Teaching Plan.

Estd. 1996

Shri Amolak Jain Vidya Prasarak Mandal's

Smt. S.K. Gandhi Arts, Amolak Science &
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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2017-18

NAME OF THE FACULTY: DR. JADHAV S.S. **CLASS: B.Sc. I &II Semester**

Months	Topic Taught	Periods
	Paper No. II I - Semester	
July	Structure of Prokaryotic Cell, Structure of Eukaryotic Cell, Cell Cycle, Mitosis, Meiosis.	12
August	Structure and function: Endoplasmic Reticulum, Golgi Bodies, Nucleus, Lysosome, Ribosome.	10
September	Mitochondria: Morphology{Ultra Structure and Biogenesis} DNA Structure, Types of RNA, Cytology of Cancer and Types.	10
October	Light Microscope, Phase Contrast Microscope, Electron Microscope, Micro technique, Fixation, Staining	13
	Paper No. VI II - Semester	
December	Definition of Genetics and Variation, Mendel's Law of Heredity, Epitasis, Supplementary gene, Complementary gene. Spontaneous and Induced mutation Coat Colour in Rabbit, ABO Blood group in man, Rh factors	14
January	Definition of Maternal Effect, coiling shell in Snail, Male sterility. Chromosomal aberration {Structure and numerical}, Spontaneous and Induced mutation Co2 sensitivity in Drosophila, Kappa Particles in paramecia Chromosomal theory in sex determination	12
February	Gene balance theory of sex determination. Triploid intersexes and Gynandromorphs in Drosophila, Mutation, Gene Mutation:	14
March	Gene Mutation: Definition and Classification, Chromosomal aberration {structure and numerical}.	05

Signature of Faculty

Dr. RAMESH N. JADHAR
Head and Research Guide
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TEACHING PLAN 2017-18

NAME OF THE FACULTY: DR. JADHAV S.S. CLASS: B.Sc. III & IV Semester

Months	Topic Taught	Periods
	Paper No. X III Semester	
July	Definition, concept and function of gene, Transcription of gene: - Initiation, elongation and termination. Genetic code: - Concept of codon, properties of genetic code, Translation of gene: - Initiation, elongation and termination.	09
August	Gene Pool., Gene Frequency, Herdy-weinberg's Law, Application of Herdy-weinberg's Law, Human chromosomes, Sex linked inheritance- X and Y Linked, Dizygotic and monozygotic twins, Inborn errors in metabolism: - PKU, Albinism.	12
September	Genetic disorders: - Down's syndrome, Turners' syndrome Klinefelter's syndrome, Use of human genetics in medical science: - Disease diagnosis Gene therapy and DNA finger printing, Microbial Genetics: - Transformation, Conjugation, Transduction.	12
October	Genetic Engineering: - Introduction: - Definition, Concept and significance. Restriction enzymes: - Concept and types. Cloning vectors: - Plasmid, Cosmid, phase. Construction of r-DNA. Application of r-DNA technology	12
	Paper No. XIV IV Semester	
December	Definition, concept and nomenclature, Properties, classification, Mechanism of enzyme action, Factors affecting enzyme action (Temperature, pH, Substrates & Co-enzyme.) Adrenal gland: - Morphology & histological structure, Hormones and their function. Pancreas: - Islets of langarhance- Histological structure Hormones and their function. Carbohydrates: - Definition Classification monosaccharide, disaccharides, oligosaccharides and polysaccharides.	14
January	Metabolism: - Glucogenesis, Gluconeogenesis, Glycolysis, TCA. & oxidative phosphoration. Proteins :- Definition , classification -simple , conjugated and derived proteins, Structure of proteins: - Primary, secondary, tertiary and quartery. Metabolism: - Deamination and transamination Definition, classification, simple, compound and derived lipids. Metabolism: - β oxidation and cholesterol biosynthesis	16
February	Vitamins: - Sources and deficiency. Endocrine system of vertebrates: - Introduction: - Definition of endocrine, Paracrine and Autocrine system. Significance of endocrine and neuro - endocrine system.	10
March	Pituitary gland: - Morphology & histological structure, Hormones and their function. Thyroid gland: - Morphology & histological structure	05

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TEACHING PLAN 2017-18

NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. V Semester**

Months	Topic Taught	Periods
	Paper No. XVII V Semester	
July	Definition, basic concept, terminology used in ecology. Abiotic environmental factors: Temperature; Concept, temperature fluctuation in different environment. Range of temperature tolerance, effect of temperature on animals, Thermal adaptation. Light-Concept, Light variation in different environment, effect of light on animals. Adaptation to salinity and moisture	10
August	Biotic environmental factors: - Composition: - Definition, types, intraspecific and interspecific composition. Predation: - Definition, characteristics of predation. Commensalisms: - Definition and types with examples. Mutualism: - Definition and example. Parasitism: - Definition and types with examples.	08
September	Population: - Definition and basic concepts, Characteristics of population; Density, Natality, Mortality, Dispersion and Age distribution. Population growth. Population regulation. Community: - Definition, basic concept and types. Structure of community; producer, consumers and decomposers. Characters; ecological niche, diversity, abundance, dominance, ecotone, edge effect. Community succession; example of succession and climax	12
October	Ecosystem: - Definition, concept and types. Components of ecosystem, Dynamics of ecosystem: - primary production, secondary production, food chain, food web, tropic level, energy of flow, ecological pyramids. Brief introduction to major ecosystems: - Marine ecosystem, Pond ecosystem, Forest ecosystem and Desert ecosystem	15
	Paper No. XVII C V Semester	
December	Introduction to Economic entamology. Methods of collection and preservation of insect. Type study of grasshopper- systematic position, external morphology, digestive, nervous, reproductive system including development.	12
January	Insect –orders (general characters) Thysanura Collembella Lepidoptera Diptera Coeloptera Hymenoptera	12
February	House hold and Human insect pest:- Bed bugs, Mosquito, Rat Flea, and House fly, Cockroach, Pediculus. Metamorphosis in insect, types of metamorphosis with example	12
March	Insect Culture (gross study) Apiculture, Sericulture and lac culture	08

