

**SYLLABUS PLAN (2019-20)**  
**ODD SEMESTERS**

## SYLLABUS PLAN (2019-20)

**NAME OF THE TEACHER**

**- Dr. Imtiaz Khan**

**CLASS**

**- B. Sc. I (Medical), Semester-I**

**SUBJECT**

**- Zoology (Cell biology & animal diversity, Biodiversity I)**

Month	THEORY	PRACTICAL
July	<p><b>Methods in Cell Biology:</b> Principles of light and electron microscopes, fixation and fixatives, staining techniques (single and double).</p>	
August	<p><b>Organisation of Cell:</b> Extra nuclear and nuclear ultrastructure and functions of cell organelles.</p> <p>(a) Plasma membrane: Structure, osmosis, active and passive transport, endocytosis and exocytosis.</p> <p>(b) Endoplasmic reticulum: Structure, types and associated enzymes.</p> <p>(c) Golgi Complex: Structure and functions.</p> <p>(d) Ribosomes: Types of ribosomes, their structure and functions.</p> <p>Lysosomes: Polymorphism and their function.</p> <p><b>Organisation of Cell:</b> Extra nuclear and nuclear ultrastructure and functions of cell organelles.</p> <p>(e) Mitochondria: Structure, mitochondrial enzymes and the role of mitochondria in respiration.</p> <p>(f) Centrosome: Structure and functions.</p> <p>(g) Nucleus: Structure and functions of nuclear membrane, nucleolus and chromosomes.</p>	<p><b>Protozoa:</b></p> <p>Examination of cultures of <i>Euglena</i> and <i>Paramecium</i>.</p> <p><b>Slides:</b></p> <p><i>Amoeba, Euglena, Trypanosoma, Noctiluca, Eimeria, Monocystis, Paramecium (Binary fission and conjugation), Opalina, Vorticella, Balantidium, Nyctotherus &amp; Polystomella.</i></p> <p><b>Porifera :</b></p> <p><b>Specimens:</b></p> <p><i>Sycon, Grantia, Euplectella, Hyalonema, Spongilla</i> and <i>Euspongia</i>.</p> <p><b>Coelenterata:</b></p> <p><b>Specimens:</b></p> <p><i>Porpita, Velella, Physalia, Aurelia, Rhizostoma, Metridium, Millipora, Alcyonium, Tubipora, Zoanthus, Madrepora, Favia, Fungia</i> and <i>Astrangia.</i></p> <p><b>Slides:</b></p> <p><i>Hydra (W.M.), Hydra</i> with buds, <i>Obelia</i> (colony and medusa), <i>Sertularia, Plumularia, Tubularia, Bougainvillea</i> and <i>Aurelia.</i></p>

<p>SEPTEMBER</p>	<p><b>Type Study-I (Protozoa to Porifera)</b></p> <p><b>1. Protozoa:</b>  Classification upto orders with brief ecological note and economic importance of the following:  <i>Entamoeba, Trypanosoma, Giardia, Noctiluca, Eimeria, Opalina, Vorticella, Balantidium</i> and <i>Nyctotherus</i>.  Detailed study of the following animal types:  <i>Amoeba, Paramecium</i> and <i>Plasmodium</i>. Introduction to Parasitic Protozoa</p> <p><b>2. Porifera :</b>  Classification upto orders with brief ecological note and economic importance of the following:  <i>Grantia, Euplectella, Hyalonema</i> and <i>Spongilla</i>.  Detailed study of the following animal types: <i>Sycon</i></p> <p><b>Type Study-II (Coelenterata to Annelida)</b></p> <p><b>Coelenterata :</b>  Classification upto orders with brief ecological note and economic importance of the following :  <i>Hydra, Sertularia, Plumularia, Obelia, Tubularia, Bougainvillea, Porpita, Velella, Physalia, Rhizostoma, Millipora, Aurelia, Alcyonium, Tubipora, Zoanthus, Metridium, Madrepora, Favia, Fungia</i> and <i>Astrangia</i>.  Detailed study of the following animal types: <i>Obelia</i></p>	<p><b>Preparation of the following slides:</b></p> <p>Preparation of permanent whole mount stained in borax carmine : <i>Hydra, Obelia, Sertularia, Plumularia</i> and <i>Bougainvillea</i>.</p> <p><b>Platyhelminthes:</b></p> <p><b>Specimens:</b>  <i>Dugesia, Fasciola, Taenia</i> and <i>Echinococcus</i>.</p> <p><b>Slides:</b>  Miracidium, Sporocyst, Redia, Cercaria of <i>Fasciola</i>, Scolex and Proglottids of <i>Taenia</i> (mature and gravid)</p> <p><b>Aschelminthes:</b>  <i>Ascaris</i> (male and female), <i>Trichinella</i> and <i>Ancylostoma</i>.</p>
<p>OCTOBER</p>	<p><b>Platyhelminthes :</b>  Classification upto orders with brief ecological note and economic importance of the following :  <i>Dugesia, Schistosoma</i> and <i>Echinococcus</i>.</p>	<p><b>Major dissection (demonstration):</b>  <i>Pheretima</i> (Earthworm): Digestive, reproductive and nervous systems.</p>

