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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2023

PAPER I

Monday, July 03, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

1. Describe in detail the structure of the bacterial cell wall. Add a note on the uses, clinical and microbiological significance of the bacterial cell wall. Write a note on bacterial porins.

(15 marks)

2. Define and Classify Hypersensitivity. Write in detail about Type I Hypersensitivity Reactions.

(15 marks)

3. **Write Short Notes on:**

3A. Autoclave

3B. Bacterial spore

3C. Transduction and its clinical significance

3D. Immunoglobulin G

3E. Immunofluorescence and its clinical applications

3F. Passive Immunity

3G. Biological functions of Complement

3H. Quality control in antibiotic sensitivity testing

3I. HLA typing methods and its uses

3J. Testing of disinfectants

(7 marks × 10 = 70 marks)



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PAPER II

Tuesday, July 04, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

1. Discuss the principles and interpretation of serological tests available in the management of syphilis.
(15 marks)

2. Discuss the etiology, pathogenesis and laboratory diagnosis of pyogenic meningitis.
(15 marks)

3. **Write short notes on:**
 - 3A. Diagnosis of MDR tuberculosis.
 - 3B. Pneumococcal vaccines.
 - 3C. Laboratory detection and control of MRSA
 - 3D. Laboratory diagnosis of brucellosis.
 - 3E. Bacterial food poisoning
 - 3F. Virulence attributes of Group A Streptococcus
 - 3G. Pathogenesis and laboratory diagnosis of Pertussis
 - 3H. Pathogenesis of *Yersinia pestis* infection
 - 3I. Laboratory diagnosis of gas gangrene
 - 3J. Infections by *Chlamydia trachomatis*(7 marks × 10 = 70 marks)



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MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2023

PAPER III

Wednesday, July 05, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw diagrams wherever necessary.**

✍ **Long Essays:**

1. List the viruses infecting liver. Discuss the laboratory diagnosis and prophylaxis of Hepatitis B virus infection.

(15 marks)

2. Discuss the pathogenesis and laboratory diagnosis of Falciparum malaria. Add a note on drug resistance in malarial parasites.

(15 marks)

3. **Write short notes on:**

3A. Antigenic variation in influenza virus

3B. Extraintestinal amoebiasis

3C. MMR Vaccine

3D. Larva migrans

3E. Histoplasmosis

3F. Cryptococcal meningitis

3G. Cysticercosis

3H. NACO strategies in diagnosis of HIV infection

3I. Pathogenesis and laboratory diagnosis of Coxsackie virus infections

3J. Invasive aspergillosis and laboratory diagnosis

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – JULY 2023

PAPER IV

Thursday, July 06, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

1. Discuss the recent advances in the diagnosis of tuberculosis and the detection of drug resistance in *M. tuberculosis*.

(15 marks)

2. Describe emerging and re-emerging viral infections and the challenges in their diagnosis, treatment and prevention.

(15 marks)

3. **Write Short Notes on:**

3A. Malarial vaccines

3B. Cytokines

3C. Role of gut microbiome in health

3D. Drug resistance in *Staphylococcus aureus*

3E. Slow viral diseases

3F. *Pneumocystis jirovecii*

3G. Flow cytometry

3H. Microbiological surveillance of operation theatres

3I. Matrix Assisted Laser Desorption/Ionization- Time of Flight (MALDI-TOF)

3J. Occult Hepatitis B Virus infection

(7 marks × 10 = 70 marks)