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NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. VI Semester**

Months	Topic Taught	Periods
	Paper No. XXI VI Semester	
July	Concept of organic evolution: - Definition and concept. Theories of organic evolution in brief; Preformation theory, Bear's Law, Biogenetic law, catastrophism, Lamarckism, Darwinism and Germplasm theory. Origin of Life: - Definition, Abiogenesis, Biogenesis. Chemical evolution of life. Evidences of Organic Evolution: - Anatomical evidences. ¾ Embryological evidences.	12
August	Darwinism: - Introduction: - Natural selection theory, Artificial selection theory and sexual selection theory. Elemental forces of evolution: - Mutation: - Concept and role in evolution. Recombination: - Concept and role in evolution. ¾ Natural selection: - Concept and role in evolution. Isolation: - Concept and role in evolution. Genetic Drift. : - Concept and role in evolution	12
September	Basic patterns of evolution: - Sequential and divergent evolution. Microevolution: - Concept, silent features and mechanism with example. Macro evolution: - Concept, silent features and mechanism with example. Mega evolution: - Concept, silent features and mechanism with example.	12
October	Species and speciation: - Species: - Morphological concept, Genetical concept, biological concept of species, Speciation: - Definition, concept, mechanism of speciation. Allopatric, Sympatric and Parapatric speciation. Fossils: - Definition, fossil formation, Types of fossils.	10
	Paper No. XXII C VI Semester	
December	Pest Management pest –Definition, types of pest, agricultural, veterinary and medical pest. Study of major crop pest: - Classification, Characters. Jawar-Stem borer, Midge flies	12
January	Cotton- Red cotton bug, pink bollworm Groundnut-White grub, pod sucking bug Sugarcane- Pyrilla, Stem borer. III Study of Stored grain pests: 08 Rice weevil, pulse bettle	12
February	Control measures of insect pest. Methods of control measures-Chemical, Biological, integrated pest management. V migration of insect.	11
March	Insecticides and plant protection appliances like Hand compression spray, Hand rotating duster, bucket pump	10

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TEACHING PLAN 2018-2019

NAME OF THE FACULTY: DR. ABDAR R.N. **CLASS: B.Sc. I &II Semester**

Months	Topic Taught	Periods
	Paper No. I **I - Semester**	
July	Introduction to animal kingdom, Definition of Zoology, Outline classification Protozoa, Parazoa, Metazoa and Major Phyla.Protozoa : - General characters Plasmodium vivax: - Structure of sporozoite, Life cycle; pathogenecity, Control, Prevention and Treatment of Malaria. Entamoeba histolytica: Structure, Life cycle and Control. Euglena: Morphology and Reproductive system.	12
August	Porifera : - General characters Sycon (Scypha): - Morphology, Different types of cells in sycon, canal system in Porifera. Coelenterata: - General characters Obelia: - Morphology of Obelia colony, Development of Hydra, Polymorphism in coelenterates.	10
September	Helminths : - General characters Fasciola hepatica: - Structure, Life cycle, Pathogenecity & Control Measures Taenia solium: - Structure of scolex, Mature and gravid proglottids, Life cycle, pathogenecity, and control measures.	12
October	Ascaris lumbricoides: - Structure of male & female, Life cycle, Pathogenecity & control measures. 6. Annelida: - General characters Leech: - Morphology, Digestive, Excretory & Reproductive systems.	11
	Paper No. V **II - Semester**	
December	Arthropoda: - General characters Prawn: - Structure, Digestive, Nervous, & Reproductive systems. Cockroach: External Characters, Digestive, Respiratory and Reproductive systems.	12
January	Mollusca: - General characters Pila: - External Characters, Respiratory, Circulatory, Nervous and Reproductive systems 3. Echinodermata : - General characters	10
February	Asterias (Sea Star): - Morphology of oral & aboral view, Water vascular system, Reproductive system including development. General characters and Classification of Protochordata .Amphioxus: - External features, Digestive, Circulatory, Reproductive systems including development.	18
March	Hemichordata: - General characters and affinities Herdmania: - General characters and morphology	05