	<p>Detailed study of the following animal types :<i>Fasciola, Taenia</i></p> <p><b>Aschelminthes :</b></p> <p>Classification upto orders with brief ecological note and economic importance of the following:<i>Ascaris, Oxyuris</i> and <i>Wuchereria</i></p> <p>Detailed study of the following animal types:<i>Ascaris</i>, Parasitic adaptations in Helminths</p>	
NOVEMBER	<p>Detailed study of the following animal types: <i>Pheretima</i> (Earthworm)</p>	<p><b>Annelida:</b></p> <p><b>Specimens :</b></p> <p><i>Pheretima, Nereis, Heteronereis, Polynoe, Eunice, Aphrodite, Chaetopterus, Arenicola, Tubifex</i> and <i>Pontobdella</i>.</p> <p><b>Study of the following permanent stained preparations :</b></p> <ul style="list-style-type: none"> <li>a) L.S. and T.S. <i>Sycon</i>, Gemmules, Spicules and Spongin fibres of a sponge.</li> <li>b) T.S. <i>Hydra</i> (Testis and ovary region)</li> <li>c) T.S. <i>Fasciola</i> (Different regions)</li> <li>d) T.S. <i>Ascaris</i> (Male and Female)</li> </ul> <p>T.S. <i>Pheretima</i> (Pharyngeal and typhlosolar regions), setae, septal nephridia, spermathecae and ovary.</p>

**NAME OF THE TEACHER**  
**CLASS**  
**SUBJECT**

**- Dr. Imtiaz Khan**  
**- B. Sc. II (Medical), Semester-III**  
**- Zoology (Chordates II & Evolution)**

Month	THEORY	PRACTICAL
July	Reptilia : a) Type study—Uromastix b) Poison apparatus in snakes. c) Classification of following animals upto orders Chelone, Testudo, Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Bungarus, Naja, Hydrus, Viper, Crocodilus, Gavialis and Alligator.	I. Classification up to orders, excepting Pisces and Aves where classification up to subclasses only is required, habits, habitats, external characters and economic importance (if any) of the following animals:  Reptilia : Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Viper, Crocodilus, Gavialis, Chelone (Turtle) and Testudo (Tortoise).
August	Aves : a) Type study—Pigeon. b) Flight and beak adaptations c) Classification of following animals upto orders Ardea, Milvus, Pavo, Tyto, Alcedo, Eudynamis and Casuarius	8. Aves : Ardea, Anas, Milvus, Pavo, Tyto, Alcedo, Eudynamis and Casuarius.
SEPTEMBER	Mammals : a) Type study—Rat. b) Dentition in Mammals. c) Classification of following animals up to orders Ornithorhynchus, Echidna, Didelphys, Macropus, Loris, Macaca, Manis, Hystrix, Funambulus, Panthera, Canis, Herpestes, Capra, Pteropus.	9. Mammalia : Ornithorhynchus, Echidna, Didelphys, Macropus, Loris, Macaca, Manis, Hystrix, Funambulus, Panthera, Canis, Herpestes and Pteropus.  Chick : Digestive, arterial, venous and urinogential systems. 4. White Rat : Digestive, arterial, venous and urinogential systems.
OCTOBER	Organic Evolution: i) Origin of life: Theory of origin of Life, Chemical Origin of life, Biological Evolution ii) Evidences of organic evolution: Homologous and Analogous Organs, Divergent and Convergent Evolution, Vestigial Organs, Evidences of Atavism, Recapitulation theory, Missing links, connecting links iii) Theories of organic evolution	Study of fossil evidences from plaster cast models and pictures  Visit to fossil Museum and submission of report

