

14. Qualitative testing of carbohydrates (Glucose, Fructose, Lactose, Starch)

MBS- 407: Microbial Cell Biology

40 HRS

Unit I

12h

Introduction to microbial cell biology, Prokaryotic and eukaryotic cells and their intracellular organization, Nucleus, bacterial nucleoid architecture & chromosome organization, Bacterial genome, DNA of mitochondrial and chloroplast, Nuclear Envelope- structure of nuclear pore complex, nuclear lamina, Chromatin: molecular organization, nucleolus and rRNA processing.

Unit II

14 h

Bacterial cell cycle- regulation and coordination of replication, chromosome segregation and nucleoid exclusion, Binary fission- FtsZ and the Z-ring, structures and functions of bacterial cell envelopes- Gram-positive bacteria, Gram-negative bacteria, mycobacteria, Archaea. Peptidoglycan, penicillin-binding proteins and resistance, antibiotic resistance, alternative approaches for combatting infections.

Unit II

14 h

Central Dogma of Molecular Biology: transcription and translation in prokaryotes and eukaryotes. Post transcriptional modifications, Transcription and translation Inhibitors. Bacterial replication, Activators and inhibitors of replication, Molecular Biology of Cancer: Mechanism of transformation of cells, Physical and chemical carcinogens, role of carcinogens & oncogenes in cancer, Oncogene proteins, Tumor repressor genes, Viral oncogenes.