Name of the teacher: Prof . Pawar A.H Year: 2021-22

Semester: I

Subject: Pest management Paper: I Class: T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2021	2 & 4	11	8	1. Pest: Definition, Types of pests, Types of damages caused by the pest. 2. Pest management using Regulatory control: Quarantine, Eradication, Control districts, "Crop-free" periods.	8	1. Pest: Definition, Types of pests, Types of damages caused by the pest. 2. Pest management using Regulatory control: Quarantine, Eradication, Control districts, "Crop-free" periods.	Nil	--
2	August 2021	1 &2	11	8	3. Pest management using Cultural control:Sanitation,Tillage,Crop rotation. Cropping systems. 4. Pest management using Biological control: Ecological considerations, Biological control of insects, Biological control of plant disease, Biological control of weeds.	9	3. Pest management using Cultural control:Sanitation,Tillage,Crop rotation. Cropping systems. 4. Pest management using Biological control: Ecological considerations, Biological control of insects, Biological control of plant disease, Biological control of weeds.	1	Extra lecture was conducted
3	Sept 2021	1 & 2	12	8	5. Biotechnology approaches in pest management: Introduction. Recent advance in use of fungi and viruses. Methodology in Biotechnology, Somaclonal variability, Concept of Genetic engineering and Transgenic plants.	8	5. Biotechnology approaches in pest management: Introduction. Recent advance in use of fungi and viruses. Methodology in Biotechnology, Somaclonal variability, Concept of Genetic engineering and Transgenic plants.	Nil	--
4	Sept 2021	3 & 4	12	8	6. Integrated pest management (IPM): Principles and its components, Advantages and disadvantages, Biological control -	8	6. Integrated pest management (IPM): Principles and its components, Advantages and disadvantages, Biological control - Predators,		--

					Predators, Parasitoids, Entomopathogens, Weed killers and their mass production. 7. Insecticides: Classification of insecticides based on mode of entry, Action and chemical nature.		Parasitoids, Entomopathogens, Weed killers and their mass production. 7. Insecticides: Classification of insecticides based on mode of entry, Action and chemical nature.			
5	Oct 2021	1 & 2	12	8	Insecticides formulations and their uses. 8 Safe handling of insecticides, Insecticide residue: Methods of residue detection – Organochlorine, Organophosphates, Synthetic Pyrithroides, Systemic, Problems in fruits, vegetables, medicinal plants, Maximum permissible residue limits (MRLs).	9	Insecticides formulations and their uses. 8 Safe handling of insecticides, Insecticide residue: Methods of residue detection – Organochlorine, Organophosphates, Synthetic Pyrithroides, Systemic, Problems in fruits, vegetables, medicinal plants, Maximum permissible residue limits (MRLs).	1	Extra lecture was conducted	

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3 The second copy must be retained by the teacher and submitted at the end of the term. Part second of the plan i. e. coumns 7 to 10 must be filled up progressively at the end of every week.

Pawase
Signature of Teacher

Signature of Head of Department

Dr. J. P. Sarwade M.Sc.,Ph.D.,FZSI Head Department of Zoology, Arts, Science & Commerce College, Indapur, Dist. Pune - 413106

Signature of Faculty In-charge

Incharge Science Faculty Arts,Science & Commerce College,Indapur, Dist.Pune

Signature of the Principal

PRINCIPAL ARTS, SCIENCE AND COMMERCE COLLEGE INDAPUR-413106 DIST-PUNE

Name of the teacher: Prof Gunvare K.D **Year:** 2021-22

Semester: I

Subject: Histology **Paper:** II **Class:** T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2021	2 & 4	11	8	1. Introduction: Definition and Scope of Histology. 2. Definitions and Review of Types of Tissues: Epithelial tissue, Connective tissue, Nervous tissue, Muscular tissue.	8	1. Introduction: Definition and Scope of Histology. 2. Definitions and Review of Types of Tissues: Epithelial tissue, Connective tissue, Nervous tissue, Muscular tissue.	Nil	--
2	August 2021	1 &2	11	8	3. Histological study of following mammalian organs: Skin (V. S.), Tooth (V.s), Tongue (C. S.) with reference to mucosa papillae and taste buds.	9	3. Histological study of following mammalian organs: Skin (V. S.), Tooth (V.s), Tongue (C. S.) with reference to mucosa papillae and taste buds.	1	Extra lecture was conducted
3	Sept 2021	1 & 2	12	8	4. Histological study of Alimentary canal and Liver: Oesophagus (T. S.), Stomach (T. S.), Duodenum (T. S.), Rectum (T. S.), Liver (C. S.).	8	4. Histological study of Alimentary canal and Liver: Oesophagus (T. S.), Stomach (T. S.), Duodenum (T. S.), Rectum (T. S.), Liver (C. S.).	Nil	--
4	Sept 2021	3 & 4	12	8	5Histological study of Respiratory organs: Trachea (T. S.). Lung (C. S.). 6. Histological study of Excretory organs: Kidney (L. S.), Juxtaglomerular complex.	8	5Histological study of Respiratory organs: Trachea (T. S.). Lung (C. S.). 6. Histological study of Excretory organs: Kidney (L. S.), Juxtaglomerular complex.		--
5	Oct 2021	1 & 2	12	8	7. Histological study of Reproductive organs: Testis (T. S.) with reference to Seminiferous Tubules and Cells of Leydig, Ovary (C. S.).	9	7. Histological study of Reproductive organs: Testis (T. S.) with reference to Seminiferous Tubules and Cells of Leydig, Ovary (C. S.).	1	Extra lecture was conducted

					8 Histology of Endocrine glands:Pituitary gland, Thyroid gland, Adrenal gland, Pancreas (C. S.) including both exocrine and endocrine components.		8 Histology of Endocrine glands:Pituitary gland, Thyroid gland, Adrenal gland, Pancreas (C. S.) including both exocrine and endocrine components.		