	(Lamarckism, Darwinism, Neo-Darwinism and modern synthetic theory),	
NOVEMBER	Modes of speciation (Allopatric, Parapatric, Sympatric), Isolating mechanism, Examples of Geographic speciation, Sibling species, Genetic drift iv) Evolution of man: Microevolution, Macroevolution, Megaevolution (definition and examples)	4. Study of following prepared slides : T.S. Amphioxus through various regions. Spicules, pharynx of Herdmania and pharynx of Amphioxus. Histology of rat/rabbit (Compound tissues).

**NAME OF THE TEACHER**  
**CLASS**  
**SUBJECT**

**- Prof. Jagdeep Singh**  
**- B. Sc. II (Medical), Semester-III**  
**- Zoology (Chordates I)**

Month	Syllabus	
	Theory	Practical
August	<p><b>Chordates</b> : General Characters and Echinoderm Theory of Origin</p> <p><b>Protochordates:</b> a) Urochordata Type study-<i>Herdmania</i>.</p> <p>b) Cephalochordata—Type study-<i>Amphioxus</i>.</p> <p>c) Classification of following animals upto orders  <i>Herdmania, Molgula, Pyrosoma, Dolilum, Salpa, Oikopleura</i> and <i>Amphioxus</i>.</p>	<p>Amphibia :</p> <p>Uraeotyphlus, Necturus, Amphiuma, Amblystoma and its Axolotl Larva,</p> <p>Triton, Salamandra, Hyla and Rhacophorus. Reptilia : Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Viper, Crocodilus, Gavialis, Chelone (Turtle) and Testudo (Tortoise)..</p>
September	<p><b>Cyclostomata:</b> a) External Characters of <i>Petromyzon</i>.</p> <p>b) Affinities of Cyclostomata.</p> <p>c) Classification of following animals upto orders</p>	<p>Ardea, Anas, Milvus, Pavo, Tyto, Alcedo, Eudynamis and Casuarius.</p> <p>Mammalia : Ornithorhynchus, Echidna, Didelphys, Macropus, Loris, Macaca, Manis,</p>

	<i>Myxine, Petromyzon and Ammocoetus</i> Larva.	Hystrix, Funambulus, Panthera, Canis, Herpestes and Pteropus.
<b>October</b>	<b>Pisces:</b> a) Type study : <i>Labeo</i> . b) Types of Scales, Migration and Parental Care in fishes. c) Classification of following animals upto orders i. Chondrichthyes : <i>Zygaena, Pristis, Narcine, Trygon, Rhinobatus</i> and <i>Chimaera</i> . ii. Actinopterygii: <i>Polypterus, Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis</i> and <i>Solea</i> . iii. Dipnusti (Dipnoi): <i>Protopterus</i> (lung-fish).	Herdmania : General anatomy <i>Labeo</i> Digestive systems, reproductive systems and cranial nerves.
<b>November</b>	<b>Amphibia:</b> a) Type study –Frog. b) Parental Care. c) Classification of animals upto orders <i>Uraeotyphlus, Necturus, Amphiuma, Amblystoma, Triton, Salamandra, Hyla, Rhacophorus.</i>	.

