

AMBT01 MICROBIOLOGY

UNIT-1 MICROBES IN OUR LIVES

Types of microorganisms. Brief history of microbiology. Microbes & human warfare. Microbes & human disease.

UNIT-2 OBSERVING MICROORGANISMS THROUGH A MICROSCOPE

Light, electron, scanned-probe microscopy. Simple, differential and special stains.

UNIT-3 FUNCTIONAL ANATOMY OF PROKARYOTIC AND EUKARYOTIC CELLS

Size, shape, and arrangement of bacterial cells. Structures external to cell wall, structures internal to cell wall. Microbial Metabolism.

UNIT-4 CATABOLIC & ANABOLIC REACTIONS

Enzymes, energy production and carbohydrate metabolism. Lipid & protein catabolism, bacterial identification and photosynthesis. Energy production mechanism, metabolic diversity & pathways of energy use. Integration of metabolism.

UNIT-5 MICROBIAL GROWTH

Growth requirements, culture media, obtaining pure cultures and preservation of cultures, growth of bacterial cultures, Control of Microbial Growth, Action of microbial control agents, physical and chemical methods of microbial control.

UNIT-6 A SURVEY OF THE MICROBIAL WORLD

Classification of microorganism and methods of classifying and identification of microorganism.

UNIT-7 THE PROKARYOTES GROUPS

Domain bacteria, proteobacteria, nonproteobacteria Gram-ve and Gram+ve bacteria. Bacterial diversity.

UNIT-8 FUNGI

Lichens, algae, protozoa, helminthes, arthropods as vectors.

UNIT-9 VIRUSES

Viral structures, isolation, cultivation and identification of viruses, viral multiplication.

UNIT-10 PRINCIPLES OF DISEASE AND EPIDEMIOLOGY

Mechanism of microbial pathogenicity.

UNIT-11 ANTIMICROBIAL DRUGS.

History, spectrum and action of antimicrobial drugs. Tests to guide chemotherapy and effectiveness of chemotherapeutic agents.

UNIT-12 APPLIED & INDUSTRIAL MICROBIOLOGY

Industrial fermentation, primary and secondary metabolites, Role of microorganisms in the production of industrial chemicals and pharmaceuticals, Microbes as alternative energy sources and as industrial products.

Reference Books:

1. Microbiology: An Introduction: Tortora, Funke & Case. 7th edition, 2001
2. Microbiology: Davis, Dulbecco, Eisen and Ginsburg.
3. Introduction to Microbiology: Ross

