Topics covered in CSIR NET Online coaching (243 topics)

	Topic Name (Unit 3 – Lecture 1) 13	
1	Meselson stahl experiment	
2	DNA polymerization and ligation	
3	DNA polymerase	
4	DNA replication initiation in e.coli	
5	DNA replication elongation in e.coli	
6	Topoisomerase and supercoiling of DNA	
7	Types of Replication	
8	DNA replication termination in e.coli	
9	Eukaryotic replication Issue	
10	End replication problem in eukaryotes	
11	tRNA charging	
12	Transpeptidation reaction	
13	Translation animation in prokaryotes	
	Unit 3 Lecture 2 - 12	
1	Transcription Overview (Prokaryotic)	
2	RNA polymerase	
3	Gene elements in transcription	
4	Prokaryotic Transcription initiation	
5	Prokaryotic Transcription elongation	
6	Prokaryotic Transcription Termination	
7	Eukaryotic transcription factors	
8	Eukaryotic transcription initiation	
9	5 prime capping and 3 prime polyadenylations	
10	mRNA splicing and alternative splicing	
11	RNA editing	
12	RNAi – siRNA, miRNA, shRNA	
	Unit 2 – Lecture 1 - 11	
1	Cell membrane composition	
2	Lipid mobility and lipid asymmetry	
3	Membrane fluidity and role of cholesterol	
4	Lipid Rafts	
5	Membrane proteins	
7	Diffusion and osmosis	
8	Passive transport Active transport	
9	Bulk transport	
10	Organelles structure and functions	
11	Cytoskeleton structure and function	
11	Cytoskereton structure and function	
	Unit 2 – Lecture 2 -7	
1	Motor proteins	
2	Intercellular junctions	
3	Vesicular transport basics	
	residular transport basies	

	No also a Transaction of a first based on the contraction of	
4	Nuclear Transport and mitochondrial translocation of	
	protein	
5	Chromatin structure Regulation	
6	Nucleosome remodelling	
7	Gene silencing and DNA methylation	
	Huit 2 Lastona 2 A	
1	Unit 2 – Lecture 3 - 4	
1	Protein vesicular trafficking details	
2	Lac operon	
3	Tryptophan Operon	
4	Arabinose operon	
	Unit 1 – Lecture 1 - 11	
1	Enzyme kinetics and turnover number	
2	Enzyme inhibition	
3	Enzyme classification Stargochemistry basics	
<u>4</u> 5	Stereochemistry basics Disaccharides and polysaccharides	
6		
7	Amino acid chemistry titration etc.	
8	Polypeptide properties Ramachandran plot	
9		
10	Protein secondary structure Domain and motif of proteins	
	·	
11	Tertiary and quaternary structure of proteins	
	Unit 1 – Lecture 2 - 6	
1	Fibrous and globular proteins	
2	Heamoglobin and myoglobin	
3	Cellular metabolism overview	
4	Glycolysis and regulation of glycolysis	
5	Glycogen metabolism	
6	Gluconeogenesis	
	Gideoffeogenesis	
	Unit 1 – Lecture 3 - 6	
1	The cori cycle	
2	TCA cycle	
3	Pyruvate dehydrogenase complex	
4	TCA cycle regulation	
5	Electron transport chain and regulation	
6	Biochemistry math problems	
	Dioenemistry matri prodems	
	Unit 10 – Lecture 1 - 14	
1	Ecosystem ecology basics	
2	Tolerance model and law of tolerance	
3	Ecological rules with example	
4	Soil profile	
5	Ocean profile	
6	Ecological pyramid	
7	Ecological succession basics	
8	Keystone/Umbrella/flagship species	
	1 / 2	

