547

Total Pages : 3 **Roll No. ----------**

BOT-554

Plant Molecular Biology and Biotechnology

M.Sc. BOTANY (MSCBOT-12/13/16/17)

Second Year, Examination 2021 (Winter)

Time: 2 Hours Max. Marks: 80

Note : This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section – A

(Long Answer – type questions)

Note: Section 'A' contains Five (05) long-answer-type questions of Twenty (20) marks each. Learners are required to answer any two (02) questions only.

[2 x 20 = 40]

Q.1. Give an illustrated account of morphology and nucleosome model of chromosome.

P.T.O.

Q.2. Define the term "gene". Describe regulation of gene expression in eukaryotes.

Q.3. What are restriction endonucleases ? Give a detail account of types of restriction endonucleases and write their application in molecular biology.

Q.4. Discuss the methods of isolation and fusion of protoplast for production of somatic hybrids.

Q.5. What is Polymerase chain reaction? Write in detail about Polymerase chain reaction and its applications.

Section – B

(Short-answer-type questions)

Note: Section 'B' contains Eight (08) short-answer-type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only.

[4 x 10 = 40]

Q.1. Give a concise account of secondary metabolites.

Q.2. Define the term molecular markers. Discuss basic steps employed in developing RFLPs or RAPD marker.

Q.3. Give a brief account of transgenic plants.

Q.4. Write a brief note on plasmid and cosmid vectors.

Q.5. Explain various types of repetitive DNA.

Q.6. Describe cryopreservation of plants cell and tissues.

Q.7. Give an account of micro propagation and its limitations.

Q.8. Briefly describe any two of the following :

1. Somaclonal Variations.
2. Patent
3. C-DNA library
4. Methylases.

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