisation and disinfection.

(35 marks)

2.3.1 Define sterilization.

(2 marks)

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2.3.2 State the levels of sterilization according to the Spaulding classification.

(12 marks)

Category	Example	Method of Sterilisation

2.3.3 State the sterilization conditions in the following instruments.

(7 marks)

Instrument	Agent of sterilisation	Conditions of Sterilisation
Autoclave		
Hot air oven		

2.3.4 List two (2) items each that are sterilized using autoclave and hot air oven.

(4 marks)

Autoclave.....

Hot air oven.....

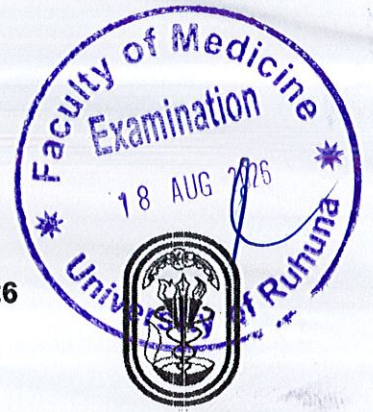
2.3.5 State the methods of monitoring the proper functioning of an autoclave giving examples for each.

(10 marks)

Methods of monitoring	Examples



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Question 3

18th August 2026

Answer all questions in the space provided

1.00 p.m. to 3.00 p.m. (2 hours)

Index number.....

3.

3.1.1 Name **three (3)** antibiotics in the aminoglycoside group. (6 marks)

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3.1.2 Outline the mechanism of action of aminoglycosides. (4 marks)

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3.1.3 List **two (2)** bacterial pathogens for which this class of antibiotics are **inherently ineffective**. (4 marks)

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3.1.4. Write **two (2)** adverse effects of aminoglycosides. (4 marks)

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3.1.5. How would you optimize the pharmacokinetic/ pharmacodynamic parameters to achieve maximum pathogen killing effect of this antibiotic. (6 marks)

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3.1.6 State **three (3)** measures that should be taken to reduce the toxicity of this antibiotic. (6 marks)

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3.2.

3.2.1. List **two (02)** pyogenic infections caused by Group A Streptococci. (5 marks)

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3.2.2. State the non-suppurative sequelae of Group A Streptococcal infections. (6 marks)

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3.2.3. Outline the immunopathological basis of the non-suppurative sequelae stated in 3.2.2. (12 marks)

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3.2.4 State the vaccines that should be given to a patient who is planned for splenectomy. (8 marks)

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3.2.5 Define the term hapten giving **one (1)** example. (4 marks)

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3.3 Leptospirosis in a farmer.

3.3.1 Name the causative pathogen. (02 marks)

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3.3.2 Outline the pathogenesis of this condition. (10 marks)

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3.3.3 List **three (03)** microbiological investigations that you would perform in the diagnosis. (06 marks)

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3.3.4 State **two (02)** antibiotics recommended in the treatment. (04 marks)

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3.3.5 List **three (03)** complications that would occur following this infection. (06 marks)

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3.3.6 Outline the recommended chemoprophylaxis for this condition for a farmer. (04 marks)

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3.3.7 Mention **three (03)** other preventive measures that should be adopted in this condition. (03 marks)

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Question 4

Answer all questions in the space provided

18th August 2026

1.00 p.m. to 3.00 p.m. (2 hours)

Index number.....

4.1 A 45-year-old security officer presented with a scaly skin lesion on the plantar aspect of the foot with intense itching of two weeks duration. (35 marks)

4.1.1 State the most likely clinical diagnosis. (03 marks)

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4.1.2 Name one (01) likely causative agent. (03 marks)

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4.1.3 Outline the specimen collection and transport in the microbiological diagnosis of the condition stated in 4.1.1. (10 marks)

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4.1.4 State the expected observations in the direct microscopy of the specimen collected in 4.1.3. (05 marks)

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4.1.5 Name two (02) antimicrobials recommended in the treatment of the infection stated in 4.1.1. (04 marks)

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4.1.6 State **three (03)** important measures that should be adopted in the prevention and control of this condition mentioned 4.1.1. (06 marks)

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4.1.7 State **two (02)** complications that can occur following the condition mentioned in 4.1.1. (04 marks)

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4.2 An 18-year-old male patient presented with fever, retro-orbital pain and severe myalgia for 2 days duration. On examination he was febrile, ill looking and had a petechial rash. Ultrasound scan abdomen revealed free fluid in the peritoneal cavity.

(30 marks)

4.2.1 What is the most likely clinical diagnosis? (02 marks)

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4.2.2 State the vector of above condition. (02 marks)

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4.2.3 State **three (03)** laboratory investigations that should be performed to confirm the diagnosis mentioned in 4.2.1. (06 marks)

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4.2.4 Outline the collection and transport of the relevant specimen. (10 marks)

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Index number.....

4.2.5 State **three (03)** complications that can occur in this patient. (03 marks)

4.2.6. State **two (02)** measures recommended in the prevention and control of this condition mentioned in 4.2.1. (04 marks)

4.2.7. State **three (03)** other viral infections that are transmitted by the same vector mentioned in 4.2.2. (03 marks)

4.3. A 23-year-old female presented with lower abdominal pain, dysuria and frequency of 2 days duration. (35 marks)

4.3.1 Name the most likely clinical diagnosis. (02 marks)

4.3.2 List **three (03)** likely causative pathogens for the condition stated in 4.3.1. (03 marks)

4.3.3 State the microbiological investigation that should be performed to confirm the diagnosis. (02 marks)

(15 marks)

[illegible]

(03 marks)

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(04 marks)

Name of the drug	Adverse effect
1.	1. 2.
2.	1. 2.

(03 marks)

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(03 marks)

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