

BIOLOGY SESSION (20-21)

MONTH: MARCH

Content/Topic	3 th Week	4 th Week	5 th Week
Chapter-1 Reproduction in organisms	<ul style="list-style-type: none"> ➤ Introduction ➤ Scope of biology Asexual Reproduction ➤ Sexual Reproduction ➤ Life span <ul style="list-style-type: none"> ➤ Process of asexual and sexual reproduction 	Chapter-2 <ul style="list-style-type: none"> ➤ Flower ➤ Male and female gametophyte Pollination, fertilization ➤ Out breeding devices 	
Practicals	Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary		
Learning Objectives	Students will be able to - <ul style="list-style-type: none"> ➤ understand the importance of reproduction ➤ differentiate between asexual and sexual reproduction ➤ differentiate between the various types of pollination and seed dispersal 		
Expected Learning Outcomes	Students would be able to – <ul style="list-style-type: none"> ➤ Understand the importance of reproduction ➤ Differentiate between asexual and sexual reproduction ➤ Differentiate between the various types of pollination and seed dispersal 		
Teaching Aids	Smart class modules on reproduction in organisms, diagrams, mind maps form reckoner		
Assessment	Home assignments, worksheets, class discussions, class tests		

MONTH: APRIL

Content/Topic	1 st Week	2 nd Week	3 rd Week	4 th Week	5 th Week
Chapter-2 Sexual Reproduction in plants Chapter-3 Human reproduction Chapter-4 Reproductive health	Chapter-2 Contd ➤ Endosperm and embryo formation ➤ Seed and fruit formation ➤ Apomixis and polyembryony	Chapter-3 ➤ Male and female reproductive system Spermatogenesis and oogenesis Menstrual cycle embryonic development, lactation	➤ Chapter-3 Contd Menstrual cycle embryonic development, lactation	Chapter-4 ➤ Reproductive health ➤ Population explosion and control ➤ Methods of birth control	Chapter-4 Cont. Reproductive health ➤ Population explosion and birth control ➤ Methods of birth control ➤ MTP ➤ STDs ➤ infertility

Practicals	➤ T.S. of blastula, T.S Of Testis, T.S of Ovary through permanent slides. ➤ Study pollen germination on a slide. ➤ Flowers adapted to pollination by different agencies (wind, insects, bird). ➤ Pollen germination on stigma through a permanent slide.
Learning Objectives	Students will be able to - ➤ understand the importance of reproduction ➤ differentiate between asexual and sexual reproduction ➤ differentiate between the various types of pollination and seed dispersal
Expected Learning Outcomes	Students would be able to – ➤ Understand the importance of reproduction ➤ Differentiate between asexual and sexual reproduction Differentiate between the various types of pollination and seed dispersal
Teaching Aids	Smart class modules on human reproduction, diagrams, mind maps from reckoner
Assessment	Home Assignments, worksheets, class discussions, class tests

MONTH: MAY

Content/Topic	1st Week	2nd Week	3rd Week	4th Week	5th Week
Chapter-5 Principles of inheritance and variations Chapter-6 Molecular basis of inheritance	Chapter-5 ➤ Principles of inheritance ➤ deviations from Mendelian ratios	Chapter-5 contd. ➤ Linkage and crossing over sex determination	(Class XII PT-1) Chapter-5 contd ➤ Mutations ➤ Human genetic disorders ➤ Pedigree analysis	(Class XII PT-1) Chapter-6 ➤ DNA as genetic material ➤ Replication of DNA ➤ Transcription of DNA	Chapter-6 (continued) ➤ genetic code ➤ Translation
Practicals	➤ Mendelian inheritance using seeds of different colour/sizes of any plant. ➤ Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, earlobes, widow's peak and colour blindness. ➤ Controlled pollination - emasculation, tagging and bagging. Investigatory projects				

Learning Objective	Students will be able to- ➤ Understand the importance of population control ➤ Understand the structure of DNA and its discovery ➤ understand and apply the knowledge of DNA fingerprinting in forensics
Expected Learning Outcomes	Students would be able to- ➤ Understand the importance of population control ➤ Appreciate role of DNA in expression of genes Understand and apply the knowledge of DNA fingerprinting in forensics
Teaching Aids	Power point presentations on transcription and translation process, smart modules on principles of inheritance and molecular basis of inheritance, mind maps from reckoner
Assessment	Home assignments, worksheets, class discussions, class tests

