KATHMANDU UNIVERSITY
End Semester Examination
February/March, 2019

FEB 2 0 2019

Level : B. Tech.
Year : III
Time : 2 hrs. 30 mins.

Course : BIOT 303
Semester: I
F. M. : 55

SECTION "D"

(Long answer questions)
[3Q. × 7 = 21 marks]

Attempt *ALL* questions.

1. What is Ti plasmid? Explain the molecular mechanism of T- DNA transfer in dicotyledonous plants with the help of suitable diagrams.

2. What is somatic embryogenesis? Explain the different steps and application of somatic embryogenesis.

3. What is *in vitro* clonal propagation? Describe the different stages and limitations of micropropagation.

SECTION "E"

(Short answer questions)

4. Write short notes on: [6 Q. × 4 = 24]
   a) Apical meristem culture
   b) Callus induction
   c) Somatic hybridization
   d) Application of bioreactors for secondary metabolite production
   e) Plantibodies
   f) *In vitro* pollination and fertilization

5. Give *TWO* major differences between: [2 Q. × 2 = 4]
   a) Microchamber and filter paper raft nurse
   b) Direct and indirect androgenesis

6. Explain why/how for the following: [3 Q. × 2 = 6]
   a) 5-amono uracil is used for synchronization of plant suspension culture.
   b) Preparative stage (0 stage) is necessary for plant tissue culture technology.
   c) Fusogen is commonly used in protoplast fusion.