B. Sc. (Hons.) Botany / Semester : VI Title of paper: Plant Biotechnology (Core) Unique Code : 32161602

Duration : 3 Hours + 1 hour

Maximum Marks: 75

(Write your University Roll Number and Paper Title & Code on top of the Answer Sheet)

Attempt FOUR questions in all. All questions carry equal marks (18.75)

- 1. Explain in detail the developmental stages of somatic embryogenesis. What are various applications and limitations of somatic embryogenesis? List the major differences between somatic and zygotic embryos.
- 2. Discuss the role of different phytohormones and vitamins used in plant tissue culture. Explain various methods and significance of germplasm conservation..
- 3. Using suitable illustrations discuss the methodology of constructing genomic and cDNA libraries. Give brief account of any two methods used to screen a cDNA library.
- 4. Give salient features of cloning vectors? How do they differ from expression vectors? Give a brief account of one prokaryotic and a phage-based vector commonly used in recombinant DNA technology.
- 5. Distinguish between selection marker and reporter gene. Discuss in detail any two reporter genes used in plant transformation. Explain various direct gene transfer techniques.
- 6. Elaborate on one major application of biotechnology with the help of suitable diagram/s in each of the following cases: (a) improved quality traits of crops, (b) pest/ herbicide resistance in plants and (c) genetically engineered products for human welfare.



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