MONTH: JULY

Content/Topic	1st Week	2nd Week	3rd Week	4th Week	5th Week
Chapter-6 Molecular basis of inheritance Chapter-7 Evolution Chapter-8 Human health and diseases	Chapter-6 (continued) <ul style="list-style-type: none"> ➤ Regulation of gene expression ➤ Human genome project ➤ Rice genome ➤ DNA fingerprinting 	Chapter-7 <ul style="list-style-type: none"> ➤ origin of life ➤ evolution of life forms-evidences of evolution ➤ adaptive radiation ➤ Hardy Weinberg's principle 	Chapter-7 Cont. <ul style="list-style-type: none"> ➤ Fossils ➤ Evolution of plants and animals ➤ Evolution of man 	Chapter-8 <ul style="list-style-type: none"> ➤ Health ➤ Common diseases in humans ➤ Life cycle of malarial parasite ➤ Prevention and control of infectious diseases 	Chapter-8 contd. <ul style="list-style-type: none"> ➤ Immunity ➤ Vaccination and immunisation ➤ Immune disorders ➤ Cancer ➤ Drug abuse, Addiction and dependence
Practicals	<ul style="list-style-type: none"> ➤ Isolation of DNA from available plant material such as spinach, green pea seeds, papaya, etc. ➤ Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity. Correlate with the kinds of plants found in them ➤ Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms. 				
Learning Objectives	Students would be able to- <ul style="list-style-type: none"> ➤ Understand and compare the theories given by Darwin and Lamarck ➤ Understand causes and effects of various diseases in humans ➤ To appreciate the importance of following proper guidelines for rearing of animals 				
Expected Learning Outcomes	Students would be able to- <ul style="list-style-type: none"> ➤ Understand and compare the theories given by Darwin and Lamarck ➤ Understand causes and effects of various diseases in humans ➤ Appreciate the importance of following proper guidelines for rearing of animals 				
Teaching Aids	Power point presentations on human health and diseases, smart modules on evolution, mind maps from reckoner				
Assessment	Home assignments, worksheets, class discussions, class tests				

MONTH: AUGUST

Content/Topic	1 st Week	2 nd Week	3rd Week	4 th Week	5 th Week
<p>Chapter-9 Strategies for enhancement in food production</p> <p>Chapter-10 Microbes in human welfare</p> <p>Chapter-11 Biotechnology- principles and processes</p> <p>Chapter-12 Biotechnology and its applications</p>	<p>Chapter-9</p> <ul style="list-style-type: none"> ➤ Animal husbandry ➤ Plant breeding <ul style="list-style-type: none"> ➤ Development of resistance in plants for various factors, SCP, tissue culture 		<p>Periodic Test II</p> <p>Chapter-10 Microbes</p> <ul style="list-style-type: none"> ➤ Household products ➤ Antibiotics ➤ Sewage treatment ➤ biofertilisers <p>Biogas plant</p> <ul style="list-style-type: none"> ➤ Microbes as biocontrol agents and biofertilizers 	<p>Chapter-11</p> <p>Principles of biotechnology</p> <ul style="list-style-type: none"> ➤ Tools and steps of recombinant DNA technology ➤ Cloning vectors, PCR, bioreactors 	<p>Chapter-12</p> <p>Applications of biotechnology</p> <ul style="list-style-type: none"> ➤ Bt cotton ➤ RNA interference ➤ Ethical issues <p>Revision</p>
Practicals	<ul style="list-style-type: none"> ➤ Common disease causing organisms like <i>Ascaris</i>, <i>Entamoeba</i>, <i>Plasmodium</i>, Roundworm through permanent slides or specimens. Comment on symptoms of disease that they cause. 				
Learning Objectives	<p>The students would be able to-</p> <ul style="list-style-type: none"> ➤ Understand the role of microbes in various spheres of life ➤ Understand the principles and steps involved in biotechnology ➤ Locate genes of importance on cloning 				
Learning Outcome	<p>The students would be able to-</p> <ul style="list-style-type: none"> ➤ Understand the role of microbes in various spheres of life ➤ Understand the principles and steps involved in biotechnology ➤ Locate genes of importance on cloning 				
Teaching Aids	Power point presentations on biotechnology processes, diagrams, mind maps from rechner				
Assessment	Home assignments, worksheets, class discussions, class tests				

MONTH: SEPTEMBER

Content/Topic	1st Week	2nd Week	3rd Week	4th Week	5th Week
Chapter-13 Organisms and population Chapter-14 Ecosystem-structure and function Chapter-15 Biodiversity and conservation Chapter-16 Environmental issues	Chapter-13 Organisms and major abiotic factors <ul style="list-style-type: none"> ➤ Population attributes ➤ between isms ➤ Adaptations ➤ Relationships between organisms 	Chapter-14 <ul style="list-style-type: none"> ➤ Productivity, Decomposition ➤ Energy flow, ecological pyramids Ecological succession ➤ Nutrient cycling <ul style="list-style-type: none"> ➤ Ecosyst em services. 	Chapter-15 <ul style="list-style-type: none"> ➤ Biodiversity and conservation ➤ 'introduction and the statistical aspects patterns of biodiversity ➤ loss of biodiversity ➤ Biodiversity conservatio 	➤ International forums on conservation of biodiversity	Chapter-16 <ul style="list-style-type: none"> ➤ air pollution and its ➤ -water pollution and its control ➤ Solid waste management, agricultural waste and radioactive waste, global warming ozone layer depletion
Practical's	<ul style="list-style-type: none"> ➤ To study meiosis in grasshopper testis through permanent slides. ➤ Prepare a temporary mount of onion root tip to study mitosis. 				
Learning Objectives	The students would be able to- <ul style="list-style-type: none"> ➤ Understand and appreciate applications of biotechnology in various fields of life ➤ Draw and understand food chains, pyramids and mineral cycle ➤ Understand the dynamic relationship between organisms and environment. ➤ Understand various population attributes. 				
Expected Learning Outcome	Students would be able – <ul style="list-style-type: none"> ➤ Appreciate the role of biotechnology in our life and in research ➤ Draw and understand food chains, pyramids and mineral cycle ➤ Understand the importance of organisms in the ecosystem 				
Teaching Aids	Power point presentation on biotechnology applications, diagrams, mind maps from reckoner				
Assessment	Home assignments, worksheets, class discussions, class tests				

