

[W.E.F. 2020-21 Admitted Batch]

## BSBT - SN101

Dr. B. R. Ambedkar University-Srikakulam

Biotechnology Paper-I

W.E.F: 2020-21

Under CBCS for 3-year B.Sc. Programme

(With domain subject covered during the first 4 Semesters with 5 Courses)

Year	Semester	Paper	Title	Marks (100)		Credits
				Mid Semester	End Semester	
01	I	I	Microbiology & Cell Biology	25	75	04
			Practicals	25	75	01

### Theory Syllabus

#### **Unit-1:**

Five Kingdom Classification; Three Domain Classification; History and Developments in Microbiology; Anatomy of Typical Prokaryotic Cell; Differences between Eubacteria & Archaea; Classification of Bacteria based on Shape, Arrangement & Flagella Position; Structure of Bacterial Cell Wall; Endospores; Types of Staining; Microscope & Its Types

#### **Unit-2:**

Nutritional Requirement of Bacteria; Classification of Bacteria based on Nutrition; Bacterial Growth Curve; Biofilms; Quorum sensing; Types of Culture Media; Isolation of Pure Cultures; Measurement of Microbial Growth; Binary Fission; Types of Bacterial Recombination; Control of Microbial Growth: Physical & Chemical Methods; Antimicrobial Drugs; Various Bacterial Diseases

#### **Unit-3:**

Classification of Virus; Structure and Life Cycle of: Lambda Phage, HIV, TMV; Ebola Virus, COVID-19 Virus. Viroids & Prions; Viral Diseases; RT-PCR Detection of COVID-19.

#### **Unit-4:**

Anatomy of Eukaryotic Cell; Different Types of Cell Organelles & their Functions: Nucleus, ER, Golgi, Lysosomes, Mitochondria, Chloroplast, Peroxisomes, Plasma membrane, Cell Wall, Extracellular Matrix; Cytoskeleton: Components & Functions.

**Unit-5:**

Cell Signaling; Signal Transduction; Cell Cycle and Its Regulation; Types of Cell Divisions: Mitosis & Meiosis; Cell Death & Its Types; Development & Causes of Cancer.

**Practical Syllabus**

01. Grams' Staining
02. Preparation of Bacterial Culture Media
03. Pure Culture Methods
04. Bacterial Growth Curve
05. Observation of Biofilms
06. Sterilization using: Autoclave, Hot Air Oven & Laminar Air Flow
07. Measurement of Bacterial Growth
08. Observation of Various EK cells under Microscope
09. Study of Meiosis
10. Study of Mitosis

**Mid Semester Theory Model Paper**

**Time: 01 h**

**Max. Marks: 25 M**

I. Answer all the Questions & Each Question Carries 04 Marks

5 x 4 = 20 M

01. Three Domain Classifications?

02. Quorum sensing?

03. COVID-19?