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2018-2019

NAME OF THE FACULTY: DR. ABDAR R.N. **CLASS: B.Sc. III &IV Semester**

Months	Topic Taught	Periods
	Paper No. IX III - Semester	
July	Agnatha: - Out line classification and general characters of cyclostomata. Pisces: - Out line classification and general characters. Scoliodon: - External characters, Digestive system, Respiratory system, Blood Vascular System and Nervous System.	09
August	Amphibia: - Out line classification and general characters. Development of frog: - Fertilization Cleavage Blastula Gastulation and formation of germinal layers. Neotony Parental care in amphibia. Reptilia: - Out line classification and general characters. Calotes:-External features, Respiratory system and Blood vascular system. Poisonous and non- poisonous snakes.	12
September	Aves: - Out line classification and general characters. Columba livia: - External features, Respiratory system, Embryology of chick.-Cleavage Blastula Gastulation and formation of germinal layers and extra embryonic membranes. Flight adaptation in birds. Migration in Birds.	12
October	Mammalia: - Out line classification and general characters. Ratus ratus: - External features, Blood Vascular System, Urino-genital System and Adaptive radiation in mammals. Placentation in Mammals.	12
	Paper No. XIII IV - Semester	
December	Digestion: - Brief Introduction to digestive system. Buccal digestion - salivary secretion and digestion. Gastric digestion - gastric secretion and digestion. Intestinal digestion - Pancreatic secretion, bile juices and digestion in Small intestine, Digestion and absorption in large intestine. Respiration: - Respiratory organs. Breathing mechanism. Respiratory pigments: - Properties and function of respiratory pigments.	12
January	External respiration. Internal respiration. Transport of gases. Circulation: - Working of mammalian heart. Blood and its composition. Mechanism of blood clotting. Excretion:-Structure of kidney. Structure of uriniferous tubules.Urine formation: - Ultra filtration selective, re-absorption and tubular secretion. Counter current multiplier system.	09
February	Nerve Physiology: - Structure of nerve cells and neuron. Neuro transmitters. Synapses: - Ultra structure and function.Muscles Physiology: - Ultra structure of smooth muscle, striated muscles, and cardiac muscles. Muscle contraction. Simple twitch and fatigue	18
March	Reproduction: - Structure of gonads, Gametogenesis. Role of sex hormones in Reproduction. Reproductive cycles – estrous and menstrual cycle	06

Signature of Faculty

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TEACHING PLAN 2018-19

NAME OF THE FACULTY: DR. JADHAV S.S. **CLASS: B.Sc. I &II Semester**

Months	Topic Taught	Periods
	Paper No. II I - Semester	
July	Structure of Prokaryotic Cell, Structure of Eukaryotic Cell, Cell Cycle, Mitosis, Meiosis.	12
August	Structure and function: Endoplasmic Reticulum, Golgi Bodies, Nucleus, Lysosome, Ribosome.	10
September	Mitochondria: Morphology{Ultra Structure and Biogenesis} DNA Structure, Types of RNA, Cytology of Cancer and Types.	10
October	Light Microscope, Phase Contrast Microscope, Electron Microscope, Micro technique, Fixation, Staining	13
	Paper No. VI II - Semester	
December	Definition of Genetics and Variation, Mendel's Law of Heredity, Epitasis, Supplementary gene, Complementary gene. Spontaneous and Induced mutation Coat Colour in Rabbit, ABO Blood group in man, Rh factors	14
January	Definition of Maternal Effect, coiling shell in Snail, Male sterility. Chromosomal aberration {Structure and numerical}, Spontaneous and Induced mutation Co2 sensitivity in Drosophila, Kappa Particles in paramecia Chromosomal theory in sex determination	12
February	Gene balance theory of sex determination. Triploid intersexes and Gynandromorphs in Drosophila, Mutation, Gene Mutation:	14
March	Gene Mutation: Definition and Classification, Chromosomal aberration {structure and numerical}.	05

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NAME OF THE FACULTY: DR. JADHAV S.S. CLASS: B.Sc. III & IV Semester

Months	Topic Taught	Periods
	Paper No. X III Semester	
July	Definition, concept and function of gene, Transcription of gene: - Initiation, elongation and termination. Genetic code: - Concept of codon, properties of genetic code, Translation of gene: - Initiation, elongation and termination.	09
August	Gene Pool., Gene Frequency, Herdy-weinberg's Law, Application of Herdy-weinberg's Law, Human chromosomes, Sex linked inheritance- X and Y Linked, Dizygotic and monozygotic twins, Inborn errors in metabolism: - PKU, Albinism.	12
September	Genetic disorders: - Down's syndrome, Turners' syndrome Klinefelter's syndrome, Use of human genetics in medical science: - Disease diagnosis Gene therapy and DNA finger printing, Microbial Genetics: - Transformation, Conjugation, Transduction.	12
October	Genetic Engineering: - Introduction: - Definition, Concept and significance. Restriction enzymes: - Concept and types. Cloning vectors: - Plasmid, Cosmid, phase. Construction of r-DNA. Application of r-DNA technology	12
	Paper No. XIV IV Semester	
December	Definition, concept and nomenclature, Properties, classification, Mechanism of enzyme action, Factors affecting enzyme action (Temperature, pH, Substrates & Co-enzyme.) Adrenal gland: - Morphology & histological structure, Hormones and their function. Pancreas: - Islets of langarhance- Histological structure Hormones and their function. Carbohydrates: - Definition Classification monosaccharide, disaccharides, oligosaccharides and polysaccharides.	14
January	Metabolism: - Glucogenesis, Gluconeogenesis, Glycolysis, TCA. & oxidative phosphoration. Proteins :- Definition , classification -simple , conjugated and derived proteins, Structure of proteins: - Primary, secondary, tertiary and quartery. Metabolism: - Deamination and transamination Definition, classification, simple, compound and derived lipids. Metabolism: - β oxidation and cholesterol biosynthesis	16
February	Vitamins: - Sources and deficiency. Endocrine system of vertebrates: - Introduction: - Definition of endocrine, Paracrine and Autocrine system. Significance of endocrine and neuro - endocrine system.	10
March	Pituitary gland: - Morphology & histological structure, Hormones and their function. Thyroid gland: - Morphology & histological structure	05