MONTH: OCTOBER

Content/Topic	1st Week	2nd Week	3rd Week	4th Week	5th Week
	REVISION	PRE BOARD I	PRE BOARD I	PRE BOARD I	REVISION
Practical	<ul style="list-style-type: none"> ➤ Study of plant population density & frequency by quadrat method. ➤ Study the effect of different temperatures and three different pH on the activity of salivary amylase on 				
Learning Objectives	<p>The student would be able to-</p> <ul style="list-style-type: none"> ➤ Appreciate and realize the importance of conservation of biodiversity ➤ Develop strategies for in situ and ex-situ conservation of biodiversity <ul style="list-style-type: none"> ➤ Understand the global concerns about biodiversity and ozone layer depletion ➤ Identify the causes and effects of air, water and land pollution ➤ Understand causes and effects of global 				
Expected Learning Outcomes	<p>The student would be able to-</p> <ul style="list-style-type: none"> ➤ Appreciate and understand the importance of biodiversity and will be able to internalize the strategies for its conservation. ➤ Develop strategies for in situ and ex-situ conservation of biodiversity <ul style="list-style-type: none"> ➤ Understand the global concerns about biodiversity and ozone layer depletion ➤ Realize the importance of conservation of 				
Teaching Aids /Resources	Power point presentations, Smart modules on environmental issues, diagrams, mind maps from reckoner				
Assessment/ Activity	Home assignments, worksheets, class discussions, class tests				

MONTH: NOVEMBER

Content/Topic	1 st Week	2 nd Week	3 rd Week	4 th Week	5 th Week
REVISION MODULES	REVISION	REVISION	REVISION	REVISION	REVISION
Practicals	<ul style="list-style-type: none"> ➤ Comment upon two plants & two animals found in xeric conditions. ➤ Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch 				
Learning Objectives	<p>The students should be able to-</p> <ul style="list-style-type: none"> ➤ Recall and remember all the concepts <p>Students will be able to solve previous years papers</p>				
Expected Learning Outcomes	<p>The students should be able to-</p> <ul style="list-style-type: none"> ➤ Recall and remember all the concepts 				
Teaching Aids	Power point presentations, diagrams, mind maps from reckoner				
Assessment	Home assignments, worksheets, class discussions, class tests				

MONTH: DECEMBER

Content/Topic	1 st Week	2 nd Week	3 rd Week	4 th Week	5 th Week
REVISION MODULES	REVISION	Common Pre-Board	Common Pre-Board	Common Pre-Board Examination	Common Pre-Board Examination
Practicals	<ul style="list-style-type: none"> ➤ Comment upon Two plants & two animals found in Aquatic conditions. their morphological adaptations <p>Revision.</p>				
Learning Objectives	<p>The students would be able to-</p> <ul style="list-style-type: none"> ➤ Recall and remember all the concepts 				
Expected Learning Outcomes	<p>Students will be able to-</p> <ul style="list-style-type: none"> ➤ Recall and remember all the concepts ➤ Students will be able to solve previous years papers 				
Teaching Aids	Power point presentations, diagrams, mind maps from reckoner				
Assessment	Home assignments, worksheets, class discussions, class tests, assessment of project work				

MONTH: JANUARY

Content/Topic	1st Week	2nd Week	3rdWeek	4th Week	5th Week
Revision modules	Revision	Revision	Revision	Revision	N.A.
Practicals	Revision & project work				
Learning Objectives	Students will be able to- ➤ Recall and remember all the concepts ➤ Students will be able to solve previous years papers				
Expected Learning Outcomes	Students will be able to- ➤ Recall and remember all the concepts ➤ Students will be able to solve previous years papers				
Teaching Aids	Assignments, smart class modules, diagrams, mind maps from reckoner				
Assessment	Class assignments, previous board papers, pre-board exams				

MONTH: FEBRUARY

Content/Topic	1st Week	2nd Week	3rd Week	4th Week	5th week
Revision	➤ Revision of sample Papers and practice test ➤ Revision for practical exams	➤ Practice tests and clearing the doubts & queries. ➤ Revision for practical exams	➤ Revision	➤ Preparation for the Board exam.	Preparation for the Board exam.
Learning Objectives	➤ Clearing their doubts. ➤ Students would be thorough with the revised topics. ➤ Practice tests. ➤ Sample papers.				
Learning Outcomes					
Assessment/ Activity					
Teaching Aids /Resources					

