

MICROBIOLOGY

PAPER- I

Time : 3 hours

MICRO/D/11/18/I

Max. Marks : 100

Attempt all questions in order.

Each question carries 10 marks.

1.
 - a. Enumerate the causative agents of non-gonococcal urethritis. 3
 - b. What clinical specimens are collected? 1
 - c. Discuss the laboratory diagnosis of non-gonococcal urethritis. 6
2.
 - a. Write briefly about the infections caused by Legionella pneumophila. 3
 - b. Enumerate the determinants of its pathogenicity. 2
 - c. Describe about its laboratory diagnosis in brief. 5
3.
 - a. Compare the new methods of detecting mycobacterial species in clinical specimens. 6
 - b. Describe the clinical significance of non-tuberculous mycobacteria. 4
4.
 - a. Describe the pathogenesis of diarrhoeagenic Escherichia coli strains. 5
 - b. Describe laboratory diagnosis of these Escherichia coli strains. 5
5. Write about the pathogenesis and laboratory diagnosis of Clostridium difficile infection. 5+5
6.
 - a. Write differences between Actinomycetoma and Eumycetoma. 2
 - b. Enumerate the causative agents of Eumycetoma 4
 - c. Write briefly about the laboratory diagnosis of Eumycetoma. 4
7.
 - a. Briefly discuss Phaeohyphomycosis. 4
 - b. Discuss its clinical manifestations. 2
 - c. Discuss its laboratory diagnosis. 4
8. Write briefly on Aspergillosis under following headings:
 - a. Its causative agents 3
 - b. Its clinical forms 4
 - c. Laboratory diagnosis 3
9. Discuss briefly Pneumocystis under following headings:
 - a. Its clinical manifestations 3
 - b. Life cycle of P. jirovecii 4
 - c. Laboratory diagnosis of Pneumocystis 3
10. Enumerate the agents and vectors of Rickettsial diseases. Briefly describe their epidemiology and laboratory diagnosis. 5+5

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PAPER- II

Time : 3 hours
Max. Marks : 100

MICRO/D/11/18/II

Attempt all questions in order.
Each question carries 10 marks.

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| 1. | a. Classify trematodes on the basis of their habitat. | 4 |
| | b. Give general features of blood flukes. | 6 |
| 2. | a. Enumerate intestinal acid fast protozoa. | 2 |
| | b. Give laboratory diagnosis of Cryptosporidiosis. | 8 |
| 3. | a. List the sporozoa that cause human infection. | 1 |
| | b. Write about host immunity and prophylaxis of malaria. | 5 |
| | c. List the laboratory tests used for diagnosis of cerebral malaria. | 4 |
| 4. | a. List the agents causing primary amoebic meningoencephalitis. | 2 |
| | b. Write about its transmission and pathogenicity. | 4 |
| | c. Discuss its laboratory diagnosis. | 4 |
| 5. | a. Classify nematodes on the basis of habitat. | 3 |
| | b. Discuss life cycle, pathogenicity and laboratory diagnosis of Strongyloides stercoralis. | 7 |
| 6. | a. Define prions. | 2 |
| | b. Enumerate diseases produced by prions. | 3 |
| | c. Give characteristics of prion diseases. | 5 |
| 7. | Enumerate the various immunological abnormalities seen in HIV infections. | 10 |
| 8. | a. Briefly discuss properties and pathogenesis of Delta agents. | 7 |
| | b. Outline its laboratory diagnosis in brief. | 3 |
| 9. | a. Define arboviruses. | 1 |
| | b. Enumerate arboviruses prevalent in India. | 4 |
| | c. Briefly write on arboviruses transmitted by Culex mosquitoes in India. | 5 |
| 10. | a. Outline the pathogenesis of Polio viruses. | 3 |
| | b. Differentiate vaccine strain from wild strain. | 3 |
| | c. Briefly write on C and D antigens. | 4 |

MICROBIOLOGY

PAPER- III

Time : 3 hours
Max. Marks : 100

MICRO/D/11/18/III

Attempt all questions in order.
Each question carries 10 marks.

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| 1. | a. Enumerate the causes of chronic meningitis in India. | 2 |
| | b. Write about its laboratory diagnosis, including the recent advances. | 8 |
| 2. | a. Enumerate the common causes of bacterial food poisoning. | 4 |
| | b. Write about pathogenesis and laboratory diagnosis of food poisoning. | 6 |
| 3. | a. What is "atypical" pneumonia? | 1 |
| | b. List its common causes. | 3 |
| | c. Describe the approach to its laboratory diagnosis. | 6 |
| 4. | a. List water borne pathogens. | 4 |
| | b. Write about various methods for bacteriological examination of water. | 6 |
| 5. | Describe the prevention and control of influenza virus in humans. | 10 |
| 6. | a. What is pulse polio immunization? | 3 |
| | b. Comment on reasons of non-eradication of poliomyelitis. | 3 |
| | c. Discuss strategies to overcome it. | 4 |
| 7. | a. Write about importance of hand washing in hospital practice. | 2.5 |
| | b. When should a health care worker decontaminate hands? | 5 |
| | c. Describe the steps of hand hygiene. | 2.5 |
| 8. | a. List various immuno-enzymatic reactions. | 3 |
| | b. Describe them with suitable examples of applications. | 7 |
| 9. | a. List the hospital strains of staphylococcus. | 3 |
| | b. Describe their role in hospital infection. | 7 |
| 10. | a. Define MIC. | 1 |
| | b. What are MIC 50 and MIC 90? | 2 |
| | c. Describe different methods of MIC determination along with their advantages and disadvantages. | 7 |

MICROBIOLOGY
PAPER- IV

Time : 3 hours
Max. Marks : 100

MICRO/11/18/IV

Attempt all questions in order.
Each question carries 10 marks.

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| 1. | a. What is flexible genetic pool in microbes? | 4 |
| | b. Describe their significance and applications. | 6 |
| 2. | a. Define immunological tolerance and autoimmunity. | 2 |
| | b. Discuss establishment and maintenance of tolerance. | 4 |
| | c. Enumerate proposed mechanisms for induction of autoimmunity. | 4 |
| 3. | a. What are hypersensitivity reactions? Classify them. | 3 |
| | b. Tabulate the cells involved, mechanism of hypersensitivity and give examples of each type. | 7 |
| 4. | a. Enumerate the different types of microscopes used in Microbiology. | 3 |
| | b. Write their principles. | 4 |
| | c. Discuss electron microscope in detail. | 3 |
| 5. | Discuss Quality Assurance in Microbiology laboratory. | 10 |
| 6. | a. Enumerate the different laboratory acquired infections in Microbiology. | 2 |
| | b. Discuss routes of infection. | 2 |
| | c. Discuss organization of Biosafety levels. | 6 |
| 7. | a. Define immuno-diffusion. Write about its advantages | 3 |
| | b. Enumerate various types of immuno-diffusion; give the principle of each with one example of its application. | 7 |
| 8. | a. Discuss briefly bacterial metabolism. | 4 |
| | b. Briefly write on :- | 6 |
| | (i) Oxidation | |
| | (ii) Fermentation | |
| | iii) Redox potential | |
| 9. | a. Define mutation. | 1 |
| | b. Discuss briefly different types of mutation. | 4 |
| | c. How would you demonstrate mutations? | 5 |
| 10. | Discuss the role of normal microbial flora in health and disease. | 10 |