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2018-19

NAME OF THE FACULTY: DR. VAIDYA V.V. CLASS: B.Sc. V Semester

Months	Topic Taught	Periods
	Paper No. XVII V Semester	
July	Definition, basic concept, terminology used in ecology. Abiotic environmental factors: Temperature; Concept, temperature fluctuation in different environment. Range of temperature tolerance, effect of temperature on animals, Thermal adaptation. Light-Concept, Light variation in different environment, effect of light on animals. Adaptation to salinity and moisture	10
August	Biotic environmental factors: - Composition: - Definition, types, intraspecific and interspecific composition. Predation: - Definition, characteristics of predation. Commensalisms: - Definition and types with examples. Mutualism: - Definition and example. Parasitism: - Definition and types with examples.	08
September	Population: - Definition and basic concepts, Characteristics of population; Density, Natality, Mortality, Dispersion and Age distribution. Population growth. Population regulation. Community: - Definition, basic concept and types. Structure of community; producer, consumers and decomposers. Characters; ecological niche, diversity, abundance, dominance, ecotone, edge effect. Community succession; example of succession and climax	12
October	Ecosystem: - Definition, concept and types. Components of ecosystem, Dynamics of ecosystem: - primary production, secondary production, food chain, food web, tropic level, energy of flow, ecological pyramids. Brief introduction to major ecosystems: - Marine ecosystem, Pond ecosystem, Forest ecosystem and Desert ecosystem	15
	Paper No. XVII C V Semester	
December	Introduction to Economic entamology. Methods of collection and preservation of insect. Type study of grasshopper- systematic position, external morphology, digestive, nervous, reproductive system including development.	12
January	Insect –orders (general characters) Thysanura Collembella Lepidoptera Diptera Coeloptera Hymenoptera	12
February	House hold and Human insect pest:- Bed bugs, Mosquito, Rat Flea, and House fly, Cockroach, Pediculus. Metamorphosis in insect, types of metamorphosis with example	12
March	Insect Culture (gross study) Apiculture, Sericulture and lac culture	08

Vaidya V.V.

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2018-19

NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. VI Semester**

Months	Topic Taught	Periods
	Paper No. XXI VI Semester	
July	Concept of organic evolution: - Definition and concept. Theories of organic evolution in brief; Preformation theory, Bear's Law, Biogenetic law, catastrophism, Lamarckism, Darwinism and Germplasm theory. Origin of Life: - Definition, Abiogenesis, Biogenesis. Chemical evolution of life. Evidences of Organic Evolution: - Anatomical evidences. ¾ Embryological evidences.	12
August	Darwinism: - Introduction: - Natural selection theory, Artificial selection theory and sexual selection theory. Elemental forces of evolution: - Mutation: - Concept and role in evolution. Recombination: - Concept and role in evolution. ¾ Natural selection: - Concept and role in evolution. Isolation: - Concept and role in evolution. Genetic Drift. : - Concept and role in evolution	12
September	Basic patterns of evolution: - Sequential and divergent evolution. Microevolution: - Concept, silent features and mechanism with example. Macro evolution: - Concept, silent features and mechanism with example. Mega evolution: - Concept, silent features and mechanism with example.	12
October	Species and speciation: - Species: - Morphological concept, Genetical concept, biological concept of species, Speciation: - Definition, concept, mechanism of speciation. Allopatric, Sympatric and Parapatric speciation. Fossils: - Definition, fossil formation, Types of fossils.	10
	Paper No. XXII C VI Semester	
December	Pest Management pest –Definition, types of pest, agricultural, veterinary and medical pest. Study of major crop pest: - Classification, Characters. Jawar-Stem borer, Midge flies	12
January	Cotton- Red cotton bug, pink bollworm Groundnut-White grub, pod sucking bug Sugarcane- Pyrilla, Stem borer. III Study of Stored grain pests: 08 Rice weevil, pulse bettle	12
February	Control measures of insect pest. Methods of control measures-Chemical, Biological, integrated pest management. V migration of insect.	11
March	Insecticides and plant protection appliances like Hand compression spray, Hand rotating duster, bucket pump	10

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2019-2020

NAME OF THE FACULTY: DR. ABDAR R.N. CLASS: B.Sc. III &IV Semester

Months	Topic Taught	Periods
	Paper No. IX III - Semester	
July	Agnatha: - Out line classification and general characters of cyclostomata. Pisces: - Out line classification and general characters. Scoliodon: - External characters, Digestive system, Respiratory system, Blood Vascular System and Nervous System.	09
August	Amphibia: - Out line classification and general characters. Development of frog: - Fertilization Cleavage Blastula Gastulation and formation of germinal layers. Neotony Parental care in amphibia. Reptilia: - Out line classification and general characters. Calotes:-External features, Respiratory system and Blood vascular system. Poisonous and non- poisonous snakes.	12
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	Paper No. XIII IV - Semester	
December	Digestion: - Brief Introduction to digestive system. Buccal digestion - salivary secretion and digestion. Gastric digestion - gastric secretion and digestion. Intestinal digestion - Pancreatic secretion, bile juices and digestion in Small intestine, Digestion and absorption in large intestine. Respiration: - Respiratory organs. Breathing mechanism. Respiratory pigments: - Properties and function of respiratory pigments.	12
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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2019-2020

