

M.Sc. Examination, 2016
Semester-III
Biotechnology
Course – XIII
(Plant Biotechnology)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. What do you mean by Cell Suspension culture? How batch culture differs from continuous culture? What are the different techniques employed for synchronization of the cells in a suspension culture? What are the major problems associated with secondary metabolite production through suspension culture? What are the strategies implemented to solve these problem? 2+2+2+2+2=10
 2. What is *Pr* protein? What are the major types of *Pr* proteins found in plant system? What is disease triangle? Give a brief account on chemical nature and mode of action of most common *Pr* proteins. 2+3+2+3=10
 3. What is vector less gene transformation system in plant system? What are the common types of selectable and scorable markers used in plant transformation system? Briefly describe the structure of a Ti plasmid with role of all the different genes available on it. 2+4+4=10
 4. What are the basic differences between C_3 and C_4 plants based on their carbon dioxide fixation mechanism? What are the advantages of C_4 plants over C_3 plants? What are the major strategies that have been taken for metabolic engineering on C_3 plants for converting it into C_4 plants? 2+2+6=10
 5. Write short notes on the following (**any four**) : 2.5×4=10
 - (a) Somatic Embryogenesis
 - (b) Phosphinothricin
 - (c) Calgen's Flav'r Sav'r Fresh Tomato
 - (d) Somaclonal variation
 - (e) Golden rice
 - (f) Cryopreservation
 6. Mention pharmacognostic feature of the following plants: (**any four**) 2.5×4=10

(a) <i>Atropa</i>	(d) Vasak
(b) Neem	(e) <i>Digitalis</i>
(c) <i>Rauwolfia</i>	(f) Aloe
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