

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, MARCH 2020

(CUCSS)

Botany

BO 04 ET 13 5—PLANT TISSUE CULTURE

Time : Three Hours

Maximum : 36 Weightage

I. Answer the questions very briefly. (Weightage : $14 \times 1 = 14$ Grades : A, B, C, D, E)

- 1 Define somaclonal variation.
- 2 Mention the advantages of meristem culture.
- 3 How triploid plants are produced through tissue culture method ?
- 4 Define vitrification.
- 5 What is *in vitro* germplasm conservation ?
- 6 What are biosensors ?
- 7 Distinguish between direct and indirect regeneration of shoots.
- 8 What is a cryoprotectant ?
- 9 What are cybrids ?
- 10 Mention the use of mercuric chloride in tissue culture.
- 11 What is elicitation ?
- 12 Define a clone.
- 13 What is cell immobilization ?
- 14 What is the role of activated charcoal in tissue culture ?

II. Answer any *seven* questions in not more than 100 words. (Weightage : $7 \times 2 = 14$ Grades : A, B, C, D, E)

- 15 Distinguish between somatic embryo and zygotic embryo.
- 16 Write a note on protoplast fusion.
- 17 What are the causes of induction of somaclonal variation at molecular level ?
- 18 What are plant secondary metabolites ? How it is produced through culture techniques ?
- 19 How microspore culture is advantageous over another culture ?
- 20 Describe the establishment of suspension culture.

Turn over

- 21 Briefly write the protocol for cryopreservation.
 - 22 Explain androgenesis and gynogenesis.
 - 23 Comment on hairy root induction in tissue culture.
 - 24 Describe the role of hormonal combinations and ratio in organogenesis.
- III. Answer any *two* questions in 300 words each. (Weightage : $2 \times 4 = 8$ Grades : A, B, C, D, E)
- 25 What are Bio-reactors ? Give an account of various types of Bio-reactors.
 - 26 Explain how you can set up a low cost tissue culture lab ?
 - 27 What is the scope of secondary metabolite production in tissue culture.
 - 28 Give an account of preparation of M.S medium.