**Lesson Plan**

**Practical**

**Name of the Assistant Professor:**

**Class and Lab 53B : B.Sc. (Med.) 2nd Semester**

**Subject lesson plan: From March 2022 to June 2022**

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| **Week & Date**  **Week 1** | **Topics** |
| 1 April- 2 April | Morphology of *Marcahantia*  Reproduction in *Marchantia* |
| **Week 2** |  |
| 4 April- 9 April | Morphology of *Anthoceros*  Reproduction in *Anthoceros*  Revision  Test |
| **Week 3** |  |
| 11 April- 16April | Morphology of *Funaria*  Reproduction in *Funaria*  Revision  Test |
| **Week 4** |  |
| 18 April- 23 April | Morphology of *Funaria*  Reproduction in *Funaria* |
| **Week 5** |  |
| 25 April- 30 April | Morphology of *Selaginella*  Reproduction in *Selaginella* |
| **Week 6** |  |
| 2 May- 7 May | Morphology of *Equisetum*  Reproduction in *Equisetum* |
| **Week 7** |  |
| 9 May- 14 May | Practice of section cutting of *Equisetum* |
| **Week 8** |  |
| 16 May- 21 May | Staning procedure of *Equisetum*  Repeat  Revision |
| **Week 9** |  |
| 23 May- 28 May | Morphology of *Pteris*  Reproduction in *Pteris*  Revision  Test  Field collection |
| **Week 10** |  |
| 30 May-4 June | Permanent slides of stellar system  Revision  Test  Field collection |
| **Week 11** |  |
| 6 June- 11 June | Numerical on complementary genes  Numerical on supplementary genes  Numerical on Duplicate genes  Numerical on dominant Genes |
| **Week 12** |  |
| 13 June- 18 June | Monohybrid cross  Dihybrid cross  Revision |
| **Week 13** |  |
| 20 June- 25 June | Revision of all material and permanent slides of Bryophyta  Revision of all material and permanent slides of Pteridophyta |
| **Week 14** |  |
| 27 June- 30June | **Revision** |

**Lesson Plan**

**Practical**

**Name of the Assistant Professor:**

**Class and Lab : B.Sc. (Med.) 4th Semester**

**Subject lesson plan: From March 2022 to June 2022**

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| **Week & Date**  **Week 1** | **Topics** |
| 1 April- 2 April | Classification & Taxonomic Ranks |
| **Week 2** |  |
| 4 April- 9 April | Herbarium & Botanical Gardens |
| **Week 3** |  |
| 11 April- 16April | Types of Inflorescence |
| **Week 4** |  |
| 18 April- 23 April | Flower description |
| **Week 5** |  |
| 25 April- 30 April | Flower description |
| **Week 6** |  |
| 2 May- 7 May | Flower description |
| **Week 7** |  |
| 9 May- 14 May | Flower description |
| **Week 8** |  |
| 16 May- 21 May | Flower description |
| **Week 9** |  |
| 23 May- 28 May | Flower description |
| **Week 10** |  |
| 30 May-4 June | To study Pollen germination & Flower description |
| **Week 11** |  |
| 6 June- 11 June | Flower description & Types of Ovules |
| **Week 12** |  |
| 13 June- 18 June | Flower description and to study stages of Embryo development  Continued |
| **Week 13** |  |
| 20 June- 25 June | Types of Seeds & Fruits |
| **Week 14** |  |
| 27 June- 30June | **Revision** |

