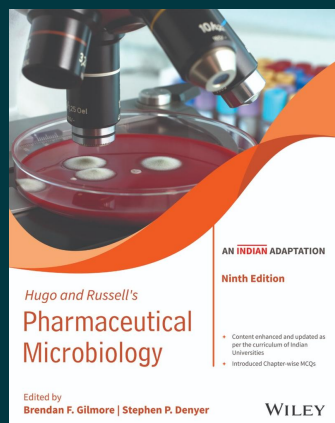




Hugo and Russell's Pharmaceutical Microbiology, 9ed, An Indian Adaptation

By Brendan F. Gilmore, Stephen P. Denyer

Paperback

9789357467933

₹- Price

Pages: 628

Description

Hugo and Russell's Pharmaceutical Microbiology has long served as the sole comprehensive textbook covering the subject. The ninth edition of this textbook has been updated to a critical new period in the advancement of medical and pharmaceutical research and development. Its experienced editors have incorporated contributions from subject experts and created a text which will serve the next generation of pharmacy students, pharmaceutical industry scientists and researchers. Material covering the fundamentals of microbiology, microbial behaviour, laboratory investigation, microbe-host interactions, antibiotic resistance, emerging pathogens, public health microbiology, healthcare-associated infection and pharmaceutical product manufacture.

This Indian adaptation of the ninth edition contains up-to-date coverage of transposition, Koch's Postulates, ESKAPE pathogens and Rotavirus vaccination. It also offers integrated coverage of SARS-CoV-2 and the impacts of COVID-19, relating it to the importance of an interdisciplinary response to a global pandemic. The edition also focuses on strengthening the organization of the content, thus presenting a brand-new experience to the reader. Additionally, multiple-choice questions (MCQs) have been included.

About the Author

Brendan F. Gilmore, Stephen P. Denyer

Brendan F. Gilmore, Ph.D is Professor of Pharmaceutical Microbiology at Queen's University of Belfast, UK.

Stephen P. Denyer, Ph.D is Emeritus Professor of Pharmacy at the Universities of Brighton and Sussex, Brighton, UK.

