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H-6623

M.Sc. (Semester-II) Examination, July 2022

BOTANY

(Plant Biotechnology and Resource Utilization)

Time Allowed : Three Hours

Maximum Marks : 70

Minimum Passing Marks : 25

Note : This question paper is divided into four sections. All sections are **compulsory**. Attempt questions as per given instructions in each section. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **any ten** questions. Each question carries **1** mark. [1x10=10]

1.(A) Fill in the blanks :

(i) _____ is known as the Father of tissue culture.

(ii) Any part of a plant taken out and grown in a test tube is called _____.

(iii) An unorganized actively dividing the mass of cells maintained in a culture is called _____.

(iv) The Technique of obtaining large number of Plantlets by tissue culture method is called _____.

(v) The Dimethyl sulfoxide used as _____.

(vi) The formation of embryoids from the Pollen grains in the tissue culture medium is due to _____.

(B) Multiple choice questions :

(vii) The production of secondary metabolites requires the use of _____.

(a) Meristem

(b) Protoplast

(c) Axillary buds

(d) Cell suspension

(viii) Optimum pH for plant tissue culture medium is _____.

(a) 7.5

(b) 8

(c) 5.7

(d) 8.5

(ix) Which of the following is incorrectly matched?

(a) Alnus – Frankia

(b) Alfalfa – Rhizobium

(c) Nitrogen Fixer – Anabaena

(d) Mycorrhiza – Rhodospirillum

(x) Which of the following is not a biofertilizer?

(a) Mycorrhiza

(b) Rhizobium

(c) Agrobacterium

(d) Nostoc

(xi) Which of the following is a pair of biofertilizers?

(a) Salmonella and E.coli

(b) Rhizobium and grasses

(c) Nostoc and legume

(d) Azolla and BGA

(xii) Ti plasmid vectors include :

(a) Binary vectors and cointegrate vectors

(b) Cointegrate vectors and multiple vectors

(c) Multiple vectors and binary vectors

(d) Ti plasmid based vector

SECTION-B

(Very Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **02** marks. (Maximum word limit is **25-30** words). [5x2=10]

2. (i) Culture media

(ii) Reporter gene

(iii) Sterilization

(iv) Contamination

(v) Transgenic plants

(vi) rDNA (Recombinant - DNA)

(vii) Restriction Endonuclease

SECTION-C

(Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **04** marks. (Maximum word limit is **250** words). [5x4=20]

3. (i) Somaclonal variations

(ii) Gametic embryogenesis

(iii) Electroporation

(iv) Plant Growth Promoting Rhizobia (PGPR)

(v) Marker-free transgenics

(vi) World centres of primary diversity

(vii) Ti-Plasmid

SECTION-D

(Essay Type Questions)

Note : Attempt **any three** questions. Each question carries **10** marks. (More than **500** words). [3x10=30]

4. (i) Give an account on somatic hybridization and its applications.

(ii) Give an account on non-alcoholic beverages.

(iii) Describe Agrobacterium mediated gene transfer in plants.

(iv) Give an account on case studies of transgenic traits in plants.

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