**NAME OF THE TEACHER**  
**CLASS**  
**SUBJECT**

- Dr. Intiaza Khan  
- B. Sc. III (Medical), Semester-V  
- Zoology (Development Biology, Genetics)

Month	THEORY	PRACTICAL
July	Gametogenesis: with particular reference to differentiation of spermatozoa, vitellogenesis, role of follicle/ subtesticular	Dermatographics: Palm print taking and finger tip patterns.

	cells in gametogenesis. 2. Egg maturation: egg membranes, polarity of egg. 3. Fertilization: parthenogenesis, Cleavage patterns. 4. Basic concepts of organizers, inducers and their role.	Study of the development of frog from permanent slides.  Study of the development of chick embryo from permanent slides upto 96 hours.
August	Embryonic development: Cleavage, determination and differentiation, development upto three germ layers and their fate in Herdmania, Amphioxus, frog, chick and rabbit. Metamorphosis in Herdmania and Rana (Frog). 6. Foetal membranes: their formation and role, Mammalian placenta, its formation, types and functions	Study of the following prepared slides: a. Stages of gametogenesis, structure of egg and sperm of a mammal. b. Larva of Herdmania 11. Project regarding Inheritance of human characteristics, Dermatographics or developmental biology.
SEPTEMBER	Mendel laws, Modification of Mendelian ratios : Non-allelic gene interaction, Modified F2 ratios (9 : 7, 9 : 3 : 4, 12 : 3 : 1, 13 : 3, 15 : 1, 9 : 6 : 1). Gene modifications due to incomplete dominance, lethal factors (2:1), Pleiotropic gene, atavism. 2. Linkage: complete and incomplete linkage in Drosophila. 3. Multiple Alleles – Blood group inheritance, eye colour in Drosophila, pseudo-allelism. 4. Multiple factors: Qualitative and quantitative characters, Inheritance of quantitative traits (skin colour in man).	Demonstration of Law of Segregation, Independent assortment and epistasis (use of coloured beads, capsules etc). Numericals for segregation and independent assortment. 2. Segregation demonstration in preserved material (Maize).
OCTOBER	Sex linked inheritance: X- linked, Z-linked, Y-linked and XY- linked inheritance. 2. Extranuclear inheritance: Coiling of shell in Limnaca peregra and Kappa particles in Paramecium. 3. Population Genetics: Equilibrium of gene frequencies and Hardy Weinberg Law.	3. Cytoplasmic inheritance coiling of shell in Limnaca peregra. 4. Comparison of variance in respect of pod length and number of seeds in pods. 5. Gene frequencies and random mating (coloured beads, capsules). 6. Study of Polytene chromosomes of Chironomus/Drosophila through permanent slide.
NOVEMBER	4. Genetic recombination in bacteria (conjugation, transduction and transformation), Recombinant DNA – technology, Genetic cloning and its applications in medicine and agriculture, DNA finger printing.	



**SYLLABUS PLAN (2019-20)**

**EVEN SEMESTERS**

## SYLLABUS PLAN (2019-20)

**NAME OF THE TEACHER**

**- Dr. Imtiaz Khan**

**CLASS**

**- B. Sc. I (Medical), Semester-II**

**SUBJECT**

**- Zoology (Biodiversity II, Ecology)**

Month	THEORY	PRACTICAL
January	<p>Ecology: Subdivisions and scope of ecology.</p> <p>Ecosystem: Components, ecological energetics, food web, introduction to major ecosystems of the world.</p> <p>Ecological factors: Temperature, light and soil as ecological factors.</p> <p>Inter and Intra specific relationships: Competition, predation, parasitism, commensalisms &amp; mutualism</p> <p>Environmental degradation: Causes, impact and control of air and water pollution.</p>	<p><b>Minor dissections:</b></p> <p style="padding-left: 40px;">Mouth parts and trachea of cockroach, appendages of Prawn</p>
February	<p>Nutrients: Biogeochemical cycles and concept of limiting factors.</p> <p>Ecological adaptations: Morphological, physiological and behavioral adaptations in animals in different habitats.</p> <p>Environmental education: Importance of Biodiversity.</p> <p>Population: Characteristics and regulation of population.</p> <p>Natural resources: Renewable and non-renewable natural resources and their conservations.</p>	<p><b>Minor dissections:</b></p> <p style="padding-left: 40px;">radula of <i>Pila</i>,</p> <p><b>Major dissections:</b></p> <p><i>Periplaneta</i> (Cockroach): Digestive and nervous systems.</p> <p><i>Pila</i>: Pallial complex, digestive and nervous systems.</p> <p><b>ECOLOGY:</b></p> <p>Study of animal adaptations with the help of specimens, charts and models.</p> <p>Study of biotic components of an ecosystem.</p>