**Lesson Plan**

**Practical**

**Name of the Assistant Professor:**

**Class and Lab : B.Sc. (Med.) 6th Semester**

**Subject lesson plan: From March 2022 to June 2022**

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| **Week & Date**  **Week 1** | **Topics** |
| 28 Marchl- 2 April | Protein test - 1  Protein test -2 |
| **Week 2** |  |
| 4 April- 9 April | fat test – 1  fat test – 2 |
| **Week 3** |  |
| 11 April- 16April | Carbohydrates - monosaccharide test - 1  Carbohydrates – monosaccharide test - 2 |
| **Week 4** |  |
| 18 April- 23 April | Carbohydrates – starch test |
| **Week 5** |  |
| 25 April- 30 April | Detection of heat released during Respiration |
| **Week 6** |  |
| 2 May- 7 May | Detection of CO2 during aerobic respiration Continued … |
| **Week 7** |  |
| 9 May- 14 May | Sterilization techniques-1 & 2 |
| **Week 8** |  |
| 16 May- 21 May | Preparation of MS medium 1  Preparation of MS medium 2 |
| **Week 9** |  |
| 23 May- 28 May | Test of biochemistry practicals |
| **Week 10** |  |
| 30 May-4 June | Demonstration of anther culture-1  Demonstration of anther culture-2  Demonstration of protoplast isolation  Demonstration of protoplast culture |
| **Week 11** |  |
| 6 June- 11 June | Identification of cereal specimens  Identification of pulses specimens  Identification of vegetable specimens  Identification of spices specimens |
| **Week 12** |  |
| 13 June- 18 June | Field visit-1  Field visit-2 |
| **Week 13** |  |
| 20 June- 25 June | Identification of fiber specimen  Identification of beverages specimens |
| **Week 14** |  |
| 27 June- 30June | **Revision** |

**Lesson Plan**

**Name of the Assistant Professor:**

**Class and Section : B.Sc. (Med.) 2nd Semester**

**Subject lesson plan: From March 2022 to June 2022**

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| **Week & Date**  **Week 1** | **Topics**  **Assignment -**  Bryophytes |
| 1 April- 2 April | General characters of Bryophytes  Classification of Bryophytes  Alternation of generations  Economic Importance of Bryophytes  Evolution of Bryophytes  Range of Thallus in Bryophytes  **Oral Test** |
| **Week 2** | **Assignment** - Marchantia |
| 4 April- 9 April | Structure of Marchantia  Reproduction in Marchantia  Test General characters of Bryophytes  Structure of Anthoceros  Reproduction in Anthoceros  Morphological structure of Funaria  Topic Discussion |
| **Week 3** | **Assignment -**  Anthoceros and Funaria |
| 11 April- 16April | Anatomy of Funaria  Reproduction inFunaria  Test of Marchantia and Anthoceros  General characters of Pteridophyte  Heterospory  Apospory and Apogamy |
| **Week 4** | **Assignment -** Pteridophytes |
| 18 April- 23 April | Classification of Pteridophytes  Economic Importance of Pteridophytes  Test-Bryophytes |
| **Week 5** | **Assignment -**  Rhynia and Selaginella |
| 25 April- 30 April | General account of stellar evolution  Alternation of generations in pteridophytes  Oral test - Economic Importance of Bryophytes)  Structure and Reproduction of Rhynia  Structure of Selaginella |
| **Week 6** | **Assignment-**  Equisetum |
| 2 May- 7 May | Anatomy of Selaginella  Reproduction in Selaginella  Reproduction in Selaginella Contd  Structure of Equisetum  Anatomy of Equisetum |
| **Week 7** | **Assignment -**  Equisetum |
| 9 May- 14 May | Reproduction in Equisetum  Reproduction in Equisetum  Group Discussion on General Characters of Pteridophytes  Morphology of Pteris  Anatomy of Pteris |
| **Week 8** | **Assignment -** Pteris |
| 16 May- 21 May | Reproduction in Pteris  Test- Equisetum  Comparative account on sporophytes of Marchantia, Anthoceros, Funaria  Test –Pteridophytes  Revision/Problem Solving of Bryophytes  Revision Problem Solving of Pteridophytes |
| **Week 9** | **Assignment -**  DNA-Protein Interaction |
| 23 May- 28 May | Revision Problem Solving of Pteridophytes  DNA- The genetic material  Structure of DNA  DNA-Protein Interaction  The Nucleosome model I  The Nucleosome model II |
| **Week 10** | **Assignment -**  DNA |
| 30 May-4 June | Revision |
| **Week 11** | **Assignment -**  Mendelism |
| 6 June- 11 June | The Nucleosome model III  Satellite and Repetetive DNA  Test –DNA  Mendelism  Law of Segregation  Law of Independent Assortment  Linkage Analysis |
| **Week 12** | **Assignment -**  Mitochondrial DNA and Plasmid DNA |
| 13 June- 18 June | Complementary Genes  Supplementary Genes  Epistasis, Dominant Genes  Test –Mendelism  Presence and Function of Mitochondrial DNA |
| **Week 13** | **Assignment -**  Transcription |
| 20 June- 25 June | **Topic Discussion**  Presence and Function of Mitochondrial DNA  Presence and Function of Plasmid DNA  Plasmids, Spontaneous Mutation  Induced Mutation 1, Induced Mutation 2  DNA Damage, DNA Repair  Modern Concept of Genes  RNA and Ribosomes, Transcription  Structure of Proteins  Transposable Genetic Material  Test DNA, Transcription |
| **Week 14** | **Assignment -**  DNA Replication |
| 27 June- 30June | DNA Replication I  DNA Replication II  Genetic Code I  Genetic Code II  Protein Synthesis 1  Protein Synthesis 1I  Test Protein Synthesis  Regulation of Gene Expression in ProkaryotesI  Regulation of Gene Expression in ProkaryotesII  Regulation of Gene Expression in EukaryotesI  Regulation of Gene Expression in EukaryotesII |

