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

[MBBS 0322] **MARCH 2022** **Sub.Code :6065**

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2019-2020 Batch onwards)

PAPER III – MICROBIOLOGY – I

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. a) What is Bio-Medical waste (BMW)?
   b) Why BMW Management is important?
   c) How BMW are segregated, collected and disposed?
   d) Add a note on Needle-stick injury management

2. A 25 year old male was admitted in the hospital four days after Road Traffic Accident (RTA). On examination, crush injury right foot with soiled gauze contaminated with soil was observed. There was edema, crushed muscles and pain at the site. On palpation crepitus was felt.

   a. What is the clinical condition?
   b. Mention the etiological agent responsible for this condition?
   c. Describe the pathogenesis and clinical manifestations of this condition?
   d. Describe in detail the laboratory diagnosis and treatment of this disease?

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

1. Enumerate the different types of antigen-antibody reactions? Write in detail about principle, procedure and applications of ELISA?

2. Mention the various methods of gene transfer. Write in detail about transformation?

3. Write sample collection and laboratory diagnosis of Bubonic plague

4. Classify autoimmune diseases? Write in detail about the mechanism of autoimmunity?

5. Describe in detail about air surveillance in the operation theatre?

6. Classify fungal infection? Write in detail about superficial fungal infection?

7. What is congenital infection? List the various organism causing congenital infection? Write in detail about congenital syphilis?

8. What is bacterial growth curve? Write in detail about the factors that affect the growth of the bacteria?

9. Define sterilization? Write in detail about Central Sterile Supplies Department (CSSD)?

10. Describe in detail about Methicillin Resistant Staphylococcus aureus (MRSA)?

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

[MBBS 0822] **AUGUST 2022** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2019-2020)

SECOND YEAR- SUPPLEMENTARY (CBME)

PAPER III – MICROBIOLOGY – I

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. A 55 year old male patient attend the ortho OP with c/o pain and swelling over right knee joint. O/E there is fever and tenderness over the joint. Radio diagnosis shows Periosteal thickening and the signs of osteomyelitis. Gram's staining of synovial fluid shows Gram Positive Cocci in groups.
   a. What is the causative organism and enumerate other organisms causing osteomyelitis.
   b. Explain the clinical features and pathogenesis of the causative organism.
   c. Write its lab diagnosis and management.

2. Explain the general structure of immunoglobulin and describe the function of different classes of immunoglobulins

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

1. Explain the working mechanism of Phase contrast Microscope.
2. Describe the diagnostic methods of mucocutanous candidiasis.
3. Write about the types of Bacterial Culture Media.
4. Write a short notes on Transposons .
5. Explain the function of Natural killer cells.
6. Write about cytokines and its function.
7. Explain Plasma Sterlization and its uses.
8. Write the preventive measures on German measles.
9. Short notes on chlamydial conjuctivits.
10. Explain the prophylaxis of Human Papilloma virus.

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

[MBBS 0223] **FEBRUARY 2023** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2019-2020)

SECOND YEAR - (CBME)

PAPER III – MICROBIOLOGY – I

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. A 60 year old diabetic patient was admitted in surgery ward with c/o blackish discolouration of Right foot 2 days after a road traffic injury. O/E there is foul smelling discharge and crepitus in the wound site. Microscopic examination of discharge reveal Gram positive bacilli. Answer the following questions :
   a) Enumerate the organisms that are causing the symptoms.
   b) Write the pathogenesis and clinical manifestation of the organism.
   c) Explain the diagnostic methods.
   d) Mention the management.

2. Write the classification of Disinfectants depending upon its efficacy. Explain in detail about intermediate level of Disinfectant.

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

1. Write the lab diagnosis of cutaneous infection caused by dermatophytes.
2. Explain the working mechanism of Fluorescence microscope.
3. Write Short notes on Automated Blood culture techniques.
4. Define genetic engineering and write the procedure and application of recombinant DNA technique.
5. Write a Short note on Humoral Immunodeficiency Diseases.
6. Write the method of production of Monoclonal antibody and its application.
7. Describe the wound class type in Surgical Site Infection and its prevention.
8. Write the preventive measures for Measles.
9. Explain the pathogenesis and lab diagnosis of Mycetoma foot
10. Write short notes on congenital Rubella Syndrome.

