

WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

SUBJECT : BIOLOGICAL SCIENCE (BIOS)

CLASS – XII

SEMESTER - IV

FULL MARKS: 35

UNIT No.	TOPICS	HRS	MARKS
UNIT-VIII (BIOLOGY AND HUMAN WELFARE)	<u>Chapter 7: Human health and diseases</u> Basic concept of immunology.-Immune system, Antigen, Antibody, antigen-antibody reaction, Types of immunity - vaccine and vaccinations; Pathogens: Parasites causing human diseases: Malaria, Filariasis, Chikungunya, Dengue, Ascariasis, Typhoid, Pneumonia, Common Cold, Amoebiasis, Ringworm, SARS (COVID), Allergy and Autoimmune disorders –Symptoms of disease, Name of causative agents, Mode of transmission. Preventive measures. Cancer, HIV and AIDS — Symptoms of diseases; Causative agents, Mode of transmissions, Preventive measures. Adolescence: Drug and alcohol abuse.	13	20
	<u>Chapter 8.Improvement In food production</u> Plant breeding, Tissue culture, Single cell Protein.	2	
	<u>Chapter 9: Microbes in Human Welfare</u> Microbes in food processing, Industrial production, Sewage treatment, Energy generation, Microbes as bio-control agents and biofertilizers, Antibiotics: Production and judicious use.	5	
UNIT –IX (BIOTECHNO- LOGY AND ITS APPLI- CATION)	<u>Chapter 10: Biotechnology and its applications</u> Principle, Process of genetic engineering. (Recombinant DNA technology), Application of biotechnology in health and agriculture, Human Insulin and vaccine production, Stem cell therapy, Gene therapy; Genetically modified organisms: Bt Crops; Transgenic animals. Biosafety issues, Biopiracy and patents.	15	15
UNIT- X (ECOLOGY AND ENVIRON- MENT)	<u>Chapter 11: Organisms and Populations</u> Meaning of Environment. Habitat and niche, Population interactions – Mutualism; Competition; Predation; Parasitism. Population attributes – Growth, birth rate and death rate, age distribution.	10	23
	<u>Chapter 12: Ecosystem.</u> Ecosystem and its pattern; Components of ecosystem. Productivity and Decomposition. Energy flow, Pyramids of number, Biomass and energy, Ecological succession.	5	
	<u>Chapter 13: Biodiversity and its conservation</u> Biodiversity — concept, Patterns, Importance; Loss of biodiversity; Biodiversity conservation; Hotspots, Endangered organisms, Extinction, Red Data book. Sacred Groves, Biosphere reserves, National Parks, Wildlife Sanctuaries and Ramsar sites.	4	
	<u>Chapter 14: Environmental issues</u> Solid waste management; Radioactive waste management; Success stories addressing environmental issues-Chipko movement, Dasholi Gram Swarajya Mandal movement (DGSM) Silent Valley movement, Amrita Devi Bishnoi (Jaipur) Movement.	4	