	<p>Environmental degradation: Causes, impact and control of soil and noise pollution (in general).</p>	<p>Study of different types of nests in birds.</p> <p>Study and preparation of zoogeographical charts.</p>
<p>March</p>	<p><b>Arthropoda:</b></p> <p><b>a. Classification upto orders with ecological notes and economic importance (if any) of the following:</b> <i>Peripatus, Prawn, Lobster, Cancer (Crab) Sacculina, Eupagurus (Hermit crab), Lepas, Balanus, Apis, Lepisma (Silver fish), Schistocerca (Locust), Poecilocerus (AK Grasshopper), Gryllus (Cricket), Mantis (Praying Mantis), Cicada, Forficula (Earwig), Dragon fly, termite queen, bug, moth, beetle, Polistes, (Wasp), Bombyx (Silk moth), Millipede, Scolopendra (Centipede), Palamnaeus (Scorpion), Aranea (Spider) and Limulus (King crab).</i></p> <p><b>b. Detailed study of the following animal types:</b> <i>Periplaneta (cockroach), Prawn and Social organizations in insects (honey bee and termite)</i></p>	<p><b>Classification upto orders with morphological notes of the following animals :</b></p> <p><b>A. Arthropoda :</b>  <i>Peripatus, Palaemon (Prawn), Lobster, Cancer (Crab), Sacculina, Eupagurus (Hermit crab), Lepas, Balanus, Cyclops, Daphnia, Lepisma, Periplaneta (Cockroach), Schistocerca (Locust), Poecilocerus (Ak grasshopper), Gryllus, (Cricket), Mantis (Praying mantis), Cicada, Forficula (Earwig), Dragonfly, termite queen, bug, moth, beetle, Polistes (Wasp), Apis (Honey bee), Bombyx, Pediculus (Body louse), Millipede and Centipede, Palamnaeus (Scorpion), Aranea (Spider), and Limulus (King crab).</i></p>

	<p><b>Mollusca:</b> a.Classification upto orders with ecological notes and economic importance (if any) of the following:</p> <p><i>Chiton, Anodonta, Mytilus, Ostrea, Cardium, Pholas, Solen (Razor fish), Pecten,</i></p> <p><i>Haliotis, Patella, Aplysia, Doris, Limax, Loligo, Sepia, Octopus, Nautilus shell and Dentalium.</i></p> <p>b.Detailed study of the following animal types: <i>Pila</i></p>	
April	<p><b>Echinodermata:</b> a.Classification upto orders with ecological notes and economic importance (if any) of the following:<i>Echinus, Cucumaria, Ophiothrix and Antedon.</i></p> <p>b.Detailed study of the following animal types: <i>Asterias</i> (Starfish) and Echinoderm larvae</p> <p><b>Hemichordata</b></p> <p>a.Classification upto orders with ecological notes and economic importance (if any) of the following: <i>Balanoglossus</i></p> <p>b.Detailed study of the following animal types: <i>Balanoglossus</i> : External characters and affinities.</p>	<p><b>Classification upto orders with morphological notes of the following animals :</b></p> <p><b>B. Mollusca :</b> <i>Anodonta, Mytilus, Ostrea, Cardium, Pholas, Solen (Razor fish), Pecten, Haliotis, Patella, Aplysia, Doris, Limax, Loligo, Sepia, Octopus, Nautilus shell (Complete and T.S.), Chiton and Dentalium.</i></p> <p><b>C. Echinodermata:</b> <i>Asterias, Echinus, Ophiothrix and Antedon.</i></p> <p><b>D. Hemichordata:</b> <i>Balanoglossus.</i></p>