NAME OF THE FACULTY: DR. ABDAR R.N. **CLASS: B.Sc. I &II Semester**

Months	Topic Taught	Periods
	Paper No. I **I - Semester**	
July	Introduction to animal kingdom, Definition of Zoology, Outline classification Protozoa, Parazoa, Metazoa and Major Phyla.Protozoa : - General characters Plasmodium vivax: - Structure of sporozoite, Life cycle; pathogenecity, Control, Prevention and Treatment of Malaria. Entamoeba histolytica: Structure, Life cycle and Control. Euglena: Morphology and Reproductive system.	12
August	Porifera : - General characters Sycon (Scypha): - Morphology, Different types of cells in sycon, canal system in Porifera. Coelenterata: - General characters Obelia: - Morphology of Obelia colony, Development of Hydra, Polymorphism in coelenterates.	10
September	Helminths : - General characters Fasciola hepatica: - Structure, Life cycle, Pathogenecity & Control Measures Taenia solium: - Structure of scolex, Mature and gravid proglottids, Life cycle, pathogenecity, and control measures.	12
October	Ascaris lumbricoides: - Structure of male & female, Life cycle, Pathogenecity & control measures. 6. Annelida: - General characters Leech: - Morphology, Digestive, Excretory & Reproductive systems.	11
	Paper No. V **II - Semester**	
December	Arthropoda: - General characters Prawn: - Structure, Digestive, Nervous, & Reproductive systems. Cockroach: External Characters, Digestive, Respiratory and Reproductive systems.	12
January	Mollusca: - General characters Pila: - External Characters, Respiratory, Circulatory, Nervous and Reproductive systems 3. Echinodermata : - General characters	10
February	Asterias (Sea Star): - Morphology of oral & aboral view. Water vascular system, Reproductive system including development. General characters and Classification of Protochordata .Amphioxus: - External features, Digestive, Circulatory, Reproductive systems including development.	18
March	Hemichordata: - General characters and affinities Herdmania: - General characters and morphology	05

Signature of Faculty

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2019-20

NAME OF THE FACULTY: DR. JADHAV S.S. **CLASS: B.Sc. I &II Semester**

Months	Topic Taught	Periods
	Paper No. II I - Semester	
July	Structure of Prokaryotic Cell, Structure of Eukaryotic Cell, Cell Cycle, Mitosis, Meiosis.	12
August	Structure and function: Endoplasmic Reticulum, Golgi Bodies, Nucleus, Lysosome, Ribosome.	10
September	Mitochondria: Morphology{Ultra Structure and Biogenesis} DNA Structure, Types of RNA, Cytology of Cancer and Types.	10
October	Light Microscope, Phase Contrast Microscope, Electron Microscope, Micro technique, Fixation, Staining	13
	Paper No. VI II - Semester	
December	Definition of Genetics and Variation, Mendel's Law of Heredity, Epitasis, Supplementary gene, Complementary gene. Spontaneous and Induced mutation Coat Colour in Rabbit, ABO Blood group in man, Rh factors	14
January	Definition of Maternal Effect, coiling shell in Snail, Male sterility. Chromosomal aberration {Structure and numerical}, Spontaneous and Induced mutation Co2 sensitivity in Drosophila, Kappa Particles in paramecia Chromosomal theory in sex determination	12
February	Gene balance theory of sex determination. Triploid intersexes and Gynandromorphs in Drosophila, Mutation, Gene Mutation:	14
March	Gene Mutation: Definition and Classification, Chromosomal aberration {structure and numerical}.	05

Signature of Faculty

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2019-20

NAME OF THE FACULTY: DR. JADHAV S.S. CLASS: B.Sc. III & IV Semester

Months	Topic Taught	Periods
	Paper No. X III Semester	
July	Definition, concept and function of gene, Transcription of gene: - Initiation, elongation and termination. Genetic code: - Concept of codon, properties of genetic code, Translation of gene: - Initiation, elongation and termination.	09
August	Gene Pool., Gene Frequency, Herdy-weinberg's Law, Application of Herdy-weinberg's Law, Human chromosomes, Sex linked inheritance- X and Y Linked, Dizygotic and monozygotic twins, Inborn errors in metabolism: - PKU, Albinism.	12
September	Genetic disorders: - Down's syndrome, Turners' syndrome Klinefelter's syndrome, Use of human genetics in medical science: - Disease diagnosis Gene therapy and DNA finger printing, Microbial Genetics: - Transformation, Conjugation, Transduction.	12
October	Genetic Engineering: - Introduction: - Definition, Concept and significance. Restriction enzymes: - Concept and types. Cloning vectors: - Plasmid, Cosmid, phase. Construction of r-DNA. Application of r-DNA technology	12
	Paper No. XIV IV Semester	
December	Definition, concept and nomenclature, Properties, classification, Mechanism of enzyme action, Factors affecting enzyme action (Temperature, pH, Substrates & Co-enzyme.) Adrenal gland: - Morphology & histological structure, Hormones and their function. Pancreas: - Islets of langarhance- Histological structure Hormones and their function. Carbohydrates: - Definition Classification monosaccharide, disaccharides, oligosaccharides and polysaccharides.	14
January	Metabolism: - Glucogenesis, Gluconeogenesis, Glycolysis, TCA. & oxidative phosphoration. Proteins :- Definition , classification -simple , conjugated and derived proteins, Structure of proteins: - Primary, secondary, tertiary and quartery. Metabolism: - Deamination and transamination Definition, classification, simple, compound and derived lipids. Metabolism: - β oxidation and cholesterol biosynthesis	16
February	Vitamins: - Sources and deficiency. Endocrine system of vertebrates: - Introduction: - Definition of endocrine, Paracrine and Autocrine system. Significance of endocrine and neuro - endocrine system.	10
March	Pituitary gland: - Morphology & histological structure, Hormones and their function. Thyroid gland: - Morphology & histological structure	05

