

## MANIPAL UNIVERSITY

MD (MICROBIOLOGY) DEGREE EXAMINATION – APRIL 2015

SUBJECT: PAPER I: GENERAL MICROBIOLOGY AND IMMUNOLOGY

Wednesday, April 01, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

✍ Long Essays.

1. Describe the sterilization and disinfection procedures and their monitoring in an operation theatre.

(15 marks)

2. Explain the development of the severe hemolytic disease of the newborn (Erythroblastosis fetalis). You may illustrate by drawing a schematic diagram. Which type of hypersensitivity is this? Explain shortly how this condition may be treated.

(15 marks)

3. Write short notes:

- 3A. Biological functions of complement factors  
3B. Sketch and explain the differences in antigen presentation by MHC class I or MHC class II molecules (cellular expression, type of antigens, intracellular pathways and type of immune response that is activated)  
3C. Barriers to infection  
3D. Automated Blood Culture System  
3E. Preservation of bacterial culture  
3F. Bacterial spore  
3G. PBP's and their role in drug resistance  
3H. Immunofluorescence  
3I. Factors determining microbial pathogenicity  
3J. Humoral immunodeficiency diseases

(7 marks × 10 = 70 marks)



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### MD (MICROBIOLOGY) DEGREE EXAMINATION – APRIL 2015

#### SUBJECT: PAPER II: BACTERIOLOGY AND MYCOLOGY

Thursday, April 02, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions

✍ Long Essays.

1. Discuss newer diagnostic modalities for tuberculosis. Write about epidemiology of MDR tuberculosis in India.

(15 marks)

2. Discuss pathogenesis and laboratory diagnosis of zygomycosis. Write briefly about management.

(15 marks)

3. Write short notes on:

3A. Staphylococcal food poisoning

3B. Virulence determinants of *Pseudomonas aeruginosa*

3C. Non culture methods for diagnosis of *Helicobacter pylori* infection

3D. Anaerobic culture methods in diagnosis of skin and soft tissue infections

3E. Laboratory diagnosis of eumycotic mycetoma

3F. Oculomycosis

3G. Sporotrichosis

3H. Risk factors and management of invasive candidiasis

3I. MDR shigella

3J. Serodiagnosis of leptospirosis

(7 marks × 10 = 70 marks)



## MANIPAL UNIVERSITY

## MD (MICROBIOLOGY) DEGREE EXAMINATION – APRIL 2015

## SUBJECT: PAPER III: VIROLOGY AND PARASITOLOGY

Saturday, April 04, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

✍ Draw diagrams wherever necessary.

✍ Long Essays.

1. Enumerate the intestinal nematodes of man. Describe the life cycle, pathogenesis and laboratory diagnosis of *Ancylostoma duodenale* infestation.

(15 marks)

2. Enumerate the sexually transmitted diseases. Describe the pathogenesis and laboratory diagnosis of HIV infection.

(15 marks)

3. Write short notes on:

3A. Inclusion bodies and their role in rapid diagnosis

3B. Briefly explain the factors enabling eradication of smallpox

3C. Prophylaxis of poliomyelitis

3D. Herpes Zoster

3E. Pathogenesis of dengue haemorrhagic fever and dengue shock syndrome

3F. Rotaviruses

3G. Extraintestinal amoebiasis

3H. Complications of falciparum malaria

3I. Congenital toxoplasmosis

3J. Hydatid cyst

(7 marks × 10 = 70 marks)



## MANIPAL UNIVERSITY

MD (MICROBIOLOGY) DEGREE EXAMINATION – APRIL 2015

SUBJECT: PAPER IV: APPLIED MICROBIOLOGY &amp; RECENT ADVANCES

Monday, April 06, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions

✍ Long Essays.

1. Discuss the vaccination strategies to combat infections among travelers from foreign nations to India.

(15 marks)

2. Role of microbiologist in investigating outbreak of foodborne illnesses.

(15 marks)

3. Write short notes on:

3A. Microbiological investigations of brain abscess

3B. Strategies to prevent Group B Streptococcal infection in neonates

3C. MDR *Acinetobacter baumannii*

3D. Containment measures in Biosafety level -4 laboratories

3E. Emerging yeast infections

3F. Applications of immunofluorescence assay in diagnosis of infectious diseases

3G. Rapid tests in diagnosis of community acquired pneumonia

3H. Principle and uses of passive immunization

3I. Laboratory diagnosis of bacterial pharyngitis

3J. National strategies and algorithms for HIV testing

(7 marks × 10 = 70 marks)