**NAME OF THE TEACHER**  
**CLASS**  
**SUBJECT**

**- Dr. Imtiaz Khan**  
**- B. Sc. II (Medical), Semester-IV**  
**- Zoology (Animal Physiology)**

Month	Syllabus	
	Theory	Practical
January	Digestion : Digestion of dietary constituents, regulation of digestive processes and absorption, types of nutrition, feeding mechanism, extra and intra cellular digestion, enzymatic digestion and symbiotic digestion.	Demonstration of coagulation and bleeding time of blood in man/rat/rabbit.
February	<p>Circulation : Composition and functions of blood and lymph, molecular structure and function of haemoglobin, blood clotting, blood groups including Rhfactor, haemostasis and haemopoiesis. Origin and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, blood flow and its regulation, blood pressure and micro-circulation.</p> <p>Respiration : Transport of O<sub>2</sub> and CO<sub>2</sub>, Oxygen dissociation curve of haemoglobin, Bohr effect, chloride shift, Haldane effect and control of breathing.</p>	<p>6. Demonstration of blood groups of human blood sample.</p> <p>7. Recording of blood pressure of man.</p>
March	<p>Excretion : Structure of nephron, urine formation and osmoregulation. Muscles : Types of Muscles, ultrastructure, chemical and physiological basis of skeletal muscle contraction.</p> <p>Neural Integration : Structure of Neuron, resting membrane potential, origin and propagation of impulse along the axon, synapse and myoneural junction.</p>	<p>8. Demonstration of estimation of haemoglobin content.</p> <p>9. Demonstration of TLC and DLC.</p> <p>10. Demonstration of preparation and study of human blood smear.</p>

<b>April</b>	Endocrine : Structure and physiology of thyroid; Parathyroid, adrenal, hypothalamus, pituitary, pancreas and gonads.	11. Study of permanent slide of striated muscles and nerve fibre. 12. Field study: Visit to a clinical lab. 13. Study of skeleton of Scoliodon, Rana, Varanus, Gallus and Oryctolagus (Rabbit)
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**NAME OF THE TEACHER**  
**CLASS**  
**SUBJECT**

**- Prof. Jagdeep Singh**  
**- B. Sc. II (Medical), Semester-IV**  
**- Zoology (Biochemistry)**

<b>Month</b>	<b>Syllabus</b>	
	<b>Theory</b>	<b>Practical</b>
January	Biochemistry and its scope; Carbohydrates, Proteins and Lipids (classification, structure, functions). 2.	Identification of food stuffs: starch, glucose, proteins and fats in a given solution.
February	Nucleic Acids : Nucleotides, Nucleosides, Structure of DNA & RNA and their functions 3. Enzymes: Nature, their classification, factors affecting enzyme activity, coenzymes.	2. Demonstration of osmosis and diffusion.
<b>March</b>	4. Carbohydrate Metabolism: The Embden Meyerhof, Parnas Pathway (Glycolysis), the tricarboxylic acid cycle, the hexose monophosphate shunt, glycogenesis and glycogenolysis. 5. Lipid Metabolism: $\beta$ -oxidation of fatty acids, fate of glycerol and gluconeogenesis, interaction of carbohydrates and lipids, lipogenesis in tissues, ketosis.	3. Demonstration of presence of amylase in saliva, denaturation with change of pH and temperature.

