

**T. Y. B. Sc. (Biotechnology) SEM – VI (CBCS - 2015 COURSE) :**

**WINTER - 2018**

**Subject: Plant Biotechnology**

Day: Thursday  
Date: 25/10/2018

**W-2018-1188**

Time: 10.00 AM TO 01.00 PM  
Max. Marks: 60

**N.B.:**

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in SEPARATE answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

**SECTION - 01**

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is the significance of meristem as an explant?
- b) What is protoplast and explain its separation techniques?
- c) Explain different branches of Plant Biotechnology
- d) What are the applications of somaclonal variants?
- e) What is molecular marker technology?
- f) Enlist the types of DNA markers.

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) Describe the technique of plant tissue culture via axillary shoot proliferation
- b) Explain viability testing methods for plant cells.

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) Plant cell culture techniques.
- b) Germplasm preservation techniques

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) Important milestones in Plant Tissue Culture
- b) Slow growth technique of plant cultures

**SECTION - 02**

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) Describe the role of Ti and Ri plasmids in biotransformation.
- b) What is the need for immobilization of plant cells?
- c) Explain the methods for recovery of transformed cell into plants.
- d) What is the formula for the production of GM plants?
- e) What is plant genetic engineering?
- f) What is the role of *A. tumefaciens* in formation of crown gall?

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) What is gene bank and explain its activities?
- b) What are the commercial applications of genetic engineering in horticulture?

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) Criteria for the classification of gene pool?
- b) Commercial applications of genetic engineering in forestry

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) PCR technique
- b) Gene gun

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