[This question paper contains **2** printed pages.]

Your Roll No_____

Sr. No. of Question Paper	:	**1724**
Unique Paper Code	:	2162013601
Name of the Paper	:	Plant Biotechnology
Name of Course	:	BSc (H) Botany
Semester	:	VI

Duration: 2 Hours **Maximum Marks: 60**

Instructions for the Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **FOUR** questions in all.
3. **Question No. 1 is compulsory.**
4. Attempt all parts of a question together.

1. Answer the following questions
   (a) Define the following (**any 5**) (1x5=5)
      (i) Bioluminescence
      (ii) Nuclease
      (iii) Electrophoresis
      (iv) Competent cells
      (v) Protoplast
      (vi) Cosmid

(b) Give contributions of (**any 5**) (1x5=5)

(i) W. Arber, H.O. Smith and D. Nathans
(ii) S. Guha and S.C. Maheshwari
(iii) R. A. Jefferson
(iv) E. Neumann
(v) Ingo Potrykus and Peter Beyer
(vi) Ananda M Chakrabarty

(c) Expand the following (**any 5**) (1x5=5)

(i) PEG
(ii) BAC
(iii) pUC
(iv) MS medium
(v) MCS
(vi) Ti plasmid

2. Write short notes (**any 3**) (5x3=15)

(a) Flavr Savr tomato
(b) Green Fluorescent Protein
(c) Micropropagation
(d) Binary vector system

3. Differentiate between the following (**any 3**) (5x3=15)

(a) Haploid and Triploid plantlets
(b) Cybrids and Somatic hybrids
(c) Prokaryotic cloning vectors and eukaryotic cloning vectors
(d) Direct and indirect gene transfer

4. (a) Why are Restriction Enzymes known as molecular scissors? Explain the four main types of Restriction Enzymes. (10)

(b) Discuss biosafety issues of growing transgenic plants. (5)

5. (a) Explain the process of haploid production through androgenesis. Write the applications of haploid production in crop improvement. (9)

(b) Describe principle of GUS assay and its applications in plant molecular biology.(6)

(1500)