<b>April</b>	6. Protein Metabolism: Metabolism of amino acids (Oxidative deamination, transamination and decarboxylation) hydrolysis of protein and ornithine cycle.	4. Analysis of urine for urea and glucose.
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**NAME OF THE TEACHER**  
**CLASS**  
**SUBJECT**

**- Dr. Imtiaz Khan**  
**- B. Sc. III (Medical), Semester-VI**  
**- Zoology (Medical Zoology, Medical Laboratory Technology)**

<b>Month</b>	<b>Syllabus</b>	
	<b>Theory</b>	<b>Practical</b>
<b>January</b>	Introduction to Parasitology (pertaining to various terminologies in use). 2. Brief Introduction to pathogenic microbes. Viruses, Rickettsiae, Spirochaetes and Bacteria.	Demonstration of safety rules in laboratory like proper handling of paints, specimens and disposal of syringes, needles etc. 2. Demonstration of the use of autoclave, centrifuge and spectrophotometer.
<b>February</b>	3. Brief accounts of life history, mode of infection and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment : a. Pathogenic protozoans: Entamoeba, Trypanosoma, Leishmania, Trichomonas and Plasmodium. b. Pathogenic helminthes: Fasciolopsis, Schistosoma, Echinococcus, Ancylostoma, Trichinella, Wuchereria, and Oxyuris. 4. Epidemic diseases such as typhoid, cholera, plague; their occurrence and eradication programmes.	3. Cleaning and sterilization of glassware using hot air oven and autoclave. 4. Demonstration of parts of microscope, its functioning and care. 5. Demonstration for culture and identification of pathogens: blood and throat swab. 6. Demonstration of procedure for haemoglobin estimation using Shali's haemometer.
<b>March</b>	Life cycle and control measures of arthropod vectors of human diseases: Malaria (Anopheles stephensi, A culicifacies), Yellow fever, Dengue and Haemorrhagic fever (Aedes aegypti, A. albopictus); Filariasis (Culex pipiens fatigans) Mansonia sp., Japanese Encephalitis (C. tritaeniorhynchus). 2. Brief introduction to	7. Demonstration of counting of WBC, RBC & DLC. 8. Examination of stool for demonstration of intestinal parasites. 9. Study of permanent slides and specimens of parasitic protozoans,

	<p>human defense mechanisms. 3. Humoral and cell mediated immune-response, Antigens-physical &amp; chemical properties. Antibodies-structure and function of immunoglobulin M, G, A, E and D. 4. Antigen and antibody interactions: Serodiagnostic assays. 5. Vaccines.</p> <p>Laboratory safety rules, hazards and precautions during sample collection and laboratory investigations. 2. Laboratory techniques: Colorimetry, Microscopy, Autoclaving, Centrifugation, Spectrophotometry. 3. Collection, Transportation and Preservation of different clinical samples.</p>	<p>helminthes, arthropods, mentioned in theory syllabus.</p> <p>10. Demonstration of analysis of blood group, A, B, AB, O and Rh. 11. Demonstration of ESR, haematocrit, bleeding time, coagulation time, prothrombin time.</p>
<p><b>April</b></p>	<p>4. Bacteriology: Sterilisation (dry heat, moist heat, autoclave, filtration), Disinfection, Staining techniques (gram's stain, AFB stain), Culture media (Defined &amp; Synthetic media &amp; routine laboratory media), Bacterial culture (aerobic and anaerobic), antibiotic sensitivity.</p> <p>Haematology: Collection of blood (Venous and Capillary), Anticoagulants (merits and demerits). Romanowsky's stains. Total RBC count, Erythrocyte sedimentation rate, TLC, DLC, Eosinophil count, Platelet count, Reticulocyte count. 6. Biochemistry: Animal tissue- total carbohydrates, protein and lipids; Blood- glucose, cholesterol, urea, protein; Enzyme- amylase, acid and alkaline phosphatase. 7. Histopathology: Common fixatives and staining techniques, Histochemistry : Principle and method : Staining of carbohydrates, proteins and fats with bromophenol blue, Periodic acid Schiff, Sudan Black blue.</p>	<p>12. Demonstration of estimation of blood sugar, serum urea, protein and cholesterol. 13. Fixation, embedding, cutting of tissue sections and their staining (routine Haematoxyline and Eosin and special staining with PAS, SBB and Feulgen reaction).</p>