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Signature of Teacher

Signature of Head of Department

Dr. J. P. Sarwade
M.Sc.,Ph.D.,FZSI
Head
Department of Zoology,
Arts, Science & Commerce College,
Indapur, Dist. Pune - 413106

Signature of Faculty In-charge

Incharge
Science Faculty
Arts,Science & Commerce
College,Indapur, Dist.Pune

Signature of the Principal

PRINCIPAL
ARTS, SCIENCE AND
COMMERCE COLLEGE
INDAPUR-413106 DIST-PUNE

Name of the teacher: Prof Bandpatte A. **Year: 2021-22**

Semester: I

Subject: Biological Chemistry **Paper: III** **Class: T Y B Sc**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2021	2 & 4	11	8	1. Introduction of Biochemistry: Importance of Biochemistry in Life Sciences. 2. p H and Buffers: Concept of pH, Concept of pH scale, biological significance of p H , Concept of acid and base, Ionization of acids and bases, Derivation of Henderson-Hassel Balch equation & its applications, Buffer - Definition, Concept, Functions, Types of buffer and Buffering Capacity.	8	1. Introduction of Biochemistry: Importance of Biochemistry in Life Sciences. 2. p H and Buffers: Concept of pH, Concept of pH scale, biological significance of p H , Concept of acid and base, Ionization of acids and bases, Derivation of Henderson-Hassel Balch equation & its applications, Buffer - Definition, Concept, Functions, Types of buffer and Buffering Capacity.	Nil	--
2	August 2021	1 &2	11	8	3. Carbohydrates: Definition, Classification & Biological importance of Carbohydrates Isomerism in carbohydrates - Structural and Stereoisomerism, Significance of Gluconeogenesis, Glycogenolysis and Glycogenesis, Clinical Significance - Hypoglycemia and Hyperglycemia.	9	3. Carbohydrates: Definition, Classification & Biological importance of Carbohydrates Isomerism in carbohydrates - Structural and Stereoisomerism, Significance of Gluconeogenesis, Glycogenolysis and Glycogenesis, Clinical Significance - Hypoglycemia and Hyperglycemia.	1	Extra lecture was conducted
3	Sept 2021	1 & 2	12	8	4. Amino acids and Proteins: General Structure of amino acids and Peptide bond, Essential and non-essential amino acids, Types of proteins, protein structures (primary,	8	4. Amino acids and Proteins: General Structure of amino acids and Peptide bond, Essential and non-essential amino acids, Types of proteins, protein structures (primary, secondary, tertiary	Nil	--

					secondary, tertiary and quaternary structures with suitable example), Forces responsible for their stability, Biological importance of proteins – Biocatalysts, Carrier proteins Contractile proteins, Hormonal role of proteins.		and quaternary structures with suitable example), Forces responsible for their stability, Biological importance of proteins – Biocatalysts, Carrier proteins Contractile proteins, Hormonal role of proteins.		
4	Sept 2021	3 & 4	12	8	5. Enzymes: Nomenclature, Types and properties of enzymes, Regulatory and non-regulatory enzymes, Enzyme inhibition, Factors influencing enzyme activity (pH, temperature, substrate concentration), Introduction of isoenzymes and cofactor	8	5. Enzymes: Nomenclature, Types and properties of enzymes, Regulatory and non-regulatory enzymes, Enzyme inhibition, Factors influencing enzyme activity (pH, temperature, substrate concentration), Introduction of isoenzymes and cofactor		--
5	Oct 2021	1 & 2	12	8	Clinical significance of enzymes - PKU and AKU 6. Lipids: Introduction. Fatty acids - Types and nomenclature (saturated and unsaturated), Clinical significance (obesity, atherosclerosis, myocardial infarction), Biological importance of lipids.	9	Clinical significance of enzymes - PKU and AKU 6. Lipids: Introduction. Fatty acids - Types and nomenclature (saturated and unsaturated), Clinical significance (obesity, atherosclerosis, myocardial infarction), Biological importance of lipids.	1	Extra lecture was conducted

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ABandpatte

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Signature of Head of Department

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M.Sc.,Ph.D.,FZSI
Head
Department of Zoology,
Arts, Science & Commerce College,
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Incharge
Science Faculty
Arts,Science & Commerce
College,Indapur, Dist.Pune

