

M.Sc. (Biotechnology) (NEP Pattern) - Semester-III  
**STPG03BTH002 - Paper-II - Plant Bio-technology**

P. Pages : 1

Time : Three Hours



**GUG/W/24/15947**

Max. Marks : 80

Note: All questions are compulsory and carry equal marks. Draw well labeled diagrams wherever necessary.

1. Describe in brief initiation and maintenance of callus and suspension cultures. 16  

**OR**

  - i) Discuss in detail tissue culture technique. 8
  - ii) Explain the role of cytokinin growth hormone in plant tissue culture. 8
2. Discuss in brief embryo culture and embryo rescue. 16  

**OR**

  - i) Give an account of shoot tip culture. 8
  - ii) Discuss in detail symmetric and asymmetric hybrid an cybrid. 8
3. Describe in details biological and physical nuclear transformation methods. 16  

**OR**

  - i) Discuss mechanism of DNA transfer by using Ti as vectors. 8
  - ii) Discuss in detail chloroplast transformation. 8
4. Describe in detail insect resistance-Bt genes. 16  

**OR**

  - i) Explain coat protein mediated nucleocapsid gene. 8
  - ii) Describe herbicide resistance of phosphinothricin glyphosate. 8
5. Write in short - all compulsory.  
  - i) Explain single cell clones. 4
  - ii) What is organogenesis and embryogenesis. 4
  - iii) Explain in detail hairy root culture. 4
  - iv) Describe male sterile lines. 4

\*\*\*\*\*