Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination - 02-Jan-2025

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY
PAPER – I (RS-2/RS-3)
Q.P. CODE: 7355

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Major Histocompatibility complex and its role in antigen processing.
2. Immuno blotting
3. **Classify disinfectants and write their mechanism of action. Enumerate the various mechanisms which test the efficacy of disinfectants.**
4. Enumerate pro-inflammatory cytokines. Describe their role in pathogenesis and diagnosis of infectious diseases.
5. Define and Discuss the different mutations. Add a note on their role in virulence of bacteria.
6. Discuss the various anaerobic culture techniques.
7. Describe antibiotic sensitivity testing methods. Discuss the various factors affecting antibiotic disc diffusion in the MHA plate.
8. Define immunomodulators and discuss their therapeutic applications.
9. Enumerate Antigen-Antibody reactions. Describe Immunofluorescence and its applications in clinical microbiology.
10. Bacterial flagella

M.D. Degree Examination - 04-Jan-2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY
PAPER – II (RS-2/RS-3)
Q.P. CODE: 7356

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Describe etio-pathogenesis and laboratory diagnosis of bacterial meningitis. What is the empirical treatment employed in your hospital for this condition?
2. Describe classification of Salmonella. Describe pathogenesis, laboratory diagnosis and the current immune-prophylaxis available for typhoid fever
3. Fecal microbiota transplantation
4. Bacterial vaginosis
5. Describe mechanisms and laboratory diagnosis of various vancomycin resistance in enterococci and staphylococci
6. Define zoonotic diseases. Enumerate ten such diseases. Describe pathogenesis, laboratory diagnosis, treatment and prophylaxis of leptospirosis
7. Define and classify pneumonia. Mention etiological agents associated with pneumonia. Describe laboratory diagnosis and empirical treatment employed for community acquired pneumonia. Discuss relevant immunoprophylaxis
8. Describe etio-pathogenesis and laboratory diagnosis of lyme disease
9. Describe pathogenesis of tuberculosis and laboratory diagnosis of latent TB. Describe drug resistance in tuberculosis
10. Describe virulence factors of streptococcus pyogenes. Discuss pathogenicity and laboratory diagnosis of S.pyogenes

Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination – 06-Jan-2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY
PAPER – III (RS-2/RS-3)
Q.P. CODE: 7357

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100**

1. Describe in detail of human papilloma virus, laboratory diagnosis and current vaccination the
2. Describe the pathogenesis and laboratory diagnosis of rabies. Add a note on pre and post ex prophylaxis for rabies prevention
3. Classify fungal infection and discuss the different molecular methods for its diagnosis
4. Keratomycosis
5. Mechanism of viral oncogenesis
6. Monkeypox virus
7. Discuss the pathogenesis, laboratory diagnosis of Aspergillosis
8. Classify dermatophytes. Discuss the clinical features, laboratory diagnosis and treatm dermatophytosis
9. Nephropathia epidemica
10. Pneumocystis jiroveci

M.D. Degree Examination – 08-Jan-2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY - PAPER – IV
(RS-2/RS-3)
Q.P. CODE: 7358

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Describe the life cycle of Leishmania donovanii and discuss the pathogenesis and laboratory diagnosis of kala azar
2. Emerging and reemerging infection with a note on recent diagnostic methods
3. Malarial vaccine hopes and setbacks
4. Faecal culture techniques for isolation of strongyloides stercoralis larva
5. Enumerate the parasites causing anaemia. Write a note on the approach to the laboratory diagnosis of microcystic hypochromic anaemia of parasitic origin
6. Neurocysticercosis
7. Automation in microbiology
8. Discuss the role of various molecular methods in diagnosis of parasitic infections
9. Discuss the life cycle, pathogenesis and laboratory diagnosis of hydatid cyst
10. Oncogenic parasites

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Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination - 26-May-2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY
PAPER – I (RS-2/RS-3)
Q.P. CODE: 7355

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Biofilm
2. Define sterilization. Write in details about Spaulding classification of medical devices. What is CSSD? Explain workflow of CSSD and different sterilization process
3. Discuss the challenges associated with the diagnosis and management of healthcare associated infections (HAIs) caused by multidrug-resistant bacteria, including surveillance strategies and infection control measures
4. Describe the molecular mechanisms underlying immune tolerance and its relevance in preventing autoimmunity and maintain immune homeostatsis
5. Describe role of T lymphocytes in humoral and cell mediate immunity. Discuss immune surveillance and immune editing
6. Super antigens
7. Narrate various steps involved in the investigation of an outbreak. How will you investigate a case of food poisoning?
8. Cytokines and its role in infectious disease
9. Discuss biosafety levels in clinical microbiology laboratory
10. Classify hypersensitivity reaction. Write in detail about type III hypersensitivity