Signature of the Principal

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INDAPUR-413106 DIST-PUNE

Name of the teacher: Prof. Satav D.S. **Year:** 2021-22

Semester: I

Subject: Genetics **Paper:** IV **Class:** T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2021	2 & 4	11	8	1. Introduction to genetics: Classical and Modern concept of Gene, Cistron, Muton, Recon, Mendel's laws of Inheritance. 2 Exceptions to Mendelian Inheritance: Incomplete dominance,Co-dominance, Multiple alleles: Concept, characteristics and importance of multiple	8	1. Introduction to genetics: Classical and Modern concept of Gene, Cistron, Muton, Recon, Mendel's laws of Inheritance. 2 Exceptions to Mendelian Inheritance: Incomplete dominance,Co-dominance, Multiple alleles: Concept, characteristics and importance of multiple	Nil	--
2	August 2021	1 &2	11	8	Lethal alleles. 3. Gene Mutation: Definition, Types of mutations: spontaneous, induced, somatic, gametic, forward, reverse. Types of point mutation - deletion, insertion, substitution, transversion, transition, Mutagenic agents a) UV radiation and ionising radiation. b) Base analogs, alkylating and intercalating agents.	9	Lethal alleles. 3. Gene Mutation: Definition, Types of mutations: spontaneous, induced, somatic, gametic, forward, reverse. Types of point mutation - deletion, insertion, substitution, transversion, transition, Mutagenic agents a) UV radiation and ionising radiation. b) Base analogs, alkylating and intercalating agents.	1	Extra lecture was conducted
3	Sept 2021	1 & 2	12	8	4. Sex-determination: Introduction, Types of sex determination: -XX-XY, ZZ-ZW, XX-XO and Parthenogenesis, Hypodiploidy, Gynandromorphism. 5. Population Genetics:Basic Concepts in population genetics:	8	4. Sex-determination: Introduction, Types of sex determination: -XX-XY, ZZ-ZW, XX-XO and Parthenogenesis, Hypodiploidy, Gynandromorphism. 5. Population Genetics:Basic Concepts in population genetics: Mendelian	Nil	--

					Mendelian population, gene pool, gene / allele, Frequency, chance mating (Panmictic mating), Hardy Weinberg law and its equilibrium.		population, gene pool, gene / allele, Frequency, chance mating (Panmictic mating), Hardy Weinberg law and its equilibrium.			
4	Sept 2021	3 & 4	12	8	6. Human Population Genetics: Karyotype, Genetic disorders, Structural & numerical alterations of chromosomes (chromosomal aneuploidy - Down, Patau, Edward, Turner and Klinefelter syndromes).	8	6. Human Population Genetics: Karyotype, Genetic disorders, Structural & numerical alterations of chromosomes (chromosomal aneuploidy - Down, Patau, Edward, Turner and Klinefelter syndromes).			--
5	Oct 2021	1 & 2	12	8	7. Sex linked inheritance in human: Colour – blindness, Haemophilia, Hypertrichosis 8. Application of genetics: Genetic counselling, Diagnostics & breeding technology.	9	7. Sex linked inheritance in human: Colour – blindness, Haemophilia, Hypertrichosis 8. Application of genetics: Genetic counselling, Diagnostics & breeding technology.	1		Extra lecture was conducted

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Signature of Teacher

Signature of Head of Department

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Signature of Faculty In-charge

Science Faculty
Arts,Science & Commerce
College,Indapur, Dist.Pune

Signature of the Principal

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COMMERCE COLLEGE
INDAPUR-413106 DIST-PUNE

Name of the teacher: Prof .Mengade N.S.
Semester: I
Year: 2021-22
Subject: Developmental Biology
Paper: V
Class: T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2021	2 & 4	11	8	**Fundamentals of Developmental Biology:** Definition and scope. Concepts in Developmental Biology: Growth, Differentiation, Dedifferentiation, Cell determination, Cell communication, Morphogenesis, Induction and Regeneration. **Theories of Developmental Biology**: Preformation, Pangenesis. Epigenesis. Axial gradient. Germplasm. **Gametogenesis:** Spermatogenesis & Structure of sperm with respect to human. 3.2 Oogenesis & Structure of ovum with respect to human. 3.3 Types of eggs.	8	**Fundamentals of Developmental Biology:** Definition and scope. Concepts in Developmental Biology: Growth, Differentiation, Dedifferentiation, Cell determination, Cell communication, Morphogenesis, Induction and Regeneration. **Theories of Developmental Biology**: Preformation, Pangenesis. Epigenesis. Axial gradient. Germplasm. **Gametogenesis:** Spermatogenesis & Structure of sperm with respect to human. 3.2 Oogenesis & Structure of ovum with respect to human. 3.3 Types of eggs.	Nil	--
2	August 2021	1 &2	11	8	**Fertilization**: Concept and types Chemotaxis. Sperm penetration: Acrosome reaction, Capacitation & Decapacitation. Activation of ovum: Fertilization cone. Prevention of polyspermy: Fast block & Slow block. Significance of fertilization. **Cleavage and Blastula:** Planes and symmetry of cleavage. Types of cleavage.	9	**Fertilization**: Concept and types Chemotaxis. Sperm penetration: Acrosome reaction, Capacitation & Decapacitation. Activation of ovum: Fertilization cone. Prevention of polyspermy: Fast block & Slow block. Significance of fertilization. **Cleavage and Blastula:** Planes and symmetry of cleavage. Types of cleavage.	1	Extra lecture was conducted
3	Sept 2021	1 & 2	12	8	**Definition and types of Blastulae**. Gastrulation: Definition and Concept. Basic cell movements in gastrulation: Epiboly, Emboly, Convergence, Invagination, Ingression & Involution with reference to frog. **Concept of Organizer**: Primary, Secondary and Tertiary.	8	**Definition and types of Blastulae**. Gastrulation: Definition and Concept. Basic cell movements in gastrulation: Epiboly, Emboly, Convergence, Invagination, Ingression & Involution with reference to frog. **Concept of Organizer**: Primary, Secondary and Tertiary.	Nil	--
4	Sept 2021	3 & 4	12	8	**Chick Embryology:** **7.1 Structure of Hen's egg.**	8			--

