

**Sahakar Maharshi Bhausaheb Santuji Thorat College of Arts, Science &
Commerce, Sangamner- 422605**

Teaching Plan of Theory Courses

Academic Year: 2014-2015

Term/Semester: Ist Class: T.Y.BSc Subject: Genetics & Plant Breeding

Month & Year	Title of the Topic	No. of Lectures	Test / Tutorial
June 2014	Admission Process		
July 2014	1. Mendel's contribution to inheritance pattern - Mendel's contribution to inheritance pattern experiments, laws/ principles, monohybrid, dihybrid, test cross, back cross.	03	Tutorial – 1
	2. Neomendelism Deviations from mendeliandihybrid ratios (modified dihybrid ratios) Interaction of genes- complementary genes, supplementary	06	
	3. Multiple allelism Concept, examples, <i>Drosophila</i> (eye colour), human(blood groups), self-incompatibility in plants.	02	
	4. Quantitative genetics Multiple factor concept and heritabilsm. Qualitative and quantitative trait, inheritance of quantitative traits(Mco//a«« and Maize)	02	
Aug. 2014	5. Cytoplasmic Inheritance: Involvingchloroplast(M/ra6z7*'s)and mitochondria(cytoplasmic male sterility). Mitochondrial and chloroplast genome, intraction between nucler and cytoplasmic gene	03	Test – 1
	6. Linkage and recombination : Concept, types, applications, detection of linkage. Concept and type of recombination. Estimation of recombination percentage and map distance. Two and three point test crosses and significance in gene mapping.	05	
	7. Sex chromosomes in Drosophila, Balance concept of sex determination in Drosophila, Mechanism of sex determination. Sex linked inheritance in Drosophila Sex linked characters.	05	
	8. Alternation in genetic makeup Spontaneous and induced mutations. Mutagens- types and mode of action (Transaction, frame shift mutations transversions.) Changes in chromosomes structure- Origin types and effects of auto and allopolyploidy origin and meiosis in nullisomics, monosomics and trisomics	10	
Sept. 2014	1. Introduction, scope and importance Scope and importance of plant breeding. Aims and objective of plant breeding.	01	Tutorial – 2 Botanical study tour
	2. Plant introduction and acclimatization Concept, objectives Advantage, disadvantage and achievement.	03	
	3. Selection Concept, types-mass, pure line and clonal selection. Advantage and diadvantage	02	
	4. Hybridization Concept, difficulties and precaution, Procedure, Achievement	02	
	5. Heterosis and hybrid vigour Concept,Causes of heterosis- dominance hypothesis Application	03	
	6. Mutation breeding Gamma gardens Application	01	
Oct. 2014	Revision of all chapters		To solve the model answer question

S.B.V.P.Samaj's
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Teaching Plan of Theory Courses

Academic Year:2014-2015

Term/Semester:II Class: T.Y.BSc Subject:Botanical Technique

Month & Year	Title of the Topic	No. of Lectures	Test / Tutorial
25 Nov. 2014	1. Microscopy Introduction, Image formation(properties of light), Lens-refraction, dispersion of light, Images, Intricacies of seeing objects, Image quality, Magnification concept, expression, Choice of eye piece and objective combinations to ensure optimal magnification, magnification power, Resolution -phenomenon, resolving power of microscope, contrast and resolution of images.	06	
	2. Microscopes Introduction, history, purpose of microscopic examination, Types-Dissecting-uses, stereoscopic- optic principle and uses, Compound- Construction-parts, working, optic principle, uses,	04	
Dec. 2014	3 Image Documentation Camera lucida- principle, types, Photomicrography-principle, use of SLR cameras, Digital imaging- New opportunities, Advantages of digital camera, advantages of digitization.	04	
Jan. 2015	4. Micrometry Introduction, principle, micrometer types, Eye piece Reticle/inserts, stage micrometer, calibration of ocular scale and microscope.	03	
	5. Microtechnique Introduction, preparations for microscopic observation- WM, smears, squashes, sections, Materials- cover glass, microslides- types, culture slides, watch glass, embryo cup, syracuse dish, stender dish, specimen phial, couplin jar. Equipment-Working and Use of- Hot air oven, slide warming table, Stains-nature and use of- Brazilin, Haematoxyline, Cotton blue, Fast green, Light Green, Safranin O, Sectioning-FreeJhand, Microtome Types-Hand and Rotary, Technique - Killing, fixation,dehydration, paraffin infiltration, embedding, Fixing of wax block, Microtoming, Fixing the ribbon of micro sections on slides, Dewaxing, Staining, mounting, Advantages.	10	
	6. Chromatography Introduction, definition, concept of partition coefficient, Paper chromatography-principle, method, Advantages. TLC-. Principle, method, Advantages.	04	
Feb. 2015	7. Spectroscopy Definition and general principle, Beer and Lambert's law, Mechanics of measurement. Spectrophotometer- working and applications.	04	
	8. Centrifugation Definition, factors affecting rate of sedimentation, Types-passing remark	02	
	9. Electrochemical Techniques Principle, pH meter, reference electrode, indicator electrode, oxygen Electrode, Calibration, applications.	02	
	x-ray Micro analysis concept and principle	02	
March 2015	10. Techniques with Radioisotopes Isotopes and Radioactivity, Ionisation effects, Measurement units, Measurement technique- Scintillation counting system.	03	To solve the model answer question
	11Aeropalynological Techniques Acetolysis, slide exposure, culture plate technique, Air samplers-Tilak, Rotorod - Working	04	

Sign.of the Subject Teacher

Sign of Head of Department

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Teaching Plan of Theory Courses
Academic Year:2014-2015

Term/Semester:I

Class: T.Y.BSc

Subject:Biometrics

Month & Year	Title of the Topic	No. of Lectures	Test / Tutorial
June-2014	Admission Process		
July-2014	1.Biometrics Introduction Biometric Introduction a) Imp, Scope and statistical method in biology b) Important form in Biometry c) sampling of data random and non-random sampling d) graphic representation of data, histro graph and line graph	04	
	2.Measurement of central tendency desperation 1. Measure of central tendency mean, mode and median. 2. Measure of dispersion – Range, mean, derivation, variance, standard derivation, standard error and coefficient of variation.	05	
Aug-2014	3.Probabilities and distribution Concept of probability, definition and rule for combining probability estimation of probability and it's application Introduction, Discrete distribution - Binomal distribution and poision distribution continuous	06	
	4.Statistical method Testing of hypothesis – Null hypothesis, chi-square test, level of significance and limitation Degree of freedom,application of chi-square,limitation of chi-square.	05	
Sept-2014	5.Correlation and regression Correlation – Introduction, Type measure correlation, coefficient of correlation and application – Introduction linear regression	04	
	Revision unit Test		
	University examination		

Sign.of the Subject Teacher

Sign of Head of Department