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

[MBBS 0723] **JULY 2023** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION
(For the candidates admitted from the Academic Year 2019-2020)

SECOND YEAR – (CBME)
PAPER V – MICROBIOLOGY – I
Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. a) Define Hypersensitivity.
   b) Enumerate the types of Hypersensitivity.
   c) Discuss in detail about Type I Hypersensitivity.

2. A 32-year-old male presents to OPD, with complaints of swelling of right foot with multiple sinuses discharging pus. On examination in the lab, the discharge had multiple granules which on microscopic examination revealed filamentous Gram-positive bacilli.
   a) What is the clinical diagnosis and what are the likely etiological agents?
   b) Describe the clinical manifestation produced by this organism.
   c) Add a note on the laboratory diagnosis of this condition.

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

1. Contribution of Robert Koch to Microbiology.
2. Principle of Phase contrast Microscope.
3. Rh incompatibility.
4. Monoclonal antibody.
5. Steps of Hand Washing Technique.
6. Give a brief note on water surveillance.
7. Toxic Shock Syndrome.
8. Larva Migrans.
9. Short note on Ocular fungal infections.
10. HACEK organisms.

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

[MBBS 0224] **FEBRUARY 2024** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION
(For the candidates admitted from the Academic Year 2019-2020)

SECOND PROFESSSIONAL YEAR – (CBME)
PAPER I – MICROBIOLOGY
Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. A 25-year-old female visited the OPD with fever, generalized weakness, butterfly rash over the cheek and joint pains. Lab results revealed anemia, leukemia and elevated renal parameters.
    a) What is the above clinical condition?
    b) Classify various autoimmune diseases.
    c) Explain the mechanism involved in this clinical condition.
    d) Write a note on Lab diagnosis and treatment of autoimmune diseases.

2. A 60-year-old diabetic who underwent hysterectomy a month ago presented to the surgical outpatient department with complaints of discharge of pus from the wound with complaints of fever and pain at the site of incision.
    a) What is your clinical diagnosis?
    b) Enumerate the etiological agents causing post operative wound infections.
    c) Discuss in detail about the risk factors and wound class types.
    d) Write a note on prevention and treatment for the above clinical condition.

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

1. What are the types of Electron microscope? Write on its applications in diagnostic microbiology.
2. What is Bacteriophage? Write in detail about lysogenic conversion and its application in medical microbiology.
3. Write about monoclonal antibodies and its uses.
4. Define Cytokines and write in detail about the major classes and their functions.
5. What are the strategies of antimicrobial stewardship program?
6. What are the barriers in implementing health care as a Universal right?
7. A 45 year old man presented with complaints of intense pain in the ankle joint, redness, swelling and restricted movements resembling septic arthritis. What are the probable etiological agents causing this condition and how will you diagnose by appropriate Lab test?
8. What is Erythema infectiosum? Explain briefly about this clinical condition.
9. Define viral oncogenesis. Write about oncogenic DNA viruses.
10. Write short notes about Ocular fungal infections.

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

[MBBS 0524] **MAY 2024** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2019-2020)

SECOND PROFESSIONAL – SUPPLEMENTARY (CBME)
PAPER I – MICROBIOLOGY

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. Define Healthcare Associated Infection (HAI). Explain the microbiology, pathogenesis and diagnosis of Catheter – Associated Urinary Tract infection.

2. a) Define Antibody.
   b) Explain the structure of antibody with a suitable diagram.
   c) Enumerate the classes of immunoglobulins and its respective functions.

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

1. Define mutation and write its impacts on antimicrobial drug resistance.
2. Describe the morphological classification of fungi with example.
3. Write short note in Immuno Chromatographic Test (ICT).
4. Write short notes on Bruton disease.
5. Explain Skin and Soft tissue infection of Herpes simplex and its diagnostic methods.
6. Write National Immunization schedule for infant and children.
7. How will you evaluate the quality of air in operation theatre?
8. Explain the diagnostic methods of gas gangrene.
9. Enumerate the parasites causing skin and soft tissue infection. Write lab diagnosis and management of Onchocerca volvulus.
10. Explain oncogenesis mechanism of human Papilloma virus.

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

[MBBS 1224] **DECEMBER 2024** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2019-2020)

SECOND PROFESSIONAL – MBBS (CBME)

PAPER I – MICROBIOLOGY

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

(3+2+3+5+2)

1. The Hospital Infection control officer visited the area which supplies sterilized items to the entire hospital to conduct Infection prevention and control (IPC) audit.
   a) Identify that area and write a brief note on it.
   b) Define Sterilization.
   c) Enumerate the various Sterilization techniques.
   d) Write in detail about the principle, mechanism of action and uses of Autoclave.
   e) Write a brief note on Sterility indicators.