5	Oct 2021	1 & 2	12	8	**Fundamentals of Developmental Biology:** Definition and scope. Concepts in Developmental Biology: Growth, Differentiation, Dedifferentiation, Cell determination, Cell communication, Morphogenesis, Induction and Regeneration. **Theories of Developmental Biology**: Preformation, Pangenesis. Epigenesis. Axial gradient. Germplasm. **Gametogenesis:** Spermatogenesis & Structure of sperm with respect to human. 3.2 Oogenesis & Structure of ovum with respect to human. 3.3 Types of eggs.	9	**Fundamentals of Developmental Biology:** Definition and scope. Concepts in Developmental Biology: Growth, Differentiation, Dedifferentiation, Cell determination, Cell communication, Morphogenesis, Induction and Regeneration. **Theories of Developmental Biology**: Preformation, Pangenesis. Epigenesis. Axial gradient. Germplasm. **Gametogenesis:** Spermatogenesis & Structure of sperm with respect to human. 3.2 Oogenesis & Structure of ovum with respect to human. 3.3 Types of eggs.	1	Extra lecture was conducted

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Indapur, Dist. Pune - 413106

Signature of Faculty In-charge

Science Faculty
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College,Indapur, Dist.Pune

Signature of the Principal

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Name of the teacher: Prof Jamdade S.P.
Semester: I **Year: 2021-22**
Subject: Parasitology **Paper: VI** **Class: T Y B Sc**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2021	2 & 4	11	8	1. Introduction, Scope and Branches of Parasitology:Definition: host, parasite, vector, commensalisms, mutualism and parasitism, Branches of parasitology. 2. Types of Parasites and Hosts: Ectoparasites, Endoparasites and its subtypes, Types of hosts - Intermediate, definitive, paratenic and reservoir.	8	1. Introduction, Scope and Branches of Parasitology:Definition: host, parasite, vector, commensalisms, mutualism and parasitism, Branches of parasitology. 2. Types of Parasites and Hosts: Ectoparasites, Endoparasites and its subtypes, Types of hosts - Intermediate, definitive, paratenic and reservoir.	Nil	--
2	August 2021	1 &2	11	8	3.Host - Parasite relationship: Host specificity, Types of host specificity: structural specificity, physiological specificity and ecological specificity, Effects of parasite on host. 4. Study of Parasitic Protists: Entamoeba histolytica - Morphology, Life Cycle, Prevalence, Epidemiology,	9	3.Host - Parasite relationship: Host specificity, Types of host specificity: structural specificity, physiological specificity and ecological specificity, Effects of parasite on host. 4. Study of Parasitic Protists: Entamoeba histolytica - Morphology, Life Cycle, Prevalence, Epidemiology,	1	Extra lecture was conducted
3	Sept 2021	1 & 2	12	8	Pathogenicity, Diagnosis, Prophylaxis and Treatment , Plasmodium vivax - Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity,	8	Pathogenicity, Diagnosis, Prophylaxis and Treatment , Plasmodium vivax - Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment.	Nil	--

					Diagnosis, Prophylaxis and Treatment.				
4	Sept 2021	3 & 4	12	8	5. Study of Parasitic worms: Ascaris lumbricoides - Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment, 5.3 Taenia solium (Tapeworm) - Study of Morphology, Life Cycle, Prevalence, Epidemiology,	8	5. Study of Parasitic worms: Ascaris lumbricoides - Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment, 5.3 Taenia solium (Tapeworm) - Study of Morphology, Life Cycle, Prevalence, Epidemiology,		--
5	Oct 2021	1 & 2	12	8	Pathogenicity, Diagnosis, Prophylaxis and Treatment 6. Study of Parasitic Arthropoda: Morphology, pathogenicity and control measures of – Soft tick, Head louse, Rat flea, Bed bug	9	Pathogenicity, Diagnosis, Prophylaxis and Treatment 6. Study of Parasitic Arthropoda: Morphology, pathogenicity and control measures of – Soft tick, Head louse, Rat flea, Bed bug	1	Extra lecture was conducted

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Signature of Teacher **Signature of Head of Department** **Signature of Faculty In-charge** **Signature of the Principal**

Dr. J. P. Sarwade
M.Sc.,Ph.D.,FZSI
Head
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Arts, Science & Commerce College,
Indapur, Dist. Pune - 413106

Incharge
Science Faculty
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College,Indapur, Dist.Pune

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ARTS, SCIENCE AND
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Arts, Science and Commerce College, Indapur, Dist. Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Prof . Mengade N.S.	**Year:** 2021-22		**Semester:** VI
Subject: ZO 361 - Medical & Forensic Zoology		**Paper:** I	**Class:** T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2022	3 & 4	9	8	1. Introduction to medical zoology and its importance 2. Medico-legal Autopsy: Death and its Causes- External examination of deceased body – Internal Examination - Determination of time since death and cause of death, Injuries – Classification - Medico-legal aspects of injuries, Post-mortem changes - collection of post-mortem samples and Preservation.	8	1. Introduction to medical zoology and its importance 2. Medico-legal Autopsy: Death and its Causes- External examination of deceased body – Internal Examination - Determination of time since death and cause of death, Injuries – Classification - Medico-legal aspects of injuries, Post-mortem changes - collection of post-mortem samples and Preservation.	Nil	---
2	Aug2022	1& 2	12	8	3. Urine Analysis: Physical characteristics, abnormal constituents, renal failure, renal calculi, dialysis. 4. Non infectious Diseases: Causes, Types, Symptoms, Complications, Diagnosis and Prevention of	10	3. Urine Analysis: Physical characteristics, abnormal constituents, renal failure, renal calculi, dialysis. 4. Non infectious Diseases: Causes, Types, Symptoms, Complications, Diagnosis and Prevention of Diabetes (Type I and II), Hypertension,	1	Extra lecture was conducted

