THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0524] **MAY 2024** **Sub. Code: 4009**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 204009

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe in detail about antigen processing and antigen presentation by professional antigen presenting cells. Describe briefly about major Histocompatibility complex.

2. Describe the antimicrobial resistance mechanism among bacteria. Write in detail about the phenotypic detection method of any one antimicrobial resistance mechanism.

II. Short notes: **(10 x 5 = 50)**

1. Flourescent microscope.
2. Central Sterile Supply Department.
3. Quality control for an autoclave functioning.
4. Maintenance of stock culture.
5. HEPA filter.
6. Therapeutic applications of monoclonal antibodies.
7. Tumor antigens.
8. Natural killer cells.
9. T cell receptor.
10. Blotting technique.

III. Reasoning Out: **(4 x 5 = 20)**

1. Toxic shock syndrome toxin of Staphylococcus aureus is a super antigen.
2. Procalcitonin is more reliable than C reactive protein.
3. Graft versus host disease is more common in allogeneic stem cell transplantation.
4. Viral infections are one of the environment triggers that can lead to autoimmunity.

****

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1224] **DECEMBER 2024** **Sub. Code: 4009**

(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 204009

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Classify various genetic transfer mechanism. Discuss in detail about Transformation along with its application in drug resistance mechanism. Explain in brief about Mutation and its applications.

2. Define Hypersensitivity and classify Hypersensitivity. Explain in detail about Type 1 and Type 3 hypersensitivity with examples.

II. Short notes: **(10 x 5 = 50)**

1. Anaerobic culture methods.
2. Operation theatre sterilization.
3. Immunoglobulin class switching.
4. Flagellar stains.
5. Transmission electron microscope.
6. Monoclonal antibody.
7. Explain in brief about the Precipitation reactions.
8. Humoral mediated immunity.
9. Chronic graft rejection in Renal transplant.
10. Define Autoimmunity and its mechanism.

III. Reasoning Out: **(4 x 5 = 20)**

1. Citrated Plasma is not suitable for Coagulase test.
2. Oxygen is toxic to anaerobic bacteria.
3. Multiple vaccines like DPT are given simultaneously. What is the mechanism behind it?
4. Role of Blocking antibodies in cancer treatment.

****

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0525] **MAY 2025** **Sub. Code: 4009**

M.D. DEGREE EXAMINATION

MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 204009

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Define Disinfection. Describe the various classes of disinfectants and their applications in chemical settings.

2. Describe the complement pathway.

II. Short notes: **(10 x 5 = 50)**

1. Culture media.
2. Phase contrast Microscopy.
3. Bacterial cell wall.
4. Exotoxins.
5. Bacterial spore.
6. Super antigens.
7. Innate immunity.
8. Haem Agglutination Reactions.
9. Immunohematology.
10. T-Regulatory cells.

III. Reasoning Out: **(4 x 5 = 20)**

1. Non chlorinated bags are used for disposing biomedical waste.
2. Certain bacteria require transport media for viability.
3. Autoimmune diseases are more common in woman.
4. Targeted immunotherapy is better than chemotherapy in treatment of cancer.

****

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 1025] **OCTOBER 2025** **Sub. Code: 4009**

M.D. DEGREE EXAMINATION

MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 204009

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Classify Autoimmune diseases. Write in detail about Systemic autoimmune diseases.

2. Write in detail about the metabolism and growth requirements of bacteria. Write briefly about continuous culture.

II. Short notes: **(10 x 5 = 50)**

1. Inverted microscope.
2. Automation in Microbiology.
3. High performance liquid chromatography (HPLC).
4. Transposons.
5. Immunochromatography test (ICT).
6. Immunoglobulin therapy.
7. Sewage treatment plant & Effluent treatment plant (STP & ETP).
8. Tests for phagocytic function.
9. CSISPR.
10. Cross matching and tissue typing before organ transplant.

III. Reasoning Out: **(4 x 5 = 20)**

1. Phenolic disinfectants are not used in infant nurseries.
2. Truenat test is invalid when controls are not amplified.
3. Conjugation - a form of horizontal gene transfer leads to multidrug resistance.
4. Blood is collected at the same time of the day for CD4 count.

****

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0526] **MAY 2026** **Sub. Code: 4009**

M.D. DEGREE EXAMINATION

MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 204009

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Classify Antigen Antibody reaction. Write in detail about Agglutination reaction and its clinical applications.

2. Classify Sterilization and Disinfection. Write in detail about Autoclave application and Sterilization control. Add a note on modern autoclaves.

II. Short notes: **(10 x 5 = 50)**

1. Transposons.
2. Spore staining methods.
3. Mycobacterial cell wall.
4. Quorum sensing in bacteria.
5. Griffith Phenomenon.
6. Idiotype and Anti-idiotype antibodies.
7. Immunology of Blood and Bombay Blood group.
8. Monoclonal antibodies and its applications.
9. Type IV hypersensitivity.
10. HLA typing methods.

III. Reasoning Out: **(4 x 5 = 20)**

1. Pregnancy as an example of Immunological tolerance.
2. Three consecutive samples are required in Sub-acute Bacterial endocarditis.
3. Disposal of formalinized anatomical tissues is under regulation.
4. Conjugation method of Gene transfer is more common than Transduction in Gram negative bacterial species.

****

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0926] SEPTEMBER 2026 Sub. Code: 4009

M.D. DEGREE EXAMINATION

MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 204009

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

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

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

II. Short notes: **(10 x 5 = 50)**

1. Tests to determine efficacy of disinfectant.
2. Transport media and its role in clinical microbiology.
3. Microbial virulence factors.
4. Sterilisation of operation theatres.
5. B cell activity in immune response.
6. Role of complement in health and disease.
7. Cold sterilization.
8. Hybridoma technology.
9. Graft versus host disease.
10. Anti – idiotypic network.

III. Reasoning Out: **(4 x 5 = 20)**

1. Bacterial endospores are difficult to destroy compared to vegetative cells

2. An antibiotic that targets peptidoglycan synthesis is effective against bacteria but not human cells.

3. Dendritic cells are efficient activators of T helper and cytotoxic T cells.

4. Complement deficiency in children makes them susceptible to bacterial infections.

****