**Lesson Plan**

**Name of the Assistant Professor:**

**Class and Section A : B.Sc. (Med.) 4th Semester**

**Subject lesson plan: From March 2022 to June 2022**

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| **Week & Date**  **Week 1** | **Topics**  **Assignment -** Botanical Names |
| 1 April- 2 April | Introduction to Angiosperms  Taxonomy and Systematics  Taxonomy and Systematics  Components of Taxonomy  Components of Taxonomy  **Oral Test** |
| **Week 2** | **Assignment** - Taxonomy |
| 4 April- 9 April | Role of Chemotaxonomy  Role of Chemotaxonomy  Cytotaxonomy & Taximetrics in relation to Taxonomy  Cytotaxonomy & Taximetrics in relation to Taxonomy  Topic Discussion  **Class Test -** Chemotaxonomy, Cytotaxonomy & Taximetrics |
| **Week 3** | **Assignment -** Plant Identification |
| 11 April- 16April | Botanical Nomenclature, Principles and Rules  Principle of Priority  Principle of Priority  Keys to Identification of Plants  Type Concept |
| **Week 4** | **Assignment -** Taxonomic Ranks |
| 18 April- 23 April | Taxonomic Ranks  Bentham & Hooker System of Classification  Engler & Prantl System of Classification Engler & Prantl System of Classification  Topic Discussion - Taxonomy & Classification  **Class Test - Classification System**  Flower: A Modified Shoot and Floral Terms  Type of Inflorescence |
| **Week 5** | **Assignment -** Inflorescence |
| 25 April- 30 April | Topic Discussion - Floral Terms  **Internal Test** - Unit I & II (Paper 1)  Microsporangia  Microsporogenesis  Microsporangium wall & dehiscence |
| **Week 6** | **Assignment -** Gametogenesis |
| 2 May- 7 May | Topic Discussion - Microsporogenesis  Male Gametophyte  Pollen Grain & its structure  Pollen Germination I  Pollen Germination II |
| **Week 7** | **Assignment -** Pollen Grains of Angiosperms |
| 9 May- 14 May | **Class Test** - Unit I (Paper 2)  Types of Pollination & Agencies of Pollination  Pollen-Pistil Interaction  Pollen-Pistil Interaction  Self - Incompatibility  Self - Incompatibility |
| **Week 8** | **Assignment -** Pollination in Angiosperms |
| 16 May- 21 May | Topic Discussion -  Diagnostic Features of Family Rannunculaceae  Economic Importance of Family Rannunculaceae  Brassicaseae - Diagnostic Features  Brassicaceae - Economic Importance  Malvaceae - Diagnostic Features  Malvaceae - Economic Importance |
| **Week 9** | **Assignment -** Economic Importance of Angiosperms |
| 23 May- 28 May | Topic Discussion - Above Families  Euphorbiaceae - Diagnostic Features  Euphorbiaceae - Economic Importance  Rutaceae - Diagnostic Features & Economic Importance  Topic Discussion - Above Families  **Class Test** - Above Families (Rannunculaceae - Rutacaeae |
| **Week 10** | **Assignment -** Angiospermic Families |
| 30 May-4 June | Revision |
| **Week 11** | **Assignment -**  Angiospermic Families |
| 6 June- 11 June | Structure of Megasporangia  Megasporogenesis (I)  Megasporogenesis (II)  Megagametogenesis  Female Gametophyte (Mono-, Bisporic)  Female Gametophyte (Tetrasporic) |
| **Week 12** | **Assignment -** Female Gametophyte |
| 13 June- 18 June | Topic Discussion  Double Fertilization  Endosperm & Its types  Economic importance of various families  **Internal Test -** (Unit III & IV, Paper 2) |
| **Week 13** | **Assignment -** Endosperms & Embryos |
| 20 June- 25 June | **Topic Discussion**  Endosperm & Its types  Embryogenesis in Dicots  Embryogenesis in Monocots  Polyembryony  Topic Discussion - Embryo & Endosperms |
| **Week 14** | **Assignment -** Types of Seeds and fruits |
| 27 June- 30June | Fruit (I)  Fruit (II)  Cucurbitaceae - Diagnostic Features  Cucurbitaceae - Economic Importance  Structure of Monocot  Structure of Dicot Seeds Apiaceae - Diagnostic Features  Apiaceae - Economic Importance  Asclepiadaceae - Diagnostic Features & Economic Importance  Lamiaceae - Diagnostic Features & Economic Importance  Topic Discussion - Above Families |

