

MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JANUARY 2025
(REGULAR)
PAPER I

Tuesday, January 14, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

 **Answer ALL the questions**

 **Draw diagrams wherever necessary**

1. Discuss the different methods of bacterial genetics contributing to the spread of drug resistance among microorganisms.

(15 marks)

2. Explain the mechanism of cell mediated immunity and discuss the testing of CMI efficacy.

(15 marks)

3. **Write Short Notes on:**

- 3A. Disinfectants used in the health care setup
- 3B. Role of Bacterial capsule
- 3C. Mechanism of Type I hypersensitivity reaction
- 3D. Uses of recombinant DNA technology in microbiology
- 3E. Quality control in Antimicrobial susceptibility testing
- 3F. Methods and significance of antigen detection in infectious diseases
- 3G. Carrier state of infections in humans
- 3H. Mechanisms of Autoimmunity
- 3I. Electron microscopy
- 3J. Role of normal flora in health and disease of humans

(7 marks × 10 = 70 marks)



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PAPER II

Wednesday, January 15, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

1. Give a brief overview of glucose nonfermenting Gram negative bacilli commonly encountered in human infections. How do you approach to recovery and identification of these bacteria in the laboratory?
(15 marks)

2. Discuss the classification, pathogenesis, infections and laboratory diagnosis of *Cryptococcus neoformans*.
(15 marks)

3. **Write short notes on:**
 - 3A. Pathogenesis and laboratory diagnosis of *Clostridioides difficile* infection.
 - 3B. *Helicobacter pylori*.
 - 3C. Invasive Aspergillosis
 - 3D. Laboratory diagnosis of leptospirosis.
 - 3E. Virulence determinants of *Corynebacterium diphtheria*
 - 3F. Clinical types of leprosy and pathogenesis
 - 3G. Fungal Stains
 - 3H. Vaccines against enteric fever
 - 3I. Pulmonary nocardiosis
 - 3J. *Histoplasma Capsulatum*.(7 marks × 10 = 70 marks)



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PAPER III

Thursday, January 16, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw diagrams wherever necessary.**

✍ **Long Essays:**

1. Describe the epidemiology, pathogenesis and laboratory diagnosis of dengue virus infection.
Add a note on vaccines.

(15 marks)

2. Give an account of soil transmitted helminthic infections. Add a note on national deworming program.

(15 marks)

3. **Write short notes on:**

- 3A. Viral cytopathic effects
- 3B. Rabies vaccines
- 3C. Laboratory diagnosis of influenza
- 3D. Japanese B encephalitis
- 3E. Mpox Virus
- 3F. Schistosoma Hematobium
- 3G. Relapse of malaria
- 3H. Isosporiasis
- 3I. Laboratory diagnosis of leishmaniasis
- 3J. Cultivation of Parasites

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
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(REGULAR)
PAPER IV

Friday, January 17, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

 **Answer ALL the questions.**

1. Discuss Nipah virus infection in India. (15 marks)
2. Discuss rapid point of care tests in diagnosis of infectious diseases. (15 marks)
3. **Write Short Notes on:**
 - 3A. *Candida auris*
 - 3B. Carbapenem resistance in Enterobacteriaceae
 - 3C. Concept of phage therapy
 - 3D. Quality control in ELISA
 - 3E. Current influenza vaccine
 - 3F. New polio vaccination strategy by Global Polio Eradication Initiative
 - 3G. Biomarkers in sepsis
 - 3H. Rapid yeast identification methods
 - 3I. Biological safety in microbiology laboratory
 - 3J. Performance evaluation of a new diagnostic test

(7 marks × 10 = 70 marks)