Table of Contents

Part 1 Introducing Pharmaceutical Microbiology

1 Introduction to Pharmaceutical Microbiology

Brendan F. Gilmore and Stephen P. Denyer

1.1 Pharmaceutical Microbiology: Microorganisms and Medicines

1.2 Scope and Content of the Book

Multiple Choice Questions

Part 2 Biology of Microorganisms

2 Fundamental Features of Microbiology

Norman Hodges and Stephen P. Denyer

2.1 Introduction

2.2 Naming of Microorganisms

2.3 Microbial Metabolism

2.4 Microbial Cultivation

2.5 Enumeration of Microorganisms

2.6 Microbial Genetics

2.7 Pharmaceutical Importance of the Major Categories of Microorganisms

2.8 Preservation of Microorganisms

Multiple Choice Questions

3 Bacteria

David Allison

3.1 Introduction

3.2 Bacterial Ultrastructure

3.3 Bacterial Sporulation

3.4 Bacterial Toxins

3.5 Bacterial Reproduction and Growth Kinetics

3.6 Environmental Factors that Influence Growth and Survival

3.7 Detection, Identification and Characterisation of Organisms of Pharmaceutical and Medical Significance

3.8 Pharmaceutically and Medically Relevant Microorganisms

References

Further Reading

Multiple Choice Questions

4 Fungi

Kevin Kavanagh

4.1 What Are Fungi?

4.2 Structure of the Fungal Cell

4.3 Medical Significance of Fungi

4.4 Antifungal Therapy

4.5 Medically Important Fungal Pathogens of Humans

4.6 Emerging Fungal Pathogens

Further Reading

Multiple Choice Questions

5 Viruses and Other Acellular Infectious Agents: Characteristics and Control

Timofey Skvortsov and Jean-Yves Maillard

5.1 Introduction

5.2 General Structure of Viruses

5.3 Virus-Host Cell Interactions

5.4 Multiplication of Human Viruses

5.5 Cultivation of Human Viruses

5.6 Viral Epidemics and Pandemics

5.7 Control of Viruses

5.8 Biotechnological Applications of Viruses

5.9 Bacterial Viruses

5.10 Subviral Infectious Agents and Prions

Further Reading

Multiple Choice Questions

6 Protozoa

Tim Paget

6.1 Introduction

6.2 Blood and Tissue Parasites

6.3 Intestinal Parasites

6.4 Trichomonas and Free-living Amoebae

6.5 Host Response to Infection

6.6 Detection of Parasites

6.7 Control of Protozoan Parasites

Acknowledgement

References

Further Reading

Multiple Choice Questions

Part 3 Pathogens and Host Response

7 Principles of Microbial Pathogenicity and Epidemiology

David Allison and Andrew J. McBain

7.1 Introduction

7.2 The Human Microbiome

7.3 Portals of Entry

7.4 Consolidation

7.5 Manifestation of Disease

7.6 Damage to Tissues

7.7 Recovery from Infection: the Exit of Microorganisms

7.8 Epidemiology of Infectious Disease

7.9 ESKAPE Pathogens

Further Reading

Multiple Choice Questions

8 Microbial Biofilms: Consequences for Health

Brendan F. Gilmore

8.1 Introduction

8.2 Biofilms

8.3 Tolerance of Biofilms to Antimicrobials

8.4 Mechanisms of Biofilm Tolerance

8.5 Treatment of Chronic Biofilm Infections

Acknowledgements

References

Further Reading

Multiple Choice Questions

9 Immunology

Mark Gumbleton and Mathew W. Smith

9.1 Introduction

9.2 The Innate Immune System

9.3 The Humoral Adaptive Immune System

9.4 Cell-mediated Adaptive Immune System

9.5 Some Clinical Perspectives