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2019-2020

NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. V Semester**

Months	Topic Taught	Periods
	Paper No. XVII V Semester	
July	Definition, basic concept, terminology used in ecology. Abiotic environmental factors: Temperature; Concept, temperature fluctuation in different environment. Range of temperature tolerance, effect of temperature on animals, Thermal adaptation. Light-Concept, Light variation in different environment, effect of light on animals. Adaptation to salinity and moisture	10
August	Biotic environmental factors: - Composition: - Definition, types, intraspecific and interspecific composition. Predation: - Definition, characteristics of predation. Commensalisms: - Definition and types with examples. Mutualism: - Definition and example. Parasitism: - Definition and types with examples.	08
September	Population: - Definition and basic concepts, Characteristics of population; Density, Natality, Mortality, Dispersion and Age distribution. Population growth. Population regulation. Community: - Definition, basic concept and types. Structure of community; producer, consumers and decomposers. Characters; ecological niche, diversity, abundance, dominance, ecotone, edge effect. Community succession; example of succession and climax	12
October	Ecosystem: - Definition, concept and types. Components of ecosystem, Dynamics of ecosystem: - primary production, secondary production, food chain, food web, tropic level, energy of flow, ecological pyramids. Brief introduction to major ecosystems: - Marine ecosystem, Pond ecosystem, Forest ecosystem and Desert ecosystem	15
	Paper No. XVII C V Semester	
December	Introduction to Economic entamology. Methods of collection and preservation of insect. Type study of grasshopper- systematic position, external morphology, digestive, nervous, reproductive system including development.	12
January	Insect –orders (general characters) Thysanura Collembella Lepidoptera Diptera Coeloptera Hymenoptera	12
February	House hold and Human insect pest:- Bed bugs, Mosquito, Rat Flea, and House fly, Cockroach, Pediculus. Metamorphosis in insect, types of metamorphosis with example	12
March	Insect Culture (gross study) Apiculture, Sericulture and lac culture	08

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2019-2020

NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. VI Semester**

Months	Topic Taught	Periods
	Paper No. XXI VI Semester	
July	Concept of organic evolution: - Definition and concept. Theories of organic evolution in brief; Preformation theory, Bear's Law, Biogenetic law, catastrophism, Lamarckism, Darwinism and Germplasm theory. Origin of Life: - Definition, Abiogenesis, Biogenesis. Chemical evolution of life. Evidences of Organic Evolution: - Anatomical evidences. ¾ Embryological evidences.	12
August	Darwinism: - Introduction: - Natural selection theory, Artificial selection theory and sexual selection theory. Elemental forces of evolution: - Mutation: - Concept and role in evolution. Recombination: - Concept and role in evolution. ¾ Natural selection: - Concept and role in evolution. Isolation: - Concept and role in evolution. Genetic Drift. : - Concept and role in evolution	12
September	Basic patterns of evolution: - Sequential and divergent evolution. Microevolution: - Concept, silent features and mechanism with example. Macro evolution: - Concept, silent features and mechanism with example. Mega evolution: - Concept, silent features and mechanism with example.	12
October	Species and speciation: - Species: - Morphological concept, Genetical concept, biological concept of species, Speciation: - Definition, concept, mechanism of speciation. Allopatric, Sympatric and Parapatric speciation. Fossils: - Definition, fossil formation, Types of fossils.	10
	Paper No. XXII C VI Semester	
December	Pest Management pest –Definition, types of pest, agricultural, veterinary and medical pest. Study of major crop pest: - Classification, Characters. Jawar-Stem borer, Midge flies	12
January	Cotton- Red cotton bug, pink bollworm Groundnut-White grub, pod sucking bug Sugarcane- Pyrilla, Stem borer. III Study of Stored grain pests: 08 Rice weevil, pulse bettle	12
February	Control measures of insect pest. Methods of control measures-Chemical, Biological, integrated pest management. V migration of insect.	11
March	Insecticides and plant protection appliances like Hand compression spray, Hand rotating duster, bucket pump	10

Vaidya V.V.

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TEACHING PLAN 2021-2022

NAME OF THE FACULTY: DR. JADHAV S.S. **CLASS: B.Sc. I &II Semester**

Months	Topic	Periods
	Paper No. II I - Semester	
October	Structure of Prokaryotic Cell, Structure of Eukaryotic Cell, Cell Cycle, Mitosis, Meiosis.	12
November	Structure and function: Endoplasmic Reticulum, Golgi Bodies, Nucleus, Lysosome, Ribosome.	10
December	Mitochondria: Morphology{Ultra Structure and Biogenesis} DNA Structure, Types of RNA, Cytology of Cancer and Types.	10
January	Light Microscope, Phase Contrast Microscope, Electron Microscope, Micro technique, Fixation, Staining	13
	Paper No. VI II - Semester	
March	Definition of Genetics and Variation, Mendel's Law of Heredity, Epitasis, Supplementary gene, Complementary gene. Spontaneous and Induced mutation	12
April	Coat Colour in Rabbit, ABO Blood group in man, Rh factors, Definition of Maternal Effect, coiling shell in Snail, Male sterility. Chromosomal aberration {Structure and numerical}, Spontaneous and Induced mutation	11
May	Co2 sensitivity in Drosophila, Kappa Particles in paramecia Chromosomal theory, in sex determination, Gene balance theory of sex determination.	12
June	Triploid intersexes and Gynandromorphs in Drosophila, Mutation, Gene Mutation: Definition and Classification, Chromosomal aberration {structure and numerical}.	10

