

(3 Hours)**[Total Marks: 80]**

- N.B 1.Q.No-1 is compulsory
2. Attempt any 4 questions from Q.No-2 to 6
3. All Questions Carry Equal Marks.
4. Illustrate Your Answer with suitable Diagram Wherever necessary.
- Q.1 Explain in detail
a. Transgenic Plant Analysis: screening on selection media, PCR, Real time PCR, Transgene expression, western blot analysis 10M
b. The use of herbicides in modern agriculture, Strategies for engineering herbicide tolerance - Glyphosate tolerance, Phosphinothricin, 10M
- Q.2 a. Write a note on plant improvement program. 10M
b. Regulations and Biosafety for Transgenic Plants 10M
- Q.3 a. Explain Improvement of crop yield and quality with Genetic manipulation of fruit ripening and genetic modification of ethylene biosynthesis. 10M
b. Explain the genetic manipulation of crop yield by enhancement of photosynthesis, Golden rice and Biofortified rice. 10M
- Q.4 a. Explain the concept of Bt-based genetic modification of plants. Problem of insect resistance to Bt, environmental impact of Bt crops. 12M
b. Write Microbial groups in soil, Plant and Microbe interactions. 08M
- Q.5 a. Write a note on Abiotic Stress 10M
b. Write a note on Biotic Stress 10M
- Q.6 Write Short Note (any 5)- 20M
i) Plant pathogens,
ii) Beneficial microorganisms in Agriculture: Biofertilizer
iii) Plant Hormone Signal Transduction- Auxin & Cytokinin
iv) Clean-gene technology.
v) Bacillus thuringiensis as a biopesticide.
vi) Molecular farming: Farming of carbohydrates
-