

# Contents

---

<i>Preface</i> .....	v
<i>Syllabus</i> .....	vii

## Unit 1

### General Microbiology

1. Introduction and History of Microbiology .....	2
2. Microscopy and Morphology of Bacteria .....	7
3. Growth, Nutrition and Metabolism of Bacteria–Physiology of Bacteria .....	21
4. Sterilisation and Disinfection .....	25
5. Culture Media.....	37
6. Culture Methods .....	41
7. Specimen Collection, Transport, Processing and Identification of Bacteria .....	47
8. Bacterial Taxonomy.....	61
9. Bacterial Genetics.....	63
10. Microbial Pathogenicity/Infection.....	74

## Unit 2 81

### Immunology 81

11. Immunity.....	82
12. Antigen (Ag).....	88
13. Antibodies (Immunoglobulins).....	92
14. Antigen – Antibody Reactions.....	98
15. Complement System.....	113
16. Structure and Function of Immune System .....	119
17. Immune Response.....	129
18. Hypersensitivity .....	141
19. Autoimmunity.....	151
20. Immunodeficiency Diseases .....	155
21. Transplantation and Tumour Immunity .....	161
22. Immunohaematology .....	168

## Unit 3

### Bacteriology

23. Staphylococcus.....	172
24. Streptococcus .....	179
25. Pneumococcus.....	188
26. Neisseria.....	192
27. Corynebacterium Diphtheriae .....	198
28. Bacillus.....	203
29. Clostridium.....	209
30. Non-Sporing Anaerobes .....	218
31. Enterobacteriaceae I: Escherichia Coli, Klebsiella and Proteus .....	223
32. Enterobacteriaceae II: Salmonella.....	232
33. Enterobacteriaceae III: Shigella .....	240
34. Pseudomonas and Burkholderia.....	243
35. Vibrio.....	247
36. Yersinia, Pasteurella, Francisella .....	255
37. Bordetella .....	261
38. Brucella .....	265
39. Haemophilus .....	270
40. Mycobacterium Tuberculosis .....	275
41. Atypical Mycobacterium/Non-Tuberculous Mycobacteria (NTM).....	286
42. Mycobacterium Leprae .....	289
43. Spirochaetes .....	296
44. Actinomycetes and Nocardia .....	308
45. Chlamydiae .....	312
46. Mycoplasma .....	317
47. Rickettsiaceae.....	320
48. Miscellaneous Bacteria .....	324

## Unit 4

### Virology

49. General Properties of Viruses .....	332
50. Virus-Host Interactions.....	342
51. Bacteriophage "(Phagein – To Eat) Bacteria Eater" .....	348

52. Poxviruses.....	353
53. Herpesviruses .....	356
54. Adenoviruses .....	364
55. Picornaviruses (Polio Virus).....	367
56. Orthomyxoviruses .....	372
57. Paramyxoviruses.....	379
58. Arboviruses.....	391
59. Rhabdoviruses (Rabies Virus) .....	397
60. Hepatitis Viruses.....	403
61. Human Immunodeficiency Virus (HIV).....	414
62. Oncogenic Viruses.....	425

**Unit 5**

**Mycology**

63. Introduction to Medical Mycology.....	430
64. Dermatophytoses (Cutaneous Mycoses) (Ringworm or Tinea) .....	435
65. Subcutaneous Mycoses.....	441
66. Systemic/Deep Mycoses.....	448
67. Opportunistic Mycoses.....	456

**Unit 6**

**Parasitology**

68. Introduction and Classification of Parasitology.....	472
69. Entamoeba Histolytica .....	477
70. Giardia Lamblia (Intestinal and Genital Flagellates).....	482
71. Trichomonas (Intestinal and Genital Flagellates).....	485
72. Leishmania Donovanii (Hemoflagellates) (Dum Dum Fever/Kala Azar) .....	487
73. Trypanosomes (Hemoflagellates) .....	492
74. Malaria Parasites.....	499
75. Opportunistic Coccidian Parasites and Others (Toxoplasma, Cryptosporidium, B. coli, etc.).....	509
76. Cestodes (Taenia, H. nana, Echinococcus, D. latum) .....	516
77. Hymenolepis Nana (The Dwarf Tapeworm).....	522
78. Echinococcus Granulosus (Dog Tapeworm/Hydatid Worm).....	525
79. Diphyllbothrium Latum (The Fish Tapeworm) .....	530

---

80.	Trematodes (Schistosomes, F. buski, F. hepatica, P. westermani) .....	533
81.	Fasciola Hepatica (The Sheep Liver Fluke or Liver Fluke) .....	539
82.	Fasciolopsis Buski (The Large Intestinal Fluke) .....	542
83.	Paragonimus Westermani (The Oriental Lung Fluke/Lung Fluke) .....	544
84.	Nematodes .....	547
85.	Strongyloides Stercoralis .....	552
86.	Ancylostoma Duodenale (Hook Worm) .....	556
87.	Ascaris Lumbricoides (Roundworm).....	560
88.	Enterobius Vermicularis (Threadworm, Pinworm).....	564
89.	Wuchereria Bancrofti.....	568
90.	Dracunculus Medinensis (Guinea Worm).....	574
91.	Stool Examination or Diagnostic Procedures .....	577

## Unit 7

### Clinical Microbiology

92.	Normal Flora .....	592
93.	Antimicrobial Susceptibility Testing (AST).....	596
94.	Pyrexia/Fever of Unknown Origin (PUO/FUO) .....	603
95.	Meningitis.....	607
96.	Urinary Tract Infections (UTI).....	611
97.	Diarrhoeal Diseases .....	617
98.	Sore Throat and Pneumonia .....	622
99.	Sexually Transmitted Diseases (STDs).....	626
100.	Hospital Acquired Infections (HAI)/Health Associated Infection/Nosocomial Infection .....	630
101.	Biomedical Waste Management and Laundry Management .....	637
102.	Immunisation/Vaccination .....	643
103.	Hand Hygiene/Hand Washing.....	648
104.	Molecular Detection of Microbes .....	652
105.	Bacteriology of Water, Milk and Air.....	655
106.	Positive and Negative Staining of Viruses.....	662
	<i>References</i> .....	665