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TEACHING PLAN 2021-2022

NAME OF THE FACULTY: DR. JADHAV S.S. CLASS: B.Sc. III & IV Semester

Months	Topic	Periods
	Paper No. X III Semester	
October	Definition, concept and function of gene, Transcription of gene: - Initiation, elongation and termination. Genetic code:- Concept of codon, properties of genetic code, Translation of gene: - Initiation, elongation and termination.	09
November	Gene Pool., Gene Frequency, Herdy-weinberg's Law,Application of Herdy-weinberg's Law, Human chromosomes, Sex linked inheritance- X and Y Linked, Dizygotic and monozygotic twins, Inborn errors in metabolism: - PKU, Albinism.	12
December	Genetic disorders: - Down's syndrome, Turners' syndrome Klinefelter's syndrome, Use of human genetics in medical science: - Disease diagnosis Gene therapy and DNA finger printing, Microbial Genetics: - Transformation, Conjugation, Transduction.	12
January	Genetic Engineering: - Introduction: - Definition, Concept and significance. Restriction enzymes: - Concept and types. Cloning vectors: - Plasmid, Cosmid, phase. Construction of r-DNA. Application of r-DNA technology	12
	Paper No. XIV IV Semester	
March	Definition, concept and nomenclature, Properties, classification, Mechanism of enzyme action, Factors affecting enzyme action (Temperature, pH, Substrates & Co-enzyme.) Adrenal gland: - Morphology & histological structure, Hormones and their function. Pancreas: - Islets of langarhance-Histological structure Hormones and their function.	12
April	Carbohydrates: - Definition Classification monosaccharide, disaccharides, oligosaccharides and polysaccharides. Metabolism: - Glucogenesis, Gluconeogenesis, Glycolysis, TCA. & oxidative phosphoration. Proteins :- Definition , classification -simple , conjugated and derived proteins,	13
May	Structure of proteins: - Primary, secondary, tertiary and quartery. Metabolism: - Deamination and transamination Definition, classification, simple, compound and derived lipids. Metabolism: - β oxidation and cholesterol biosynthesis. Vitamins: - Sources and deficiency	10
June	Endocrine system of vertebrates: - Introduction: - Definition of endocrine, Paracrine and Autocrine system. Significance of endocrine and neuro - endocrine system. Pituitary gland: - Morphology & histological structure, 0 Hormones and their function. Thyroid gland: - Morphology & histological structure	10

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TEACHING PLAN 2021-2022

NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. V Semester**

Months	Topic	Periods
	Paper No. XVII V Semester	
October	Definition, basic concept, terminology used in ecology. Abiotic environmental factors: Temperature; Concept, temperature fluctuation in different environment. Range of temperature tolerance, effect of temperature on animals, Thermal adaptation. Light-Concept, Light variation in different environment, effect of light on animals. Adaptation to salinity and moisture	10
November	Biotic environmental factors: - Composition: - Definition, types, intraspecific and interspecific composition. Predation: - Definition, characteristics of predation. Commensalisms: - Definition and types with examples. Mutualism: - Definition and example. Parasitism: - Definition and types with examples.	08
December	Population: - Definition and basic concepts, Characteristics of population; Density, Natality, Mortality, Dispersion and Age distribution. Population growth. Population regulation. Community: - Definition, basic concept and types. Structure of community; producer, consumers and decomposers. Characters; ecological niche, diversity, abundance, dominance, ecotone, edge effect. Community succession; example of succession and climax	12
January	Ecosystem: - Definition, concept and types. Components of ecosystem, Dynamics of ecosystem: - primary production, secondary production, food chain, food web, tropic level, energy of flow, ecological pyramids. Brief introduction to major ecosystems: - Marine ecosystem, Pond ecosystem, Forest ecosystem and Desert ecosystem	15
	Paper No. XVII C V Semester	
March	Introduction to Economic entamology. Methods of collection and preservation of insect. Type study of grasshopper- systematic position, external morphology, digestive, nervous, reproductive system including development.	12
April	Insect –orders (general characters) Thysanura Collembella Lepidoptera Diptera Coeloptera Hymenoptera	12
May	House hold and Human insect pest:- Bed bugs, Mosquito, Rat Flea, and House fly, Cockroach, Pediculus. Metamorphosis in insect, types of metamorphosis with example	12
June	Insect Culture (gross study) Apiculture, Sericulture and lac culture	08