					Diabetes (Type I and II), Hypertension, Hypotension, Obesity, Atherosclerosis, Myocardial Infraction.		Hypotension, Obesity, Atherosclerosis, Myocardial Infraction.		
3	Sept2022	3 & 4	11	7	5. Infectious Diseases: Causes, Types, Symptoms, Complications, Diagnosis and Prevention of Tuberculosis and Hepatitis. 6. Introduction to Forensic Zoology: Definition, Scope and Application of Forensic Zoology, Forensic Laboratories in India, Basic Principles of Forensic Science with Examples	8	5. Infectious Diseases: Causes, Types, Symptoms, Complications, Diagnosis and Prevention of Tuberculosis and Hepatitis. 6. Introduction to Forensic Zoology: Definition, Scope and Application of Forensic Zoology, Forensic Laboratories in India, Basic Principles of Forensic Science with Examples	Nil	---
4	Sept 2022	1 &2	11	8	7. Forensic Medicine: Introduction to Forensic Medicine: Definitions of Forensic Medicine, Medical Jurisprudence, Medical evidence documentations. 8. Forensic Analysis: Examination of Biological Materials: Examination of Hair, Fibres, Diatoms, plants materials, human tissues, Examination of Body Fluid: Blood, Semen and Saliva, Forensic Importance of Insects: Insects of forensic importance - indicators of time of death stages of insect development & comparative decomposition of human body - colonization - Evidence collection of insects – Territorial & Aquatic Insects.	8	7. Forensic Medicine: Introduction to Forensic Medicine: Definitions of Forensic Medicine, Medical Jurisprudence, Medical evidence documentations. 8. Forensic Analysis: Examination of Biological Materials: Examination of Hair, Fibres, Diatoms, plants materials, human tissues, Examination of Body Fluid: Blood, Semen and Saliva, Forensic Importance of Insects: Insects of forensic importance - indicators of time of death stages of insect development & comparative decomposition of human body - colonization - Evidence collection of insects – Territorial & Aquatic Insects.	Nil	---

5	Oct2022	3 & 4	12	8	8.4 DNA Fingerprint Technique and Examination of Biological Traces: Liquid blood, blood stains, & swabs, semen, Seminal stains, tissues, Bones, Hairs, Teeth, Saliva, Skeletal remains, Toxicological Investigations: Poisons – Definition, Forms of Poison – Physical, Chemical & Mechanical state. Introduction with examples of – Neurotoxic Poisons – Cerebral & Spinal, Cardiovascular Poisons, Asphyxiants, Miscellaneous poisons – Pesticides, Pharmaceutical drugs, Petroleum poisons, Food poisons, Radioactive poisons.	8	8.4 DNA Fingerprint Technique and Examination of Biological Traces: Liquid blood, blood stains, & swabs, semen, Seminal stains, tissues, Bones, Hairs, Teeth, Saliva, Skeletal remains, Toxicological Investigations: Poisons – Definition, Forms of Poison – Physical, Chemical & Mechanical state. Introduction with examples of – Neurotoxic Poisons – Cerebral & Spinal, Cardiovascular Poisons, Asphyxiants, Miscellaneous poisons – Pesticides, Pharmaceutical drugs, Petroleum poisons, Food poisons, Radioactive poisons.	Nil	---

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Indapur, Dist. Pune - 413106

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Signature of Principal

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Name of the teacher: Prof Gunvare K.D.	**Year: 2021-22**	**Semester: VI**
Subject: ZO 362 - Animal Physiology	**Paper: II**	**Class: T Y B Sc**

Part I : Teaching Plan						**Part II : Evaluation of Plan**			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Sr. No.	**Month**	**Week**	**No. of working days**	**No. of periods available**	**Topics to be taught**	**No. of periods engaged**	**Topics taught**	**Deviation in periods**	**Remarks**
1	July2022	3 & 4	9	8	1. Nutrition and digestion: Nutritional requirement & balanced diet, Digestion and absorption of carbohydrates, proteins and lipids, Vitamins - outline of fat soluble and water-soluble vitamins; Sources, deficiency and diseases. 2. Respiration: Mechanism of respiration: Regulation of ventilation in lungs, exchange of gases at respiratory surface	8	1. Nutrition and digestion: Nutritional requirement & balanced diet, Digestion and absorption of carbohydrates, proteins and lipids, Vitamins - outline of fat soluble and water-soluble vitamins; Sources, deficiency and diseases. 2. Respiration: Mechanism of respiration: Regulation of ventilation in lungs, exchange of gases at respiratory surface	Nil	---
2	Aug2022	1& 2	12	8	Respiratory pigments in animals: Haemoglobin, Hemocyanin, Hemerythrin, Chlorocruorin, Transport of gases : O2 and CO2 transport. 3. Circulation: Blood: Definition and its constituents, functions of blood, Heart: Structure of human heart, Pace maker, Cardiac Cycle, Origin and conduction of heart beat.	10	Respiratory pigments in animals: Haemoglobin, Hemocyanin, Hemerythrin, Chlorocruorin, Transport of gases : O2 and CO2 transport. 3. Circulation: Blood: Definition and its constituents, functions of blood, Heart: Structure of human heart, Pace maker, Cardiac Cycle, Origin and conduction of heart beat.	Nil	---

