

Class: B.Sc. III Year

Semester: VI

Subject: BOTANY

Paper No: XIX (Genetics and Biotechnology)

Periods per week:

Th.____ Pract.____

Weeks (Total): 15.

WEEKS	TOPICS TO BE COVERED
1	Unit 1: -1. Mendelism: i. Introduction -G.J. Mendel. ii. Mendelian principles –Law of Dominance, law of segregation, law of independent assortment.
2	Back cross and test cross. 2. Interaction of genes: i. Allelic interaction: incomplete dominance, Co dominance, lethal genes.
3	Blood group inheritance. ii. Non allelic and non epistatic -comb shapes in fowls. iii. Non allelic and epistatic: a) Complementary genes or duplicate recessive epistasis (9:7). b) Supplementary genes or recessive epistasis (9:3:4)
4	c) Dominant epistatic genes or dominant epistasis (12:3:1) d) Duplicate genes or duplicate dominant epistasis (15:1) 3. Sex determination: i. Chromosomal theory of sex determination
5	ii. Mechanism of sex determination in man (xx -xy), Drosophila (xx and xy), birds (zz-zw), grasshopper (xx-xo) and genic balance theory in Drosophila iii. Sex determination in plants – Melandrium.
6	Unit 2: -1. Sex linked inheritance: X, XY and Y linked inheritance: i) Colourblindness and hemophilia in man.
7	ii) Holandric genes. iii) White eye colour in Drosophila,
8	iv) Gynandromorphs. 2. Structure and function of gene: i. Fine structure of gene (Seymour Benzer).
9	ii. One gene one enzyme hypothesis iii. Genes and related diseases – phenylketonuria,
10	Alkaptonuria. iv. Detection of genetic diseases –amniocentesis Genetic counseling.
11	Unit 3: -1. Concept of genetic engineering and recombinant DNA technology
12	2. Restriction endonucleases, their properties and uses
13	3. Cloning vectors -plasmids and phage vectors
14	4. Techniques of genetic engineering -isolation of desired gene, gene cloning, transfer of gene into plants
15	5. Applications of genetic engineering

Dr. Ashfaque Khan

Class : B.Sc. III
Subject : BOTANY
Periods per week : Th. _____
Weeks (Total) : 15

Semester VI
Paper No:
Pr. _____

WEEK	Topic to be covered
1	Practicals:- Demonstration of preparation of Meiotic slides..
2	Practicals:- Preparation of Meiotic slides..
3	Practicals:- Preparation of Meiotic slides..
4	Practicals:- Preparation of Meiotic slides.
5	Practicals:- Preparation of Meiotic slides.
6	Practicals:- Preparation of Meiotic slides.
7	Practicals:- Preparation of Meiotic slides
8	Practicals:- Study of Chironomous larva.
9	Practicals:- Genetical problems.
10	Practicals:- Genetical problems
11	Practicals:- Genetical problems
12	Practicals:- Genetical problems
13	Practicals:- Genetical problems
14	Practicals:- Preparation of charts of Mitosis and Meiosis.
15	Practicals:- Revision and conclusion of syllabus

Dr. Rafiuddin Naser

Class: B.Sc. III Year

Semester: VI

Subject: BOTANY

Paper No: XX B (Economic Botany)

Periods per week: Theory

Weeks (Total): 15.

WEEKS	TOPICS TO BE COVERED
1	Study of Cereals: Origin morphology cultivation harvesting and uses-Maize Pearl millet.
2	Rice and Bengal gram Origin morphology cultivation harvesting and uses.
3	Black gram: Origin, morphology, cultivation, harvesting and uses.
4	Pigeon pea and Soya bean: Origin, morphology, cultivation, harvesting and uses.
5	Mustard and Castor: Origin, morphology, cultivation, harvesting and uses
6	Study of fibre crops: Jute and Sunhemp. Origin, morphology, cultivation, harvesting and uses
7	Cotton: Origin, morphology, cultivation, harvesting and uses. Horticultural crops- Banana. Morphology
8	Banana: cultivation, harvesting and uses Orange and Mango: Origin, morphology, cultivation, harvesting and uses.
9	Ornamental Crops: Rose-Origin, morphology, cultivation, harvesting and uses
10	Orchids and Chrysanthemum: Origin, morphology, cultivation, harvesting and uses
11	Beverages- Tea and Coffee- Origin, morphology, cultivation, harvesting and uses.
12	Forage Crops: Sorghum Lucern and Cowpea: cultivation, harvesting and uses
13	Vegetable Crops: Brinjal and Potato- cultivation, harvesting and uses
14	Tomato, Onion and Cardamom- cultivation, harvesting and uses
15	Black pepper and Chillies- Origin, morphology, cultivation, harvesting and uses.

Dr. S.M. Quazi