M.D. Degree Examination - 28-May-2025

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY
PAPER – II (RS-2/RS-3)
Q.P. CODE: 7356

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Classify mycobacteria. Describe in detail the laboratory diagnosis in a suspected case of pulmonary tuberculosis. Define MDR tuberculosis.
2. Discuss the bacteriological profile of organisms capable of causing peritonitis by continuous peritoneal dialysis. Outline the prevention of peritonitis in these patients and the management of these patients.
3. Pathogenesis and laboratory diagnosis of Haemophilus influenzae infections.
4. **Methicillin Resistant Staphylococcus aureus (MRSA).**
5. Bacteriological examination of water.
6. Laboratory diagnosis of epidemic typhus.
7. Traveler’s diarrhoea.
8. Measures adopted to minimize contaminations of specimens for bacterial cultures during collection, transportation and processing.
9. Walking Pneumonia.
10. Laboratory diagnosis of acute pyogenic meningitis.

Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination - 21-Jun-2024

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY
PAPER – I (RS-2/RS-3)
Q.P. CODE: 7355

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Discuss the molecular techniques used in microbiology. Add a note on gene therapy and gene mapping.
2. Describe the mechanism of graft rejection and its prevention.
3. Describe the role of T cells in cells mediated immunity.
4. Discuss the various in vitro antibiotic sensitivity testing methods.
5. Define and classify immunodeficiency disorders and their laboratory diagnosis.
6. Describe the evaluation of chemical sterilizing agents.
7. Describe the applications of genetic engineering technology for production of Vaccines.
8. Define and classify plasmids. Add a not on its uses.
9. Discuss the various anaerobic cultures methods.
10. Add a note on Topoisomerases.

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M.D. Degree Examination - 24-Jun-2024

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY
PAPER – II (RS-2/RS-3)
Q.P. CODE: 7356

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Discuss the etiology, pathogenesis and laboratory diagnosis of bacterial food poisoning.
2. Discuss the pathogenesis and laboratory diagnosis of a suspected case of pulmonary tuberculosis. Add a note on RNTCP.
3. Non-typhoidal salmonella.
4. Bubonic plague.
5. Actinomycosis.
6. Tularaemia.
7. Gas gangrene.
8. Q fever.
9. Halophilic vibrios.
10. Reemergence of Diphtheria.

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Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination – 26-Jun-2024

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY
PAPER – III (RS-2/RS-3)
Q.P. CODE: 7357

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Classify herpes viruses. Discus the pathogenesis, clinical disease and laboratory diagnosis of Epstein Barr virus.
2. Describe pathogenesis and laboratory diagnosis of Blastomycosis.
3. Discuss in detail mosquito borne Arboviruses in India.
4. Describe the pathogenesis and laboratory diagnosis of Candidiasis. Add a note on drug resistance.
5. Describe NACO strategies for HIV testing in India.
6. List the etiological agents of Otomycosis and describe its laboratory diagnosis.
7. Describe the antigenic variations of Influenza virus. Add a note on Vaccines for H1N1.
8. Describe the pathogenesis and laboratory diagnosis of Sporotrichosis.
9. Discuss the antigens and pathogenesis of Hepatitis B.
10. Describe HIV vaccines.

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M.D. Degree Examination – 02-Jun-2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY - PAPER – IV
(RS-2/RS-3)
Q.P. CODE: 7358

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Antimicrobial stewardship programme
2. Parasitic space occupying lesions in brain
3. Discuss the morphology, pathogenesis, laboratory diagnosis and control of Toxoplasma gondii
4. Opportunistic amoebae
5. Describe the applications of genetic engineering technology for production of vaccines
6. Polymerase chain reaction, add a note on modifications of PCR
7. Rapid methods in diagnosis of parasitic infection
8. Pathogenesis, pathogenicity and laboratory diagnosis of filariasis
9. What is Post-Kala-azar Dermal Leishmaniasis (PKDL)?
10. Onchocerciasis

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Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination - 24/Sep/2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY
PAPER – I (RS-2/RS-3)
Q.P. CODE: 7355

