



**FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA**  
**Third Examination for Medical Degrees Part I – January 2024**  
**MICROBIOLOGY - Paper II**



**Question 1**

**Answer all questions in the space provided**

**24<sup>th</sup> January 2024**

**10.30 a.m. to 12.30 p.m. (2 hours)**

**Index number.....**

1. A 35-year-old male presented to the STD (sexually transmitted diseases) clinic complaining of urethral discharge of 3 days duration.

1.1 What is the most likely clinical diagnosis? (05 marks)

.....

1.2 What are the **two (2)** most likely causative pathogens? (10 marks)

.....  
 .....

1.3 List **three (3)** microbiological investigations that would confirm the clinical diagnosis mentioned in 1.1. (15 marks)

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 .....

1.4 Outline the important steps in the collection and transport of the specimen for the investigations mentioned in 1.3. (30 marks)

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 .....

1.5 Briefly describe the expected results in each of the investigations listed in 1.3. (15 marks)

| Test | Expected results |
|------|------------------|
| i.   |                  |
| ii.  |                  |
| iii. |                  |

1.6 Name **two (2)** antimicrobial agents recommended in the empirical treatment for this condition mentioned in 1.1. (10 marks)

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.....

1.7 Outline the further management of this patient mentioned in 1.1. (15 marks)

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**Question 2**

**24<sup>th</sup> January 2024**

**Answer all questions in the space provided**

**10.30 a.m. to 12.30 p.m. (2 hours)**

**Index number.....**

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

2.1 **A medical student developed a maculopapular rash suspected of measles.**

2.1.1 State the causative agent. (02 marks)

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2.1.2 State how this condition could be transmitted to others. (06 marks)

.....

.....

2.1.3 List **two (2)** factors that would help to assess the susceptibility of close contacts of this student for this infection. (08 marks)

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.....

2.1.4 Outline the measures that can be adopted to control and prevent spread of measles in the community. (10 marks)

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.....

.....

2.1.5. State how the immunization against measles is provided in the National Immunization Programme in Sri Lanka. (09 marks)

Name of vaccine .....

Type of vaccine .....

Age at which immunization is given .....

**2.2. A single deep bite with free flowing of blood on the hand in a child bitten by a stray dog.**

2.2.1. State the type of exposure and category giving reasons. (10 marks)

|          | Type | Reasons |
|----------|------|---------|
| Exposure |      |         |
| Category |      |         |

2.2.2. Outline the initial management of this child before admission to a hospital. (09 marks)

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2.2.3 Outline the specific treatment of this child including the route, dose and schedule. (16 marks)

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**Index No:.....**

**2.3. Preparation of contaminated theater linen used in surgery for reuse.**

2.3.1 State how the contaminated linen are decontaminated. (05 marks)

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.....

2.3.2 State how the decontaminated linen is sterilized and mention the sterilization conditions. (08 marks)

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.....

2.3.3 State how you would monitor the efficacy of the sterilization process mentioned in 2.3.2 giving examples. (09 marks)

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2.3.4 Outline how the sterile linen is stored in the theater until it is used. (08 marks)

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*[Handwritten mark]*

**Question 3**

24<sup>th</sup> January 2024

Answer all questions in the space provided

10.30 a.m. to 12.30 p.m. (2 hours)

Index number.....

3.1

3.1.1 Name **three (3)** antibiotics in the aminoglycoside group. (06 marks)

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.....  
.....

3.1.2 Outline the mechanism of action of aminoglycosides. (04 marks)

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.....

3.1.3 List **three (3)** clinical conditions in which aminoglycoside drugs are effectively used. (06 marks)

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3.1.4 List **three (3)** bacterial pathogens against which aminoglycosides drugs are effectively used. (06 marks)

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3.1.5. List **two (2)** bacterial pathogens for which the aminoglycosides drugs are not effective. (04 marks)

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3.1.6. Write **two (2)** adverse events of aminoglycoside group of antibiotics. (04 marks)

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**3.2.**

3.2.1. Define active immunization. (05 marks)

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.....

