



Doctor of Medicine (M.D.) Examination August - 2026

Microbiology (Paper - I)

Time: 3 Hours]

[Total Marks: 100

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) All questions are compulsory
- (3) Begin each answer on a new page and clearly indicate the question number.
- (4) Draw neat, well-labeled diagrams, flowcharts, tables wherever appropriate

Seat No.:

Student's Signature

- Q. 1.** A hospitalized person was diagnosed with catheter associated urinary tract infection with ESBL producing *E.coli* What is ESBL production and how does it contribute to multi-drug resistance? Discuss the laboratory methods for detection of ESBL production. **20 Marks**
- Q. 2.** Define Innate Immunity. What are the various components of Innate immunity? Discuss in detail the role of Natural Killer cells in innate immunity. **20 Marks**
- Q. 3.** Write short notes on: **20 Marks**
- A) Immunofluorescence and its clinical applications
 - B) Quality assurance in microbiology laboratory
 - C) Toxins produced by bacteria
 - D) Role of complement in health and disease
- Q. 4.** Write short notes on: **40 Marks**
- A) Bacterial virulence factors
 - B) Bacterial biofilm production and its clinical importance
 - C) Methods and significance of antigen detection in infectious diseases
 - D) Importance of HLA typing in transplantation immunology.



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Doctor Of Medicine Examination August - 2026
(M.D.) Microbiology (Paper - II)
Time: 3 Hours]
[Total Marks: 100
સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) All questions are compulsory.
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Seat No.:

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Student's Signature

- Q.1.** A 36-year-old male person got admitted with complain of headache, fever, vomiting and neck rigidity for last 2 days. The case was suspected of bacterial meningitis. Discuss the role of microbiologist to reach the confirmatory diagnosis in this case **20**
- Q.2.** A 31-year-old male went for trekking in jungle and developed remittent, highgrade fever, chills, and severe headache, one week after his return. He also reported a widespread, itchy rash all over his body except on palms, soles, and face. A painless black eschar was found on his trunk during a thorough skin examination. Predict clinical diagnosis based on the clinical details and discuss the pathogenesis of this disease. Propose a strategy for laboratory diagnosis in this case. **20**
- Q.3.** **Write short notes on:** **20**
- A) A 36-year-old male farmer presented in OPD in monsoon season with high fever, severe myalgia and conjunctival suffusion. Laboratory findings showed raised serum creatinine level. The urine and blood samples showed motile spiral structures under dark ground microscopy. What is the probable diagnosis and explain the laboratory diagnosis for this case.
 - B) Discuss causative agents and laboratory diagnosis of non-gonococcal urethritis
- Q.4.** **Write short notes on:** **40**
- A) Clinical importance of non-tubercular Mycobacteria (NTM)
 - B) Laboratory diagnosis of anaerobic infections
 - C) Clinically important Coagulase Negative Staphylococci
 - D) Pneumococcal vaccination


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Doctor of Medicine (Microbiology) Examination August - 2026
PAPER - III
Time: 3 Hours]
[Total Marks: 100
સૂચના : / Instructions

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Fill up strictly the above details on your answer book
- (2) All questions are compulsory
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Seat No.:

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Student's Signature

- Q.1.** A 10-year-old child presented with weakness of lower limbs after having fever and diarrhea 1 week ago that resolved without any treatment. The child has not received any immunization in childhood.
- A) Describe the pathogenesis and laboratory case of the most likely etiology.
 - B) Add a note on vaccine associated polio infection.
- 20**
- Q.2.** A known case of HIV infected person with CD4 count 104 cells/mm³ presented with diarrhoea for last 1 week. Stool examination reveals 6-7 μ m round acidfast structures with Kinyoun staining.
- A) List the organisms causing diarrhoea in an HIVinfected person and describe the laboratory diagnosis in this case.
 - B) Add a note on pathogenesis and preventive measures for the etiological agent.
- 20**
- Q.3.** **Write short notes on :**
- A) Invasive pulmonary aspergillosis
 - B) Describe the laboratory diagnosis of a farmer presented with progressive painless swelling and multiple sinuses of right foot for last 4 years. There is mild pain in the affected limb but no other systemic symptom
- 20**
- Q.4.** **Write short notes on :**
- A) Free-living Amoebae
 - B) Post exposure prophylaxis of Rabies
 - C) Malaria vaccines
 - D) Neurocysticercosis
- 40**

RAN-2406121401010504
Doctor of Medicine Examination August - 2026
Microbiology (Paper - IV)
Time: 3 Hours]
[Total Marks: 100
સૂચના : / Instructions

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Fill up strictly the above details on your answer book
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- Q. 1.** In a neonatal intensive care unit (NICU) there is an increase in number of cases diagnosed with sepsis by a multidrug resistant *Klebsiella pneumoniae* for last one month. Discuss the role of microbiologist in investigation of outbreak of gram negative bacterial sepsis in a NICU. **20 Marks**
- Q. 2.** Discuss the role of Artificial Intelligence in a microbiology role. Is it a friend or a foe? **20 Marks**
- Q. 3.** **Write short notes on:** **20 Marks**
- A) A health care worker got the needle prick injury while recapping the used syringe. Describe the immediate management and post exposure prophylaxis in this case.
 - B) Describe the air sampling methods in an operation theatre
- Q. 4.** **Write short notes on:** **40 Marks**
- A) Recent Chandipura virus outbreak in India
 - B) Quality indicators in a clinical microbiology laboratory
 - C) Importance of Viral load assay for hepatitis B and C virus
 - D) A 62-year-old person visited the health clinic and wanted to know if he should have any preventive vaccination at his age. Discuss the preventive vaccines that are recommended at his age.