9.6 Summary

Dedication

Reference

Further Reading

Multiple Choice Questions

10 Vaccination and Immunisation

Gavin J. Humphreys and Andrew J. McBain

10.1 Introduction

10.2 Spread of Infection

10.3 Objectives of a Vaccine/Immunisation Programme

10.4 Classes of Immunity

10.5 Types of Vaccine

10.6 Routine Immunisation against Infectious Disease

10.7 The Routine Childhood Immunisation Programme

10.8 Immunisation of the Over 65s and Other Risk Groups

10.9 Regulatory Approval of Vaccines

Acknowledgements

Further

Reading

Multiple Choice Questions

Part 4 Prescribing Therapeutics and Infection Control

11 Antibiotics and Synthetic Antimicrobial Agents: Their Properties and Uses

Brendan F. Gilmore

11.1 Antibiotic Development, Past and Present

11.2 β -Lactam Antibiotics

11.3 Tetracyclines

11.4 Macrolides

11.5 Sulphonamides and Trimethoprim

11.6 Quinolones

11.7 Aminoglycosides

11.8 Glycopeptides

11.9 Antitubercular Drugs

11.10 Newer Antibiotics for MRSA and Other Gram-positive Cocci Infections

11.11 Miscellaneous Antibacterial Antibiotics

11.12 Antifungal Antibiotics

11.13 Antibiotic Production by Fungi

11.14 Antiviral Drugs

11.15 Microbiological Assay of Antibiotics

Acknowledgements

References

Further Reading

Multiple Choice Questions

12 Mechanisms of Action of Antibiotics and Synthetic Anti-infective Agents

Peter Lambert

12.1 Introduction

12.2 The Microbial Cell Wall

12.3 Protein Synthesis

12.4 Chromosome Function and Replication

12.5 Folate Antagonists

12.6 The Cytoplasmic Membrane

12.7 Repurposing of Antibiotics

References

Further

Reading

Multiple Choice Questions

13 Bacterial Resistance to Antibiotics

Brendan F. Gilmore and Stephen P. Denyer

13.1 Introduction

13.2 The Origins of Resistance

13.3 Mechanisms of Resistance

13.4 Resistance to β -Lactam Antibiotics

13.5 Resistance to Glycopeptide Antibiotics

13.6 Resistance to Aminoglycoside Antibiotics

- 13.7 Resistance to Tetracycline Antibiotics
- 13.8 Resistance to Fluoroquinolone Antibiotics
- 13.9 Resistance to Macrolide, Lincosamide and Streptogramin Antibiotics
- 13.10 Resistance to Chloramphenicol
- 13.11 Resistance to Oxazolidinone Antibiotics
- 13.12 Resistance to Trimethoprim
- 13.13 Resistance to Mupirocin
- 13.14 Resistance to the Polymyxin Antibiotic Colistin (Polymyxin E)
- 13.15 Resistance to the Lipopeptide Antibiotic Daptomycin
- 13.16 Resistance to Antimycobacterial Therapy
- 13.17 Multiple Drug Resistance
- 13.18 Clinical Resistance, MICs, Breakpoints, Phenotypic Resistance and Outcome
- 13.19 Conclusion

Acknowledgement

References

Further Reading

Multiple Choice Questions

14 Clinical Uses of Antimicrobial Drugs

Hayley Wickens and Conor Jamieson

- 14.1 Introduction
- 14.2 Principles of Use of Antimicrobial Drugs
- 14.3 Clinical Use
- 14.4 Antibiotic Policies

Acknowledgements

References

Further Reading

Multiple Choice Questions

15 Antibiotic Prescribing and Antimicrobial Stewardship

Rebecca Craig

- 15.1 The Need for Antimicrobial Stewardship
- 15.2 Antibiotic Consumption
- 15.3 Antimicrobial Stewardship Programmes
- 15.4 Monitoring Antimicrobial Stewardship Programmes