9 Population ecology J and S shaped curve 10 Survivorship curve 11 Age structure diagram basics 12 Ecological footprint 13 Regulation of Population growth and r and k species 14 Pollution overview Unit 10 - Lecture 2 - 12 1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 17 Types of biodiversity 1 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial Transformation 9 Bacterial transduction 14 Transposable elements 15 Types of DNA damage 16 DNA repair mechanisms NER, BER and MMR 17 Double strand break repair model 18 DNA mutation causing agents 19 Chromosomal numerical abberations 10 Leathal allele 11 Multiple alleles 12 Co-dominance and incomplete dominance 13 Epistasii types 14 Population dynamice 15 Epistasii types 17 Penetrance and expressivity		Denulation applicated and Cabanad augus	
11 Age structure diagram basics 12 Ecological footprint 13 Regulation of Population growth and r and k species 14 Pollution overview 14 Unit 10 - Lecture 2 - 12 1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes 14 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession - Different models and cause 10 Lint 8 - Lecture 1 - 9 1 Bacterial Transformation 1 Bacterial Transformation 1 Bacterial Transformation 1 Bacterial ransduction 1 Types of DNA damage 1 DNA repair mechanisms NER, BER and MMR 1 Double strand break repair model 1 DNA mutation causing agents 1 Mendel's Law 1 Nonmendellian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
12 Ecological footprint 13 Regulation of Population growth and r and k species 14 Pollution overview Unit 10 - Lecture 2 - 12 1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession - Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial transformation 9 Bacterial pransduction 1 Transposable elements 1 Types of DNA damage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law Nomendellian ratio 1 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
13 Regulation of Population growth and r and k species 14 Pollution overview Unit 10 – Lecture 2 - 12 1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions – Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 9 Bacterial transformation 1 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
Unit 10 - Lecture 2 - 12 1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial cransduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations 1 Unit 8 - Lecture 2 - 15 1 Mendel's Law Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
Unit 10 - Lecture 2 - 12 1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial Conjugation 9 Bacterial Transformation 3 Bacterial Transformation 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial Transformation 3 Bacterial Transformation 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	14	Pollution overview	
1 Habitat and niche concept 2 Fundamental vs realized niche 3 Niche interactions - Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial Transformation 3 Bacterial Transformation 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
Pundamental vs realized niche Niche interactions – Competitive exclusion principle Habitat fragmentation Character displacement Community interactions Pecies richness and dominance Types of biodiversity Lotka Volterra model basics Biodiversity conservation LUCN Data List Biomes Unit 10 - Lecture 3 - 8 Lage structure diagram Metapopulation dynamics Life table Lotka Volterra model graph analysis Primary productivity Common ecosystems Nitrogen cycle in atmosphere Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 Bacterial Transformation Bacterial transduction Transposable elements Types of DNA damage DNA repair mechanisms NER,BER and MMR Double strand break repair model DNA mutation causing agents Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 Mendel's Law Nommendellan ratio Leathal allele Multiple alleles Codominance and incomplete dominance Epistasis types			
3 Niche interactions – Competitive exclusion principle 4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial Transformation 9 Bacterial Transformation 1 Bacterial transduction 1 Transposable elements 5 Types of DNA dämage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
4 Habitat fragmentation 5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
5 Character displacement 6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 4 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial transformation 2 Bacterial transformation 3 Bacterial transformation 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
6 Community interactions 7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
7 Species richness and dominance 8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types		•	
8 Types of biodiversity 9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transduction 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	——		
9 Lotka Volterra model basics 10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 1 Transposable elements 5 Types of DNA dämage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
10 Biodiversity conservation 11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal lelee 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
11 IUCN Data List 12 Biomes Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	-		
Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER, BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	10	·	
Unit 10 - Lecture 3 - 8 1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 - Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transduction 4 Transposable elements 5 Types of DNA dämage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 - Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types		IUCN Data List	
1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	12	Biomes	
1 Age structure diagram 2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
2 Metapopulation dynamics 3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types		Unit 10 - Lecture 3 - 8	
3 Life table 4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	1	Age structure diagram	
4 Lotka Volterra model graph analysis 5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	2	Metapopulation dynamics	
5 Primary productivity 6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	3	Life table	
6 Common ecosystems 7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	4	Lotka Volterra model graph analysis	
7 Nitrogen cycle in atmosphere 8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	5	Primary productivity	
8 Ecological succession- Different models and cause Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	6	Common ecosystems	
Unit 8 – Lecture 1 - 9 1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	7	Nitrogen cycle in atmosphere	
1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	8	Ecological succession- Different models and cause	
1 Bacterial conjugation 2 Bacterial Transformation 3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
Bacterial Transformation Bacterial transduction Transposable elements Types of DNA damage DNA repair mechanisms NER,BER and MMR Double strand break repair model BNA mutation causing agents Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 Mendel's Law Nonmendelian ratio Leathal allele Multiple alleles Co-dominance and incomplete dominance Epistasis types		Unit 8 – Lecture 1 - 9	
3 Bacterial transduction 4 Transposable elements 5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	1	Bacterial conjugation	
Transposable elements Types of DNA damage DNA repair mechanisms NER,BER and MMR Double strand break repair model BDNA mutation causing agents Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 Mendel's Law Nonmendelian ratio Leathal allele Multiple alleles Co-dominance and incomplete dominance Epistasis types	2	Bacterial Transformation	
5 Types of DNA damage 6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	3	Bacterial transduction	
6 DNA repair mechanisms NER,BER and MMR 7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	4	Transposable elements	
7 Double strand break repair model 8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	5	Types of DNA damage	
8 DNA mutation causing agents 9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	6	DNA repair mechanisms NER,BER and MMR	
9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	7	Double strand break repair model	
9 Chromosomal numerical abberations Unit 8 – Lecture 2 - 15 1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	8	DNA mutation causing agents	
1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	9	Chromosomal numerical abberations	
1 Mendel's Law 2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types			
2 Nonmendelian ratio 3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types		Unit 8 – Lecture 2 - 15	
3 Leathal allele 4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	1	Mendel's Law	
4 Multiple alleles 5 Co-dominance and incomplete dominance 6 Epistasis types	2	Nonmendelian ratio	
5 Co-dominance and incomplete dominance 6 Epistasis types	3	Leathal allele	
6 Epistasis types	4	Multiple alleles	
6 Epistasis types	5	Co-dominance and incomplete dominance	
7 Penetrance and expressivity	6	·	
	7	Penetrance and expressivity	

