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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2025

PAPER I

Wednesday, July 09, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

 **Draw diagrams wherever necessary.**

 **Answer all the questions.**

1. Discuss disinfectants used in hospitals. Write briefly on methods of testing efficacy of disinfectants.

(15 marks)

2. Discuss mechanisms of immunoglobulin production. Add a note on class switching.

(15 marks)

3. **Write Short Notes on:**

3A. Microbiological quality of drinking water.

3B. Subunit vaccines.

3C. Quality control of in-house prepared culture media.

3D. Biological functions of complement proteins.

3E. Mechanism of type II hypersensitivity and resulting clinical conditions.

3F. Discuss mechanisms for induction of autoimmunity.

3G. Mucosal immunity.

3H. Principle and applications of chemiluminescence.

3I. Dark ground microscopy.

3J. Transport of specimen for anaerobic culture.

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2025

PAPER II

Thursday, July 10, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Draw diagrams wherever necessary.**

✍ **Answer all the questions.**

✍ **Long Essays:**

1. Discuss the pathogenesis and laboratory diagnosis of infection by *El Tor Vibrios*. Add a note on vaccines against Cholera.

(15 marks)

2. Enumerate four fungi as causative agent of subcutaneous infections. Describe the pathogenesis and role of laboratory diagnosis in the case of Mycetoma.

(15 marks)

3. **Write short notes on:**

3A. *Group B streptococcus*

3B. Laboratory diagnosis of Dermatophyte infections

3C. Toxin mediated Bacterial infections

3D. XDR - Tuberculosis

3E. Scrub typhus

3F. Mucocutaneous candidiasis

3G. Non Treponemal tests for the diagnosis of syphilis

3H. Psittacosis

3I. *Histoplasma capsulatum*

3J. Bubonic plague

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2025

PAPER III

Friday, July 11, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Describe the pathogenesis and laboratory diagnosis of Human Immunodeficiency virus (HIV) infection. Add a note on strategies for HIV testing and interpretation.
(15 marks)
2. Enumerate the haemoflagellates. Describe the life cycle, pathogenesis and laboratory diagnosis of *Leishmania donovani* infection.
(15 marks)

3. **Write short notes on:**

- 3A. Cell culture in viral cultivation
- 3B. Human Papilloma Virus
- 3C. Cytomegalovirus
- 3D. Hepatitis C Virus
- 3E. Parvovirus B 19
- 3F. Cryptosporidiosis
- 3G. Neurocysticercosis
- 3H. Lab diagnosis of Lymphatic Filariasis
- 3I. *Naegleria fowleri*
- 3J. *Chlonorchis sinensis*

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2025

PAPER IV

Saturday, July 12, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

✍ Draw diagrams wherever necessary.

✍ Long Essays:

1. Discuss the role of a clinical microbiologist during a disease outbreak in a hospital setting.
(15 marks)

2. A patient with a history of high-grade fever for the last 10 days presented to hospital. Discuss in detail the role of a clinical microbiologist in diagnosing this patient.
(15 marks)

3. Write Short Notes on:

3A. MALDI-TOF

3B. Quality assurance in a bacteriology lab

3C. Biomedical waste management in hospitals

3D. Monkey-pox virus

3E. HPV vaccination

3F. Role of microbiome in health and disease

3G. ESKAPE pathogens

3H. *Candida auris*

3I. Automation in microbiology

3J. Cultivation of parasites

(7 marks × 10 = 70 marks)

