

2019 Scheme

Q.P. Code: 215001

Reg. no.:

Second Professional MBBS Degree Supplementary Examinations

December 2025

Microbiology Paper I

Time: 3 Hours

Total Marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers
- Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers
- Draw table/diagrams/flow charts wherever necessary

1 Multiple Choice Questions

(20x1=20)

The MCQ questions (Q.No. i to Q.No. xx) shall be answered only in the OMR sheet provided at page No. 51 of the answer book (the inner portion of the back cover page (PART III)). Responses for MCQs marked in any other part/page of the answer book will not be valued. For marking the correct responses use X mark only

Read the following clinical history and select the most appropriate response for questions (i) -(v)

A 65-year-old male presented with an abscess on the gluteal region following an intramuscular injection. Incision and drainage was done. Gram's staining of the pus showed Gram positive cocci in clusters. Tube coagulase test was positive.

- What is the most likely causative agent?
 - Staphylococcus aureus
 - Staphylococcus epidermidis
 - Streptococcus pyogenes
 - Streptococcus agalactiae
- Which of the following is **NOT** a virulent factor produced by the causative agent?
 - Enterotoxin
 - Streptokinase
 - Toxic shock syndrome toxin
 - Epidermolytic toxin
- Which of the following is **NOT** a test used in its laboratory diagnosis?
 - Gram's staining
 - Wet mount microscopy
 - Catalase test
 - Oxacillin susceptibility test
- What is the drug of choice for those isolates bearing mecA gene?
 - Cefotaxime
 - Penicillin
 - Meropenem
 - Vancomycin
- The most appropriate method of preventing the infection from this causative agent is:
 - Oral antibiotics
 - Vaccination
 - Hand hygiene
 - Intravenous antibiotics

Question numbers (vi)-(x) are multiple response type questions. Read the statements & mark the answers appropriately.

- Infections caused by Streptococcus pyogenes
 - Necrotising fasciitis
 - Erysipelas
 - Scalded skin syndrome
 - Sore throat

a) 1, 2, 3 are correct b) 2, 3, 4 are correct c) 1, 2, 4 are correct d) 1, 3, 4 are correct
- A 21-year-old female developed itchy, red rashes on the ear lobe after constantly using artificial earrings
 - Contact dermatitis
 - Due to cell mediated immunity
 - Delayed hypersensitivity
 - desensitization with anti-IgE monoclonal antibodies

a) 1, 2, 3 are correct b) 2, 3, 4 are correct c) 1, 3, 4 are correct d) 1, 2, 4 are correct
- A doctor suffered a needlestick injury on the finger while giving injection to a HIV patient
 - Post exposure prophylaxis within 72 hours
 - Immediate washing of finger with soap and water
 - Application of antiseptic on finger
 - HIV, HBsAg, HCV test for the doctor

a) 1, 2, 3 are correct b) 2, 3, 4 are correct c) 1, 3, 4 are correct d) 1, 2, 4 are correct
- Relevant tests for diagnosis of primary Dengue fever
 - NS1 antigen ELISA
 - Dengue virus IgG ELISA
 - Platelet count
 - Dengue virus IgM ELISA

a) 1, 2, 3 are correct b) 2, 3, 4 are correct c) 1, 3, 4 are correct d) 1, 2, 4 are correct
- Lymphatic filariasis
 - Humans are the definitive hosts
 - Occult filariasis is Type-3 Hypersensitivity reaction
 - Microfilariae are found in mosquitoes
 - Wuchereria bancrofti is a nematode

a) 1, 2, 3 are correct b) 2, 3, 4 are correct c) 1, 3, 4 are correct d) 1, 2, 4 are correct

(PTO)

Question numbers (xi) – (xv) are single response types

- xi In which phase of bacterial growth curve motility of bacteria is appreciated
a) Lag phase b) Log phase c) Stationary phase d) Phase of decline
- xii The activators of alternative complement pathway are all **EXCEPT**
a) Endotoxins b) Cobra venom c) Antigen-antibody complex d) Zymosan
- xiii Which of the following disinfectant is used for disinfecting fibre optic endoscopes
a) 1% Sodium hypochlorite b) 10% Formaldehyde c) 70% Ethanol d) 2% Glutaraldehyde
- xiv The aetiologic agents of non-Gonococcal urethritis are all **EXCEPT**
a) Gardnerella vaginalis c) Mycoplasma hominis
b) Trichomonas vaginalis d) Human papilloma virus
- xv Features of sepsis are all **EXCEPT**
a) Serum procalcitonin > 2.0 ng/mL c) Body temperature >38 °C
b) Heart rate >90 beats/min d) Respiratory rate 10 breaths per minute

Question numbers (xvi) – (xx) consists of two Statements-Assertion (A) and reason (R). Answer these questions by selecting the appropriate options given below.

- a) Both A and R are true and R is the correct explanation of A c) A is true but R is false
b) Both A and R are true and R is not the correct explanation of A d) A is false but R is true
- xvi **Assertion:** Features of Mycetoma are tumefaction of subcutaneous tissue, multiple discharging sinuses and presence of grains/granules
Reason: In Mycetoma the organism gains entry by trauma like a thorn prick
- xvii **Assertion:** Isograft is transplantation from a genetically identical twin donor
Reason: Isograft rejection is common because they are genetically identical
- xviii **Assertion:** Disposable syringes are sterilised by ethylene oxide gas
Reason: Yellow bag human biomedical wastes are disposed in an incinerator
- xix **Assertion:** Lymphogranuloma venerum is caused by Chlamydia trachomatis
Reason: Frei's skin test done in Lymphogranuloma venerum is Type-1 hypersensitivity reaction
- xx **Assertion:** Herpes zoster is caused by Varicella Zoster virus
Reason: varicella zoster virus can remain latent in dorsal ganglia and reactivate

Essays

(2x10=20)

- 2 A 47-year-old manual labourer came with history of high grade, continuous fever, headache, red spots on the trunk, hands and abdominal pain. Fever was of 10 days duration. On examination he had bradycardia and splenomegaly. Blood counts showed leucopenia with lymphocytosis. What is your probable diagnosis. Describe the pathogenesis and laboratory diagnosis of this condition.
a) What is your clinical diagnosis
b) Describe the pathogenesis of this disease
c) Describe the laboratory diagnosis (1+3+6)
- 3 Discuss Spaulding classification. Name two high-level disinfectants and discuss their use and concentration. (6+4)

Short Essays

(6x6=36)

- 4 A 25-year-old truck driver came to out patient department with history of diarrhoea of two months duration. He also gives history of weight loss. What is the most probable clinical diagnosis. Name two parasites causing diarrhea in such patients. Discuss the laboratory diagnosis (1+2+3)
- 5 Discuss viral haemorrhagic fevers
- 6 Name the dermatophytes and the infections caused by them. Describe its laboratory diagnosis (3+3)
- 7 Life cycle and complications of falciparum malaria (3+3)
- 8 Classify moist heat methods of sterilization. Describe the principle, operation and applications of autoclave. Add a note on its sterilization control. (1.5+3+1.5)
- 9 Discuss horizontal gene transfer methods and its application (3+3)

Short Answers

(6x4=24)

- 10 Discuss the differences between cell wall of Gram positive and Gram negative bacteria
- 11 Define enrichment media and give three examples
- 12 Name four Antibiotic Sensitivity testing methods.
- 13 Care bundle approach in preventing ventilator associated pneumonia.
- 14 Define agglutination reaction. Give three examples. (1+3)
- 15 Sputum sample received in the laboratory without labelling. Discuss how to proceed with this sample