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN 2021-2022

NAME OF THE FACULTY: DR. VAIDYA V.V. **CLASS: B.Sc. VI Semester**

Months	Topic	Periods
	Paper No. XXI **VI Semester**	
October	Concept of organic evolution: - Definition and concept. Theories of organic evolution in brief; Preformation theory, Bear's Law, Biogenetic law, catastrophism, Lamarckism, Darwinism and Germplasm theory. Origin of Life: - Definition, Abiogenesis, Biogenesis. Chemical evolution of life. Evidences of Organic Evolution: - Anatomical evidences. ¾ Embryological evidences.	12
November	Darwinism: - Introduction: - Natural selection theory, Artificial selection theory and sexual selection theory. Elemental forces of evolution: - Mutation: - Concept and role in evolution. Recombination: - Concept and role in evolution. ¾ Natural selection: - Concept and role in evolution. Isolation: - Concept and role in evolution. Genetic Drift. : - Concept and role in evolution	12
December	Basic patterns of evolution: - Sequential and divergent evolution. Microevolution: - Concept, silent features and mechanism with example. Macro evolution: - Concept, silent features and mechanism with example. Mega evolution: - Concept, silent features and mechanism with example.	12
January	Species and speciation: - Species: - Morphological concept, Genetical concept, biological concept of species, Speciation: - Definition, concept, mechanism of speciation. Allopatric, Sympatric and Parapatric speciation. Fossils: - Definition, fossil formation, Types of fossils.	10
	Paper No. XXII C **VI Semester**	
March	Pest Management pest –Definition, types of pest, agricultural, veterinary and medical pest. Study of major crop pest: - Classification, Characters. Jawar-Stem borer, Midge flies	12
April	Cotton- Red cotton bug, pink bollworm Groundnut-White grub, pod sucking bug Sugarcane- Pyrilla, Stem borer. III Study of Stored grain pests: 08 Rice weevil, pulse bettle	12
May	Control measures of insect pest. Methods of control measures-Chemical, Biological, integrated pest management. V migration of insect.	11
June	Insecticides and plant protection appliances like Hand compression spray, Hand rotating duster, bucket pump	10

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TEACHING PLAN 2021-2022

NAME OF THE FACULTY: DR. ABDAR R.N. **CLASS: B.Sc. I &II Semester**

Months	Topic	Periods
	Paper No. I **I - Semester**	
October	Introduction to animal kingdom, Definition of Zoology, Outline classification Protozoa, Parazoa, Metazoa and Major Phyla.Protozoa : - General characters Plasmodium vivax: - Structure of sporozoite, Life cycle; pathogenecity, Control, Prevention and Treatment of Malaria. Entamoeba histolytica: Structure, Life cycle and Control. Euglena: Morphology and Reproductive system.	12
November	Porifera : - General characters Sycon (Scypha): - Morphology, Different types of cells in sycon, canal system in Porifera. Coelenterata: - General characters Obelia: - Morphology of Obelia colony, Development of Hydra, Polymorphism in coelenterates.	10
December	Helminths : - General characters Fasciola hepatica: - Structure, Life cycle, Pathogenecity & Control Measures Taenia solium: - Structure of scolex, Mature and gravid proglottids, Life cycle, pathogenecity, and control measures.	12
January	Ascaris lumbricoides: - Structure of male & female, Life cycle, Pathogenecity & control measures. 6. Annelida: - General characters Leech: - Morphology, Digestive, Excretory & Reproductive systems.	11
	Paper No. V **II - Semester**	
March	Arthropoda: - General characters Prawn: - Structure, Digestive, Nervous, & Reproductive systems. Cockroach: External Characters, Digestive, Respiratory and Reproductive systems.	12
April	Mollusca: - General characters Pila: - External Characters, Respiratory, Circulatory, Nervous and Reproductive systems 3. Echinodermata : - General characters	10
May	Asterias (Sea Star): - Morphology of oral & aboral view, Water vascular system, Reproductive system including development. General characters and Classification of Protochordata .Amphioxus: - External features, Digestive, Circulatory	13
June	Reproductive systems including development. Hemichordata: - General characters and affinities Herdmania: - General characters and morphology	10

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NAME OF THE FACULTY: DR. ABDAR R.N. **CLASS: B.Sc. III &IV Semester**

Months	Topic	Periods
	Paper No. IX III - Semester	
October	Agnatha: - Out line classification and general characters of cyclostomata. Pisces: - Out line classification and general characters. Scoliodon: - External characters, Digestive system, Respiratory system, Blood Vascular System and Nervous System.	09
November	Amphibia: - Out line classification and general characters. Development of frog: - Fertilization Cleavage Blastula Gastulation and formation of germinal layers. Neotony Parental care in amphibia. Reptilia: - Out line classification and general characters. Calotes:-External features, Respiratory system and Blood vascular system. Poisonous and non- poisonous snakes.	12
December	Aves: - Out line classification and general characters. Columba livia: - External features, Respiratory system, Embryology of chick.-Cleavage Blastula Gastulation and formation of germinal layers and extra embryonic membranes. Flight adaptation in birds. Migration in Birds.	12
January	Mammalia: - Out line classification and general characters. Ratus ratus: - External features, Blood Vascular System, Urino-genital System and Adaptive radiation in mammals. Placentation in Mammals.	12
	Paper No. XIII IV - Semester	
March	Digestion: - Brief Introduction to digestive system. Buccal digestion - salivary secretion and digestion. Gastric digestion - gastric secretion and digestion. Intestinal digestion - Pancreatic secretion, bile juices and digestion in Small intestine, Digestion and absorption in large intestine. Respiration: - Respiratory organs. Breathing mechanism. Respiratory pigments: - Properties and function of respiratory pigments.	12
April	External respiration. Internal respiration. Transport of gases. Circulation: - Working of mammalian heart. Blood and its composition. Mechanism of blood clotting.	09
May	Excretion:-Structure of kidney. Structure of uriniferous tubules.Urine formation: - Ultra filtration selective, re-absorption and tubular secretion. Counter current multiplier system. Nerve Physiology: - Structure of nerve cells and neuron. Neuro transmitters. Synapses: - Ultra structure and function.	12
June	6) Muscles Physiology: - Ultra structure of smooth muscle, striated muscles, and cardiac muscles. Muscle contraction. Simple twitch and fatigue Reproduction: - Structure of gonads, Gametogenesis. Role of sex hormones in Reproduction. Reproductive cycles – oestrous and menstrual cycle	12

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