SET -III

Applied Life Science /V Sem
Paper title: Genetics and Plant Biotechnology
Unique Paper Code – (42167903)

Time: 3 hrs Max. Marks: 75

(Write Your University Roll No., Paper Title and Unique Paper Code on top of the Answer Sheets)

Attempts *FOUR* questions in all.

All questions carry equal marks (18.75)

1. What is extrachromosomal inheritance? Explain the variegation pattern in 4'Oclock plant. Make comparison between incomplete dominance, codominance and dominance?

2. Discuss the aneuploidy and euploidy of chromosome in detail. How many barr bodies are present in an individual with Down and Turner syndrome? Also mention the symptoms of these two syndromes.

3. Give the features of an ideal cloning vector. Explain the structure of Ti plasmid. How *Agrobacterium* mediated transformation is carried out in laboratory?

4. Discuss the different strategies followed for the development of stress resistance plants. Give the public perception to biotechnology.

5. Give experimental evidences to prove DNA as hereditary material. How it is organized in the nucleus?

6. A female drosophila heterozygous for three X-linked mutations (y, yellow body; B, bar eye shape; v,vermilion eye color) to wild type males. The F_1 females were backcrossed to male recessive for all the three genes, yielding the following results

1	Yellow, Bar, vermilion	270
2	wild type	311
3	Yellow	90
4	Bar, vermilion	110
5	Yellow, vermilion	83

6	Bar	90
7	Yellow, Bar	24
8	Vermilion	22

Determine the order of these three loci on the X chromosome and estimate the distance between them. Also calculate the coefficient of coincidence and interference.