

**S. Y. B. SC. (BIOTECHNOLOGY) SEM – IV (2010 COURSE) :
WINTER - 2017**

SUBJECT : PLANT BIOTECHNOLOGY

Day : **Thursday**
Date : **02/11/2017**

W-2017-0956

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 80

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer books.
- 4) Draw neat and labelled diagram **WHEREVER** necessary.

SECTION - I

Q. 1 A) Attempt **ANY ONE** question of the following: (06)

- a) Write a note on historical review of Plant Biotechnology.
- b) What is micropropagation? Describe its applications.

B) Give diagrammatic/flow chart representation for **ANY TWO** of the following techniques: (10)

- a) Surface sterilization technique for leaf culture.
- b) Dicot seed culture for the production of *in vitro* seedlings.
- c) *In vitro* plant regeneration via axillary shoot proliferation.

Q. 2 Attempt **ANY FOUR** of the following: (16)

- a) What are the ingredients of nutrient medium for initiating plant cultures?
- b) What is the significance of apical meristem in the production of virus free plants?
- c) Describe different types of aseptic techniques for establishing plant cultures.
- d) What is callus? Describe its applications.
- e) Write a note on the advantages of microspore culture.

SECTION - II

Q. 3 A) Attempt **ANY ONE** question of the following: (06)

- a) Describe direct methods for gene transfer in plants.
- b) What are secondary metabolites? Describe *in vitro* methods for their production.

B) Attempt **ANY TWO** of the following: (10)

- a) Write a note on present concerns of GM plants.
- b) Describe the techniques of germplasm preservation.
- c) Enlist various types of molecular markers and explain their applications.

Q. 4 Write in brief **ANY FOUR** question of the following: (16)

- a) Technique for the production of somatic hybrids.
- b) Artificial seed production.
- c) Scope of genetic engineering in medicinal plants.
- d) Role of micropropagation in forestry.
- e) Principles of cytology and histology of callus.

Q. 5 Define **ALL** of the following: (16)

- | | |
|-----------------------------------|------------------------|
| a) <i>Agrobacterium</i> | e) Green house |
| b) Hairy root culture | f) Acclimatization |
| c) Indirect somatic embryogenesis | g) Dedifferentiation |
| d) Endosperm culture | h) Somaclonal variants |

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