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Discuss antimicrobial resistance. Newer diagnostic methods for it
2. T lymphocytes
3. Monoclonal antibodies
4. Sterilization and disinfection in microbiology laboratory
5. Role of environment surveillance in covid-19 and polio virus elimination
6. Bacterial spore
7. Super antigens an associated diseases
8. Describe human major histocompatibility complex. Discuss HLA typing and its applications
9. Interferon therapy
10. Pro inflammatory cytokines

M.D. Degree Examination - 26/Sep/2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY
PAPER – II (RS-2/RS-3)
Q.P. CODE: 7356

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Describe pathogenesis and laboratory diagnosis of tuberculosis. Discuss role of automation in TB diagnosis
2. Describe pathogenesis and laboratory diagnosis of sepsis with special emphasis on diagnostic biomarkers
3. Enumerate Coagulase negative staphylococci. Describe their role in human diseases and laboratory diagnosis
4. Enumerate various microbes associated with bioterrorism. Describe the role of clinical microbiology laboratory in an event of such an attack
5. Describe mechanism of methicillin resistance, mode of spread and laboratory diagnosis of MRSA as per CLSI
6. Define zoonosis. How has it affected the infectious diseases? Describe pathogenesis and laboratory diagnosis of Brucellosis
7. Define and classify meningitis. Enumerate etiological agents based on various age groups. Describe pathogenesis and laboratory diagnosis of meningitis. Mention empirical treatment employed for meningitis in your hospital
8. Define and classify diarrheal illness. Enumerate causative agents associated with it. describe pathogenesis and laboratory diagnosis of inflammatory diarrhea. Mention antimicrobials used for this condition
9. Describe pathogenesis, laboratory diagnosis and management of anaerobic myositis
10. What is the role of H.pylori in acid peptic disease? Describe pathogenesis, laboratory diagnosis and management of acid peptic disease

Rajiv Gandhi University of Health Sciences, Karnataka

M.D. Degree Examination – 29/Sep/2025

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY
PAPER – III
Q.P. CODE: 7357

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Classify Human herpes viruses. Describe the pathogenesis, clinical features, laboratory diagnosis, treatment and prophylaxis of Herpes simplex virus infection.
2. Classify oncogenes. Enumerate on mechanisms of oncogenesis.
3. List out respiratory viruses. Write briefly on novel corona virus.
4. Write the definition and classification of Arboviruses. Explain in detail about the pathogenesis and laboratory diagnosis of tick borne Arboviral disease.
5. Enumerate viruses causing Hepatitis. Discuss in detail pathogenesis, laboratory diagnosis and prophylaxis of Hepatitis B viruses. Add a note on recent concepts about viral hepatitis.
6. Mention the opportunistic fungal infections in AIDS. Discuss in detail about respiratory fungal infection.
7. Classify fungi causing human infections. Describe laboratory diagnosis of fungal infections. List the culture media used for the isolation and identification of fungus. Add note on preservation of fungus.
8. Define dimorphic fungi. Describe the morphology, pathogenesis and laboratory diagnosis of Histoplasma capsulatum.
9. List the fungi which cause infections of cornea. Add note on pathogenesis and laboratory diagnosis with emphasis on the culture and microscopic characters of the fungi causing Keratomycosis.
10. Classify dermatophytes. Write a detailed note on laboratory diagnosis and management of dermatophytosis.

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M.D. Degree Examination – 03/Oct/2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY - PAPER – IV
Q.P. CODE: 7358

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Answer All The Questions **10 X 10 = 100 Marks**

1. Enumerate free living amoebae that cause human infections. Describe pathogenicity, pathogenesis and laboratory diagnosis of infections caused by them
2. Cultivation of pathogenic parasites
3. Describe etio-pathogenesis and laboratory diagnosis of visceral leishmaniasis
4. Next Generation Sequencing (NGS). Add a note on antimicrobial resistance profiling and outbreak investigations
5. Enumerate various parasitic infections in AIDS. Describe life cycle and laboratory diagnosis of Strongyloides stercoralis. Discuss hyperinfection and disseminated strongyloidosis
6. What is Tropical splenomegaly? Describe pathogenesis, laboratory diagnosis, treatment and prophylaxis of this condition
7. Bioterrorism – add a note on recent advances in the diagnosis of Bio-war
8. Larva currens
9. Occult filariasis
10. Quality control in microbiology with a note on EQAS programme