3	Sept2022	3 & 4	11	7	4. Excretion: Structure of Uriniferous tubule, Mechanism of urine formation, Normal and abnormal constituents of urine, Elementary idea of dialysis. 5. Muscles: Structure of smooth, skeletal and cardiac muscles.	8	4. Excretion: Structure of Uriniferous tubule, Mechanism of urine formation, Normal and abnormal constituents of urine, Elementary idea of dialysis. 5. Muscles: Structure of smooth, skeletal and cardiac muscles.	1	Extra lecture was conducted
4	Sept 2022	1 &2	11	8	Mechanism of muscle contraction by Sliding filament theory. 6. Reproduction and Endocrine Glands: Physiology of male reproduction, hormonal control of spermatogenesis.	8	Mechanism of muscle contraction by Sliding filament theory. 6. Reproduction and Endocrine Glands: Physiology of male reproduction, hormonal control of spermatogenesis.	Nil	---
5	Oct2022	3 & 4	12	8	Physiology of female reproduction, hormonal control of menstrual cycle, Structure and functions of pituitary, thyroid, parathyroid, pancreas and adrenal glands.	8	Physiology of female reproduction, hormonal control of menstrual cycle, Structure and functions of pituitary, thyroid, parathyroid, pancreas and adrenal glands.	Nil	---

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Signature of Principal

PRINCIPAL
ARTS, SCIENCE AND
COMMERCE COLLEGE
INDAPUR-413106 DIST-PUNE

Name of the teacher: Prof Dr Sarwade J.P. **Year:** 2021-22 **Semester:** VI

Subject: Molecular Biology **Paper:** III **Class:** T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2022	3 & 4	9	8	1. Nucleic Acids and Chromatin: Structure of RNA & DNA, Types of RNA, DNA as genetic material - evidences (Griffith's, Avery et al., Hershey and Chase experiment), RNA as genetic material - TMV 4, Structure of Chromatin, packaging of DNA, Heterochromatin, Euchromatin.	8	1. Nucleic Acids and Chromatin: Structure of RNA & DNA, Types of RNA, DNA as genetic material - evidences (Griffith's, Avery et al., Hershey and Chase experiment), RNA as genetic material - TMV 4, Structure of Chromatin, packaging of DNA, Heterochromatin, Euchromatin.	Nil	---
2	Aug2022	1& 2	12	8	2. Central Dogma of Molecular Biology: DNA Replication - Semiconservative (Messelson and Stahl experiment), Basic mechanism of replication in prokaryotes and eukaryotes	10	2. Central Dogma of Molecular Biology: DNA Replication - Semiconservative (Messelson and Stahl experiment), Basic mechanism of replication in prokaryotes and eukaryotes	Nil	---
3	Sept2022	3 & 4	11	7	Transcription - Basic mechanism of transcription in prokaryotes and eukaryotes, RNA polymerase enzyme in prokaryotes. RNA modifications and processing (splicing - mRNA, modifications at 3'and 5' end).	8	Transcription - Basic mechanism of transcription in prokaryotes and eukaryotes, RNA polymerase enzyme in prokaryotes. RNA modifications and processing (splicing - mRNA, modifications at 3'and 5' end).	Nil	---

4	Sept 2022	1 &2	11	8	Translation - Genetic code, properties of genetic code, Basic mechanism of Translation in E. coli and eukaryotic cells. 3. Lac operon: 4. DNA repair mechanism: Photo repair, dark repair, base excision repair.	8	Translation - Genetic code, properties of genetic code, Basic mechanism of Translation in E. coli and eukaryotic cells. 3. Lac operon: 4. DNA repair mechanism: Photo repair, dark repair, base excision repair.	1	Extra lecture was conducted
5	Oct2022	3 & 4	12	8	5. Recombinant DNA Technology: Introduction, restriction enzymes, cloning vector, PCR (polymerase chain reaction), DNA finger printing.	8	5. Recombinant DNA Technology: Introduction, restriction enzymes, cloning vector, PCR (polymerase chain reaction), DNA finger printing.	1	Extra lecture was conducted

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INDAPUR-413106 DIST-PUNE

of the teacher: Prof Dr. Salunkhe R.V. Year: 2021-22 Semester: VI

t: Entomology Paper: IV Class: T Y B Sc

Part I : Teaching Plan					Part II : Evaluation of Plan			
2	3	4	5	6	7	8	9	10
Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
	3 & 4	9	8	1. Fundamentals of Entomology: Definition and scope of Entomology, General Classification of Insects,General Characters of Insects. 2. Insect Morphology: Insect Integument and its derivatives, Insect Head, Head Orientations, Head articulations, Insect antennae and Mouth parts.	8	1. Fundamentals of Entomology: Definition and scope of Entomology, General Classification of Insects,General Characters of Insects. 2. Insect Morphology: Insect Integument and its derivatives, Insect Head, Head Orientations, Head articulations, Insect antennae and Mouth parts.		
Aug2022	1& 2	12	8	2.3 Insect Thorax, Insect Wing and modifications, Insect Leg and Modifications – a) Cursorial – Cockroach, b) Fossorial – Mole cricket, c) Saltorial – Grasshopper, d) Raptorial – Praying mantis, e) Pollen basket – Honey bee, Insect Abdomen, Genital and Pre – genital appendages of Grasshopper 3. Insect Anatomy (Grasshopper): Digestive System, Circulatory	10	2.3 Insect Thorax, Insect Wing and modifications, Insect Leg and Modifications – a) Cursorial – Cockroach, b) Fossorial – Mole cricket, c) Saltorial – Grasshopper, d) Raptorial – Praying mantis, e) Pollen basket – Honey bee, Insect Abdomen, Genital and Pre – genital appendages of Grasshopper 3. Insect Anatomy (Grasshopper): Digestive System, Circulatory System	Nil	---