References

Further Reading

Multiple Choice Questions

16 Infection Prevention and Control: Healthcare-associated Infection

Elaine Cloutman-Green

16.1 Introduction

16.2 Defining Healthcare-associated Infections

16.3 Microorganisms Implicated in Healthcare-associated Infection

16.4 Standard IPC Interventions for the Management and Prevention of HCAI

16.5 Impact of the Clinical Setting on Infection Prevention and Control

16.6 Measuring Impact and Success

16.7 Professional Support for Infection Prevention and Control

References

Further Reading

Multiple Choice Questions

Part 5 Contamination and Contamination Control

17 Microbial Spoilage, Infection Risk and Contamination Control

Rosamund M. Baird

17.1 Introduction

17.2 Spoilage: Chemical and Physicochemical Deterioration of Pharmaceuticals

17.3 Hazard to Health

17.4 Sources and Control of Contamination

17.5 Factors Determining the Outcome of a Medicament-borne Infection

17.6 Preservation of Medicines Using Antimicrobial Agents: Basic Principles

17.7 Quality Assurance and the Control of Microbial Risk in Medicines

17.8 Overview

References

Further Reading

Multiple Choice Questions

18 Chemical Disinfectants, Antiseptics and Preservatives

Sean P. Gorman and Brendan F. Gilmore

18.1 Introduction

18.2 Factors Affecting Choice of Antimicrobial Agent

18.3 Types of Compound

18.4 Disinfection Policies

References

Further Reading

Multiple Choice Questions

19 Laboratory Evaluation of Antimicrobial Agents

Brendan F. Gilmore and Sean P. Gorman

19.1 Introduction

19.2 Factors Affecting the Antimicrobial Activity of Disinfectants

19.3 Evaluation of Liquid Disinfectants

19.4 Evaluation of Solid Disinfectants

19.5 Evaluation of Air Disinfectants

19.6 Evaluation of Preservatives

19.7 Rapid Evaluation Procedures

19.8 Evaluation of Potential Chemotherapeutic Antimicrobials

19.9 Tests for Biofilm Susceptibility

Acknowledgement

References

Further Reading

Multiple Choice Questions

20 Microbicides: Mode of Action and Resistance

Stephen P. Denyer and Jean-Yves

Maillard

20.1 Introduction

20.2 Mechanisms of Interaction

20.3 Antimicrobial Effects

20.4 Mechanisms of Action

20.5 Enhancing Activity

20.6 Mechanisms of Resistance to Microbicides

20.7 Viricidal Activity of Microbicides

20.8 Microbicides and Protozoa

20.9 Microbicides and Fungi

20.10 Inactivation of Prions

20.11 Conclusion

References

Further Reading

Multiple Choice Questions

21 Sterilisation Procedures and Sterility Assurance

Alistair K. Brown and Stephen P. Denyer

21.1 Introduction

21.2 Sensitivity of Microorganisms

21.3 Sterilisation Methods

21.4 Heat Sterilisation

21.5 Gaseous Sterilisation

21.6 Radiation Sterilisation

21.7 Filtration Sterilisation

21.8 Newer Sterilisation Technologies

21.9 Sterilisation Control and Sterility Assurance

21.10 Bioburden Determinations

21.11 Environmental Monitoring

21.12 Validation and In-process Monitoring of Sterilisation Procedures

21.13 Sterility Testing

References

Further Reading

Multiple Choice Questions

Part 6 Pharmaceutical Production

22 Sterile Pharmaceutical Products and Principles of Good Manufacturing Practice

Tim Sandle

22.1 Introduction

22.2 Defining Sterility

22.3 Sterilisation Methods

22.4 Demonstrating Sterility

22.5 Types of Sterile Product

22.6 Good Manufacturing Practices for Sterile Products

22.7 Sterility Assurance and the Manufacture of Sterile Products

22.8 Terminal Sterilisation and Aseptic Processing

22.9 Cleanrooms and Facility Design

22.10 Operating Principles for Aseptic Processing

22.11 Minimising Human Intervention

22.12 Personnel

22.13 Media Simulation Trials

22.14 Quality Risk Management

22.15 Environmental Monitoring

22.16 Release of Sterile Products

22.17 Summary

Acknowledgements

Reference

Further

Reading

Multiple Choice Questions

23 The Manufacture and Quality Control of Immunological Products

Tim Sandle

23.1 Introduction

23.2 Vaccines

23.3 In Vivo Diagnostics

23.4 Immune Sera

23.5 Human Immunoglobulins

23.6 Monoclonal Antibodies

Acknowledgements

References

Further Reading

Multiple Choice Questions

24 Recombinant DNA Technology

Miguel Cámara and Stephan Heeb

24.1 Introduction: Biotechnology in the Pharmaceutical Sciences

24.2 Enabling Techniques

24.3 Production of Heterologous Proteins

24.4 Biotechnology in the Pharmaceutical Industry

24.5 New Diagnostics Using Recombinant DNA Technology

Further

Reading

Multiple Choice Questions

Part 7 Current Trends and New Directions

25 The Wider Contribution of Microbiology to the Pharmaceutical Sciences

Mathew W. Smith, James C. Birchall, and Sion A. Coulman

25.1 Introduction

25.2 Pharmaceuticals Produced by Microorganisms

25.3 Applications of Microorganisms in the Partial Synthesis of Pharmaceuticals

25.4 Applications of Microorganisms in the Discovery of Pharmaceuticals

25.5 Use of Microorganisms and Their Products in Assays

25.6 Use of Microorganisms as Models of Mammalian Drug Metabolism

25.7 Microorganisms as Therapy

25.8 Insecticides

25.9 Bioterrorism

25.10 Concluding

Remarks

Further

Reading

Multiple Choice Questions

26 Alternative Strategies to Antibiotics: Priorities for Development

Brendan F. Gilmore

26.1 Introduction

26.2 Bacteriophage Therapy

26.3 Bacteriophage Lysins

26.4 Vaccines and Immunotherapies

26.5 Probiotics

26.6 Antimicrobial Peptides

26.7 Conclusion

Acknowledgements

References

Further

Reading

Multiple Choice Questions

Index

To purchase this product, please visit:

<https://www.wileyindia.com/hugo-and-russell-s-pharmaceutical-microbiology-9ed-an-indian-adaptation.html>



Scan to buy