

**U.G. 6th Semester Examination - 2020****BOTANY****Course Code : BBOTCCHC602****Course Title : Plant Biotechnology**

Full Marks : 30

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **ten** questions:  $1 \times 10 = 10$
- What is the function of S1 Nuclease?
  - What is the function of M-13 based vector?
  - How blunt end ligation were done during cloning?
  - What is 'Lac Z' gene, where it used?
  - What is Bioremediation?
  - Explain how 'Cosmid' is different from 'Plasmid'.

- Draw the different parts of Yeast Artificial Chromosome (YAC).
  - What is Microinjection?
  - How liposome is made in laboratory?
  - Explain Bt-cotton in short.
  - What is genome library?
  - Name two plants with genetically altered traits– mention the altered traits.
  - What would be the criteria to make a sterile room for plant tissue culture purposes?
  - Mention two uses of Anther Culture.
  - What is micropropagation?
2. Answer any **five** questions:  $2 \times 5 = 10$
- Enumerate the use of  $T_i$  plasmid to transfer genes.
  - Schematically represent the protoplast isolation method.
  - What are the broad components of MS medium?
  - Write down the steps in schematic patterns the steps of Cryopreservation and plant regeneration.

- e) Why it is needed to design a expression vector for the production of sufficient amount of foreign protein?
- f) What is the use of Terminal Nucleotidyl transferase and Polynucleotide Kinase in Gene Clonning.
- g) Mention different types of restriction enzymes with its function and which types are used for gene clonning.
- h) What is Multiple Clonning Site (MCS)?

3. Answer any **two** questions:  $5 \times 2 = 10$

- a) Write down the steps somatic embryogenesis with mentioning the growth regulator. How does it differs from organogenesis?
  - b) Write down the origin, size, selectible marker, copy number, disadvantage of pBR 322 clonning vector.
  - c) What criteria should fulfill to form a expression vector?
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