**Lesson Plan**

**Name of the Assistant Professor:**

**Class and Section : B.Sc. (Med.) 6th Semester**

**Subject lesson plan: From March 2022 to June 2022**

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| **Week & Date**  **Week 1** | **Topics**  **Assignment -** Assignment –Basics of Enzymology |
| 28 March- 2 April | Discovery and nomenclature of enzymes  Characteristics of enzymes  Concept of holoenzymes and apoenzymes  Coenzymes and cofactors  Regulation of enzyme activity I  Regulation of enzyme activity II |
| **Week 2** | **Assignment** - Respiration |
| 4 April- 9 April | Mechanism of enzyme action  Class test of enzymology  ATP  Aerobic respiration  Anaerobic respiration  Kreb`s cycle |
| **Week 3** | **Assignment -**  Oxidative phosphorylation |
| 11 April- 16April | Chemiosmotic theory  Redox potential  Oxidative phosphorylation  Pentose phosphate pathway  Test of respiration  Structure and function of lipids |
| **Week 4** | **Assignment -** fatty acids |
| 18 April- 23 April | Fatty acid biosynthesis and β Oxidation  Saturated and unsaturated fatty acids  Storage and mobilization of fatty acids  Test of lipid metabolism  Nitrogen metabolism |
| **Week 5** | **Assignment -**  recombinant DNA technology |
| 25 April- 30 April | Internal assessment test (unit 1 and unit 2 )  Tools of recombinant DNA technology  Cloning vectors  Genomic and c DNA library  Transposable elements  Techniques of recombinant DNA technology |
| **Week 6** | **Assignment-**  Plant tissue culture |
| 2 May- 7 May | Cloning vectors  Genomic and c DNA library  Transposable elements  Aspects of plant tissue culture  Cellular totipotency |
| **Week 7** | **Assignment -**  genetic transformation |
| 9 May- 14 May | Oral test –genetic engineering  Differentiation  Morphogenesis  Biology of *Agrobacterium* sp.  Vectors for gene delivery |
| **Week 8** | **Assignment -** cereals |
| 16 May- 21 May | Marker genes  Test of unit 4  PAPER 2- Food plants – rice  Wheat  Maize  Pulses – gram |
| **Week 9** | **Assignment -**  pulses and fibre yielding crops |
| 23 May- 28 May | Group discussion  **Test of food plants**  Arhar  Pea  Vegetables – potato  Tomato  Onion  Test of unit 1 |
| **Week 10** | **Assignment -**  Oil yielding plants |
| 30 May-4 June | Revision |
| **Week 11** | **Assignment -**spices |
| 6 June- 11 June | Fibres – cotton  Jute  Flax  Groundnut  Mustard  Sunflower  Coconut  Introduction to spices  Spices – coriander |
| **Week 12** | **Assignment -**  Cinchona and Rauwolfia sp. |
| 13 June- 18 June | Ferula  Turmeric  Ginger  Internal assessment test ( unit 1 and 2 )  Clove  Oral discussion  Cinchona sp. |
| **Week 13** | **Assignment -**  Medicinal plants |
| 20 June- 25 June | **Topic Discussion**  *Rauwolfia sp.*  Atropa sp.  Opium sp.  Cannabis sp.  Azadirachta sp.  Withania sp.  Beverages  Tea  Coffee |
| **Week 14** | **Assignment -**Beverages |
| 27 June- 30June | Sugarcane  Timber yielding plants  Test of sugar and timber yielding plants  Energy plantation  Hevea sp.  Biofuels |