(1+2+4+5+3)

2. A 7-year-old boy presented to the Paediatric OPD with red sores covered with honey-coloured crusts over the face and limbs. His mother gave history of such recurrent episodes. Wound swab was taken and sent to Microbiology laboratory for Gram staining and culture and sensitivity. Gram staining showed Gram positive cocci arranged in clusters and the culture grew a bacterial agent that is coagulase test positive and showed growth on mannitol salt agar.
   a) What is the probable diagnosis?
   b) Identify the causative pathogen.
   c) Give a short description of its virulence factors and toxins produced by this pathogen.
   d) Describe the laboratory diagnosis of this infection.
   e) What is MRSA and write a note on its clinical significance?

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

1. Contributions of Louis Pasteur to Microbiology.
2. Write in detail about Complement deficiency.
3. Principles and Applications of Dark field Microscope.
4. Write in detail about Automated Blood culture technique.
5. Discuss the importance of effective communication in educating patients about antibiotic resistance.
6. Write about Blood spill management.
7. Describe about Sporotrichosis.
8. Explain the mechanism of Innate Immunity.
9. Discuss the role of microbiologists in tracking and controlling an infectious disease outbreak during a pandemic.
10. Write about Mucocutaneous candidiasis.

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

[MBBS 0325] MARCH 2025 Sub. Code :6065

M.B.B.S. DEGREE EXAMINATIONS
(For the candidates admitted from the Academic Year 2019-2020)

SECOND PROFESSIONAL – SUPPLEMENTARY - (CBME)
PAPER I – MICROBIOLOGY

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

(4+5+6)

1. A 45-year-old Male suffering from Type II Diabetes Mellitus admitted in a tertiary care centre for treatment of Diabetic foot ulcer. On 4th day he developed fever, cough with expectoration. X ray showed patchy infiltration on both sides of Lung. He was prescribed an antibiotic acting on cell wall.
   a) Describe in short, the structure of bacterial cell wall with diagram.
   b) Enumerate the antibiotics acting on cell wall with examples.
   c) Write a short description about antimicrobial resistance emphasizing the mechanisms and its prevention strategies.

(1+2+6+6)

2. A 56-year-old male working in a sheep farm developed a vesicular lesion / blister on his left forearm. The lesion is painless but itchy. There was no history of fever, myalgia and loss of appetite. The vesicle fluid is aspirated and sent to Microbiology laboratory for Gram staining and culture. Gram staining showed Spore forming Gram positive bacilli.
   a) What is the clinical condition?
   b) What are its various clinical presentations?
   c) Write a short description of its laboratory diagnosis.
   d) Write a note on Zoonosis and list any five Zoonotic diseases and its causative agents.

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

1. Discuss about Bacterial spores.
2. What professional qualities are essential for a microbiologist working in a clinical setting? Provide examples of how you would demonstrate these qualities.
3. Describe about Plasmids.
4. Immunofluorescence assay and its applications.
5. Major Histocompatibility complex.
6. Describe delayed hypersensitivity.
7. Interferon.
8. Human papilloma virus.
9. Opportunistic fungal infections.
10. Outline the microbiological principles behind hygiene practices recommended during pandemics. How can these practices reduce transmission rates?

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

[MBBS 0725] JULY 2025 Sub. Code :6065

M.B.B.S. DEGREE EXAMINATION
(For the candidates admitted from the Academic Year 2019-2020)

SECOND PROFESSIONAL - (CBME)
PAPER I – MICROBIOLOGY

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

(3+8+4)

1. Describe briefly the role of molecular methods in the laboratory diagnosis of bacterial infections under the following sub headings:
   a) Classify and enumerate the microbial diagnostic molecular methods.
   b) Describe briefly the principle, applications, advantages, disadvantages, and modifications of polymerase chain reaction (PCR).
   c) Enumerate the microbial typing methods and their applications.