				System				
Sept2022	3 & 4	11	7	Nervous System, Respiratory System, Reproductive System. 4. Insect Ecology: Definition of Insect Ecology, Abiotic Factors (Photoperiod, Temperature and Humidity) and Biotic Factors (Food, Foraging and Nesting), Mimicry in insects with suitable examples.	8	Nervous System, Respiratory System, Reproductive System. 4. Insect Ecology: Definition of Insect Ecology, Abiotic Factors (Photoperiod, Temperature and Humidity) and Biotic Factors (Food, Foraging and Nesting), Mimicry in insects with suitable examples.	Nil	---
Sept 2022	1 &2	11	8	5. Insect Metamorphosis: Definition, Types and examples of Metamorphosis. 6. Insects as social groups: Definition & significance of Eusociality, Intraspecific and Interspecific relationships among insects.	8	5. Insect Metamorphosis: Definition, Types and examples of Metamorphosis. 6. Insects as social groups: Definition & significance of Eusociality, Intraspecific and Interspecific relationships among insects.	Nil	---
Oct2022	3 & 4	12	8	Social organization in Wasps and Termites. 7. Economic Importance of Insects: Insects in Research, Insects in Medicines and Cosmetics, Insects as Vectors, Insects as food.	8	Social organization in Wasps and Termites. 7. Economic Importance of Insects: Insects in Research, Insects in Medicines and Cosmetics, Insects as Vectors, Insects as food.	Nil	---

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INDAPUR-413106 DIST-PUNE

Name of the teacher: Prof Dr. Salunkhe R.V. Year: 2021-22 Semester: VI

Subject: ZO 365 - Techniques in Biology Paper: V Class: T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	1
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Rem
1	July2022	3 & 4	9	8	1.Microscopy: Definitions - Resolving Power, Limit of Resolution and Magnification, Numerical Aperture. Basic principle of microscopes - Light, Fluorescence, Phase Contrast, Stereo Microscope, SEM and TEM. 2. Microtomy: Tissue fixation and Processing, Methods of tissue fixation: Chemical fixation and physical fixation, Procurement of tissue and importance of fixation of tissues, Dehydration, clearing, impregnation, embedding and block making.	8	1.Microscopy: Definitions - Resolving Power, Limit of Resolution and Magnification, Numerical Aperture. Basic principle of microscopes - Light, Fluorescence, Phase Contrast, Stereo Microscope, SEM and TEM. 2. Microtomy: Tissue fixation and Processing, Methods of tissue fixation: Chemical fixation and physical fixation, Procurement of tissue and importance of fixation of tissues, Dehydration, clearing, impregnation, embedding and block making.	Nil	---
2	Aug2022	1& 2	12	8	Types of microtomes, Section cutting: steps and precautions, common faults in section cutting, reasons & remedies, Mounting and spreading of ribbons, General procedure for staining of sections, Demonstration of Nucleic acid (Feulgen Reaction).	10	Types of microtomes, Section cutting: steps and precautions, common faults in section cutting, reasons & remedies, Mounting and spreading of ribbons, General procedure for staining of sections, Demonstration of Nucleic acid (Feulgen Reaction). 3. Haematological Techniques: Total count of RBCs, WBCs and Differential count of WBCs	1	Extr lectu was cond

					3. Haematological Techniques: Total count of RBCs, WBCs and Differential count of WBCs and their significance, Bleeding time, clotting time and their significanc		and their significance, Bleeding time, clotting time and their significanc		
3	Sept2022	3 & 4	11	7	4. Immunological Techniques: Antigen-Antibody Interactions – Immunodiffusion, Principle & Working of ELISA, Raising Monoclonal Antibodies, Application of Immunological techniques in disease diagnosis. 5. Types of PCR & DNA Barcoding :	8	4. Immunological Techniques: Antigen-Antibody Interactions – Immunodiffusion, Principle & Working of ELISA, Raising Monoclonal Antibodies, Application of Immunological techniques in disease diagnosis. 5. Types of PCR & DNA Barcoding :	Nil	---
4	Sept 2022	1 &2	11	8	6. Methods in Biodiversity: Introduction to sampling and sample size, Biodiversity Indices - Species richness, Simpson Diversity Index, Shannon Diversity Index, Measuring Biodiversity- Quadrat sampling, Transect sampling, Insect survey - Active (sweep netting, aquatic nets) and Passive methodology (Pit fall traps, Light traps).	8	6. Methods in Biodiversity: Introduction to sampling and sample size, Biodiversity Indices - Species richness, Simpson Diversity Index, Shannon Diversity Index, Measuring Biodiversity- Quadrat sampling, Transect sampling, Insect survey - Active (sweep netting, aquatic nets) and Passive methodology (Pit fall traps, Light traps).	Nil	---
5	Oct2022	3 & 4	12	8	7. Instruments in Field Biology: Binoculars, GPS, Basic digital camera techniques: Camera lens - prime and kit lens, Aperture mode, Shutter mode, Megapixels, Telephoto lens, macro lens, Adapters for camera and microscopes, Mobile's camera. 8. Laboratory techniques:	8	7. Instruments in Field Biology: Binoculars, GPS, Basic digital camera techniques: Camera lens - prime and kit lens, Aperture mode, Shutter mode, Megapixels, Telephoto lens, macro lens, Adapters for camera and microscopes, Mobile's camera. 8. Laboratory techniques: Microphotographic techniques - CCD and CMOS camera, digital camera, Software for image analysis - Image J	Nil	---

					Microphotographic techniques - CCD and CMOS camera, digital camera, Software for image analysis - Image J and GIMP.		and GIMP.		