3.2.2. State the methods of acquiring active immunization. (04 marks)

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.....

3.2.3. Complete the table on the pentavalent vaccine in the National Immunization Programme (NIP) in Sri Lanka. (15 marks)

| Components in the vaccine | Type of vaccine | Protection against the disease |
|---------------------------|-----------------|--------------------------------|
|                           |                 |                                |
|                           |                 |                                |
|                           |                 |                                |
|                           |                 |                                |
|                           |                 |                                |

3.2.4. List **two (2)** vaccines that are recommended for a Sri Lankan traveller visiting African continent. (04 marks)

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3.2.5. List **two (2)** vaccines which are **not** included in NIP, but available in Sri Lanka. (02 marks)

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3.2.6. Compare and contrast oral polio and inactivated polio vaccine. (05 marks)

| Oral polio vaccine | Inactivated polio vaccine |
|--------------------|---------------------------|
|                    |                           |
|                    |                           |
|                    |                           |
|                    |                           |
|                    |                           |

**3.3 Meningococcal disease in a young adult.**

3.3.1 Name the causative pathogen. (04 marks)

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3.3.2 State **two (2)** different clinical presentations of this condition. (06 marks)

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.....

3.3.3 List **two (2)** specimens collected in the microbiological diagnosis and outline the results of different tests are performed. (10 marks)

| Specimen | Test | Results |
|----------|------|---------|
| i.       | i.   |         |
|          | ii.  |         |
|          | iii. |         |
| ii.      | i.   |         |
|          | ii.  |         |

3.3.3 State **two (2)** classes of antibiotics that are recommended in the treatment of this condition. (06 marks)

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3.3.4 Outline the antibiotic prophylaxis recommended for the close contacts. (06 marks)

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3.3.5 State **three (3)** conditions that predispose to this condition. (03 marks)

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**Question 4**

**24<sup>th</sup> January 2024**

**Answer all questions in the space provided**

**10.30 a.m. to 12.30 p.m. (2 hours)**

**Index number.....**

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**4.1 A leukaemic patient presenting with fever, facial pain, swelling and black necrotic ulcerations in the palate, not responding to antibiotic treatment was admitted to the medical ward.**

4.1.1 State the most likely clinical diagnosis. (05 marks)

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4.1.2 Name one likely causative agent. (05 marks)

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4.1.3 Outline the specimen collection and transport to confirm the diagnosis stated in 4.1.1. (10 marks)

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4.1.4 State your observations in the direct microscopy of the specimen collected above 4.1.3 (05 marks)

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4.1.5 Name one antimicrobial recommended in the treatment of this infection stated in 4.1.1. (05 marks)

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4.1.6 Name **two (2)** adverse effects that require monitoring during the treatment with the antimicrobial mentioned in 4.1.5. (05 marks)

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**4.2 A-5-year-old child presented with blood and mucous diarrhoea of 2 days duration.**

4.2.1 List **three (3)** causative bacterial agents of this condition. *(06 marks)*

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4.2.2 Outline the collection and transport of the relevant specimen. *(15 marks)*

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4.2.3. Name the recommended antimicrobial treatment of this condition. *(04 marks)*

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4.2.4. List **two (2)** possible life-threatening complications of this condition. *(04 marks)*

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4.2.5. List **three (3)** infection control measures that you would adopt to prevent the transmission of this condition in the ward. *(06 marks)*

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Index number:.....

**4.3. An adult male presented with painless haematuria and evening pyrexia of 2 weeks duration.**

4.3.1 Name the most likely clinical diagnosis and the causative agent. (06 marks)

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4.3.2 List **two (2)** microbiological investigations that could be performed to diagnose this condition. (04 marks)

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4.3.3 Outline the collection and transport of the relevant specimen. (15 marks)

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4.3.4 Outline the antimicrobial treatment in this patient. (05 marks)

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