(4+8+3)

2. An 11-month-old male baby suffering from fever, productive cough, and malaise for the past 3 days is admitted to the pediatric ward. The pediatrician, in his diagnostic workup, has ordered quantitative detection of C - Reactive protein. Based on this context, answer the following questions:
   a) Describe briefly C-Reactive Protein and its role in the diagnosis of infections and inflammations.
   b) What is innate immunity? Write about the various mechanisms and components of innate immunity.
   c) Differentiate innate immunity from acquired immunity.

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

1. Write about the principle of dark ground Microscope and its applications.
2. Briefly describe the strategies of the Antimicrobial Stewardship Programme.
3. Write about cytokines and their functions.
4. Describe transplant immunity.
5. Discuss automation in Microbiology.
6. Write about the principle and uses of a steam sterilizer and its various sterilization controls.
7. Describe the wound class types in surgical site infections and add a note on their prevention.
8. Briefly describe Congenital Rubella Syndrome and its prevention.
9. Discuss the laboratory diagnosis of superficial fungal infections.
10. Describe and discuss the role of justice as a guiding principle in patient care.

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

[MBBS 1025] **OCTOBER 2025** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATION
(For the candidates admitted from the Academic Year 2019-2020)

SECOND PROFESSIONAL – SUPPLEMENTARY - (CBME)
PAPER I – MICROBIOLOGY

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

1. a) Describe in detail the types and various mechanisms of anti-microbial resistance with suitable examples. (10)
   b) Write a note on how to reduce anti-microbial resistance.(5)

   (1+1+8+5)
2. A 44 year old woman came to Gynaecology OP for routine gynaecological examination. This is her first visit for routine gynaecological screening. She had a history of three pregnancies resulting in three full term normal vaginal delivery of healthy children. She was leading a sexually active life. Her examination both general and local was normal. Pap smear performed as a part of the examination. The Pap smear report showed the presence of cervical intra epithelial neoplasia –CIN.
   a) What is the most likely infectious cause of this lesion?
   b) Enumerate the serotypes of the causative agent most likely associated with this condition.
   c) Describe briefly the pathogenesis and laboratory diagnosis of this infectious cause.
   d) Write about the preventive measures and vaccination against this agent.

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

1. Brief about Stool concentration technique.
2. Write about the procedure and application of Recombinant DNA technique.
3. Briefly write about Anaerobic culture methods.
4. Brief about the functions of Natural killer cells.
5. Rh incompatibility with Diagram.
6. Describe in detail about air surveillance in the operation theatre.
7. Write in detail about congenital syphilis.
8. Bioterrorism
9. Brief about Rhinosporidiosis.
10. Describe and discuss the role of Autonomy & shared responsibility as a guiding Principle in patient care.

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

[MBBS 0826] **AUGUST 2026** **Sub. Code :6065**

M.B.B.S. DEGREE EXAMINATIONS
(For the candidates admitted from the Academic Year 2019-2020 to 2023-2024)

SECOND PROFESSIONAL – CBME
PAPER I – MICROBIOLOGY

Q.P. Code: 526065

Time: Three hours **Maximum : 100 Marks (80 Theory + 20MCQs)**

Answer all the Questions

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

(4+5+6)

1. A 11-year-old boy from a rural area, was admitted to the paediatric ward with complaints of fever for 2 days, headache, myalgia and anorexia. His basic laboratory investigation showed decreased platelet count. The physician ordered a serological Investigation for further evaluation.
   a) What is Antigen Antibody Reaction?
   b) Enumerate the various types of Antigen Antibody reaction.
   c) Describe in detail the principle, types and applications of ELISA.

(2+3+1+3+3+3)

2. A middle-aged mother brought 18-month-old male baby to the paediatric outpatient department. On examination the baby had the clinical presentation of chorioretinitis, hydrocephalus and intracranial calcifications suggesting a congenital infection caused by a parasitic agent.
   a) What is a congenital infection?
   b) Explain TORCH infections.
   c) What is the probable diagnosis of the above-mentioned clinical condition? Write about its epidemiology, mode of transmission and laboratory diagnosis.

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

1. Horizontal gene transfer in bacteria.
2. Bacterial growth curve.
3. Is Health care, right? And what are the social and Economic implications of Healthcare as a right.
4. Describe briefly about Flagella.
5. Immunoglobulin M and its functions.
6. Management of needle stick injury.
7. Combined Immunoprophylaxis.
8. Describe shortly Mediators of Type 1 Hypersensitivity.
9. Describe the pathogenesis, lab diagnosis and prophylaxis of Measles.
10. Orbital Mucor Mycosis.

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