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Name of the teacher: Prof. Mengade N.S. **Year:** 2021-22 **Semester:** VI

Subject: ZO 366 - Evolutionary Biology **Paper:** VI **Class:** T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1		3 & 4	9	8	1. Introduction: Concept of Evolution, Origin of life, Origin of eukaryotic cell (Origin of mitochondria, plastids & symbionts).	8	1. Introduction: Concept of Evolution, Origin of life, Origin of eukaryotic cell (Origin of mitochondria, plastids & symbionts).	Nil	---
2	Aug2022	1& 2	12	8	2. Evidences of Evolution: Analogy and Homology, Embryological Evidences of Evolution, Evolutionary & Paleontological. Evidences	10	2. Evidences of Evolution: Analogy and Homology, Embryological Evidences of Evolution, Evolutionary & Paleontological. Evidences	Nil	---

					3. Historical Review of Evolutionary Concept: Theories of Evolution, Lamarckism, Darwinism and Neo Darwinism.		3. Historical Review of Evolutionary Concept: Theories of Evolution, Lamarckism, Darwinism and Neo Darwinism.		
3	Sept2022	3 & 4	11	7	Mutation Theory, Modern Synthetic theory. 4. Sources of Variations: Variation and Mutations 5. Isolation 6. Speciation: Types of speciation (Allopatric & Sympatric), Mechanism of speciation, Patterns of speciation.	8	Mutation Theory, Modern Synthetic theory. 4. Sources of Variations: Variation and Mutations 5. Isolation 6. Speciation: Types of speciation (Allopatric & Sympatric), Mechanism of speciation, Patterns of speciation.	Nil	---
4	Sept 2022	1 &2	11	8	Factors influencing speciation. 7 Population Genetics: Hardy-Weinberg Law & Genetic Drift, Types of Natural Selection.	8	Factors influencing speciation. 7 Population Genetics: Hardy-Weinberg Law & Genetic Drift, Types of Natural Selection.	1	Extra lecture was conducted
5	Oct2022	3 & 4	12	8	8 Origin of Man: Evolution of Man (Evolution of anthropoids including man) - Kenyapithecus to Homo sapiens. 9 Zoogeographical Realms With reference to fauna 10 Extinctions: Extinction - An Overview.	8	8 Origin of Man: Evolution of Man (Evolution of anthropoids including man) - Kenyapithecus to Homo sapiens. 9 Zoogeographical Realms With reference to fauna 10 Extinctions: Extinction - An Overview.	1	Extra lecture was conducted

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Name of the teacher: Prof. Mengade N.S. Year: 2021-22 Semester: VI

Subject: Environmental impact assessment Paper: - Class: T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1		3 & 4	9	8	Environment: Definition, Divisions, Importance. 2. Pollution: Definition and types, Impact on wildlife, natural resources, development.	8	Environment: Definition, Divisions, Importance. 2. Pollution: Definition and types, Impact on wildlife, natural resources, development.	Nil	---
2	Aug2022	1& 2	12	8	3. Sustainable development: Definition and need, Exploitation of natural resources, Concept of carrying capacity, Three pillars of Sustainability, UN 17 Sustainable Development Goals (SDGs). 4. Overview of Environmental Protection	10	3. Sustainable development: Definition and need, Exploitation of natural resources, Concept of carrying capacity, Three pillars of Sustainability, UN 17 Sustainable Development Goals (SDGs). 4. Overview of Environmental Protection	Nil	---

					acts: The Air (Prevention and Control of Pollution) Act 1981.The Water (Prevention and Control of Pollution) Act 1974.		acts: The Air (Prevention and Control of Pollution) Act 1981.The Water (Prevention and Control of Pollution) Act 1974.		
3	Aug2022	3 & 4	11	7	The Environment Protection Act 1986, The National Green Tribunal Act 2010, Biological Diversity Act 2002. 5. Environmental Impact Assessment (EIA): Definition, need and importance of EIA, EIA notification 2006 - key elements, History and Evolution of EIA, Categories of Industries / establishments requiring EIA, Types of EIA - strategic EIA, regional EIA, sectoral EIA, project level EIA and life cycle assessment, Rapid and comprehensive EIA.	8	The Environment Protection Act 1986, The National Green Tribunal Act 2010, Biological Diversity Act 2002. 5. Environmental Impact Assessment (EIA): Definition, need and importance of EIA, EIA notification 2006 - key elements, History and Evolution of EIA, Categories of Industries / establishments requiring EIA, Types of EIA - strategic EIA, regional EIA, sectoral EIA, project level EIA and life cycle assessment, Rapid and comprehensive EIA.	Nil	---
4	Sept2022	1 &2	11	8	6. EIA Process: Screening, Scoping and consideration of alternatives, Baseline data collection, Impact analysis, Mitigation, Reporting, Public hearing, Review of EIA, Decision-making, monitoring clearance conditions. 7. Stakeholders in EIA process: Project proponent, Environmental consultant. CPCB / MPCB, Public, EIA agency (IAA).	8	6. EIA Process: Screening, Scoping and consideration of alternatives, Baseline data collection, Impact analysis, Mitigation, Reporting, Public hearing, Review of EIA, Decision-making, monitoring clearance conditions. 7. Stakeholders in EIA process: Project proponent, Environmental consultant. CPCB / MPCB, Public, EIA agency (IAA).	Nil	---
5	Oct2022	3 & 4	12	8	8. Overview of Scheme for Accreditation of EIA Consultant Organizations (NABET / QCI): Eligibility and benefits, EIA coordinator (EC), Functional area experts (FAEs), Functional area associate (FAA) and team members: Role, educational qualification, experience and functions.	8	8. Overview of Scheme for Accreditation of EIA Consultant Organizations (NABET / QCI): Eligibility and benefits, EIA coordinator (EC), Functional area experts (FAEs), Functional area associate (FAA) and team members: Role, educational qualification, experience and functions.	Nil	---

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