0	Disintense	
8	Pleiotropy	
9	Polygenic inheritance	
10	Cytoplasmic inheritance	
11	Linkage theory	
12	Sex linked, limited and influenced characteristics	
13	X inactivation	
14	Genomic imprinting	
15	Some common genetic disorders	
	Unit 8 – Lecture 3 - 4	
1	Lac operon math problems	
2	Hfr Mapping problems	
3	Linkage mapping problems	
4	Pedigree problems	
	Unit 11 – Lecture 1 - 11	
1	Origin of life on earth	
2	Speciation Types of evalution	
3	Types of evolution	
4	Laws of evolution	
5	Types of Natural selection	
6	Geological timescale	
7	Extinction examples	
8	Animal behavior	
9	Altruism basics	
10	Kin selection	
11	Reciprocal altruism	
	Unit 11 – Lecture 2 - 7	
1	Population genetics basics	
2	Genetic drift	
3	Natural selection and fitness idea	
4	Hardy Weinberg math problems	
5	Mimicry types and use	
6	Biorhythm	
7	Geological timescale animation	
-/	Geological timescale animation	
	Unit 9 - 6	
1	Classification hierarchy	
2	Invertebrate classification	
3	Vertebrate classification	
4	Comparable heart anatomy among vertebrate classes	
5	Cladogram theory	
6	Cladogram analysis and problems	
	7 7 7 7 7 7	
	Unit 12 – Lecture 1 - 5	
1	Gene therapy	
2	Fermentation technology basics	
3	Types of fermentation	
4	Plant tissue culture	

5	Somatic embryogenesis	
3	Somatic embryogenesis	
	Unit 12 – Lecture 2 - 3	
1		
1	Plant biotechnology basics	
2	Agrobacterium mediated gene delivery system Ti plasmid	
3	Plant biotechnology animations	
	11.75	
	Unit 5 – Lecture 1 - 6	
1	Developmental biology basics	
2	Sea urchin fertilization and polyspermy prevention	
3	Cleavage pattern	
4	Blastula stage	
5	Gastrulation	
6	Developmental biology animations	
	Unit 5 – Lecture 2 - 6	ATA!
1	Organizer concept	
2	Specification types	
3	Limb development in tetrapod	
4	Vulva development in c.elegans	
5	Metamorphosis in insects	
6	ABC model of flower development	
	Unit 5 – Lecture 3 - 3	
1	Drosophila development and genetics complete	
2	Sex determination in human and other systems	
3	Eye lens induction in frog	
	Unit 13 – Lecture 1 - 5	
1	Molecular cloning	
2	Cloning vectors	
3	DNA libraries	
4	PCR technique and types of PCR	
5	Animations	
	Unit 13 – Lecture 2 - 2	
1	Immunological methods Precipitation based	
2	Immunological methods Agglutination based	
	Unit 13 – Lecture 3 - 10	
1	DNA sequencing dideoxy model or Sanger model	
2	Maxam Gilbert DNA sequencing	
3	Shotgun sequencing	
4	Pyrosequencing	
5	Next generation sequencing	
6	DNA Markers basics	
7	RFLP	
8	RAPD	
9	AFLP	
10	Microsatellite and minisatellite – SSR and ISSR	

	Unit 13 – Lecture 4 - 5	
1	IR spectroscopy	
2	X ray crystallography	
3	Mass Spectroscopy	
4	CD spectroscopy	
5	NMR spectroscopy	
	Unit 4 – Lecture 1 - 10	
1	Cell signaling	
2	Cell cycle regulation basics	
3	Cyclins and CDK	
4	Cell cycle checkpoint regulation	
5	Receptor tyrosine kinase pathway	
6	Checkpoint regulation	
7	Role of p53 in cell cycle	
8	Apoptosis pathways	
9	Necroptosis	
10	Autophagy	
	Unit 4 – Lecture 2 - 7	
1	Cancer Biology basics with cancer treatment	
2	Basics of Infection	
3	Epidemiology overview	
4	Steps of pathogenesis	
5	Endotoxins	
6	Exotoxins mode of action	
7	Endotoxin vs exotoxin	
	Unit 4 – Lecture 3 - 18	
1	Innate immunity cell mediated	
2	Complement system	
3	Adaptive immunity	
4	VDJ Recombination	
5	Immune response	
6	Viral modification	
7	Cells of immune system	
8	CD markers	
9	Tissue of immune system	
10	How immune system works?	
11	Innate immune response inflammatory response	
12	Adaptive immune response	
13	Antigen structure and function	
14	Antibody structure and functions	
15	Immune response and respective antibodies	
16	Immune system disorders	
17	Hypersensitivity	
18	Autoimmune diseases	
	Trace and a second seco	
	Unit 4 – Lecture 4 - 7	1
	O.III I ECOLOTO 7	

1	Types of Cancer	
2	Cause of cancer	
3	Hallmarks of cancer	
4	Routes of cancer	
5	Cancer cell theory	
6	Cell signalling and cancer	
7	Cancer immunology and cancer immunotherapy	