2011E701

Candidate's Seat No :_____

M.Sc Sem-3 Examination

501

Biotechnology

November-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Q.1 Answer the following

Walk us through the rationale behind setting up a plant tissue culture laboratory with schematic diagram. What are the key considerations and instrumentations present in different sections of PTC laboratory? 14

or

(a) Discuss the preparation of callus cultures and their applications 7

(b) Describe micropropagation techniques used in plant tissue culture 7

Q.2 Answer the following

Describe the various techniques which are involved in haploid production? Explain each in detail. 14

or

(a) Explain the mechanical and enzymatic techniques employed for isolating protoplasts. 7

(b) Write short note on the applications of germplasm storage in biotechnology. 7

Q.3 Answer the following

Explain in brief about the production of secondary metabolites on a large scale 14

or

(a) Compare and contrast different plant bioreactor systems. 7

(b) Explain production of industrial enzymes in plants with suitable case study example. 7

Q.4 Answer the following

Discuss the production of Transgenic plants using direct DNA delivery methods 14

or

(a) Write a note on methodology of QTL mapping. 7

(b) Explain the development of resistant rice variety through marker-assisted backcrossing 7

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Q.5 Answer the following(Any Seven) 14

(a) What is full form of IBPGR and its main objective?

(b)What is cytoplast?

(c) What are monoploids and polyploids? Explain in brief with examples

(d)Name one enzyme commonly used in the enzymatic method for protoplast isolation.

(e) What are transgenic plants? Give examples of Transgenic plants

(f) What is the difference between androgenesis and gynogenesis

(g) What is the advantage of root bioreactor system?

(h) What is the Advantage and Disadvantage of using Plant Suspension Culture bioreactor?

(i)Plant of tobacco can be engineered using which vectors?.

(j) Give advantages of marker assisted selection

(k) What is electroporation

(l) Enlist chemical methods of gene Transfer