



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

**Bachelor of Science in Applied Sciences
Third Year – Semester II Examination – January/February 2023**

BOT 3201 – PLANT TISSUE CULTURE

Time: Two (02) hours

Answer FOUR (04) questions.

1. a) Discuss the use of elicitors to enhance secondary metabolite production in cell cultures. (60 marks)
b) Describe briefly the following with respect to *in-vitro* propagation.
 - i. Somatic embryogenesis
 - ii. Hairy root culture(40 marks)
2. Discuss the following with respect to *in vitro* propagation.
 - a) “*In vitro* propagation might be a threat to native plants” (40 marks)
 - b) Synthetic seed production in plant breeding for crop improvement. (60marks)
3. Discuss the importance of each step from the selection of mother plants to acclimatization of plantlets in the field in relation to tissue culture. (100 marks)
4. “*In vitro* propagation is a useful tool in combating the present economic crisis in Sri Lanka”. Discuss the above statement. (100 marks)
5. **Taxol** is a unique anticancer drug extracted from the bark of *Taxus brevifolia*. However, it has been estimated that in the USA alone, over 350,000 trees per year are needed to meet the demand, thus making the drug expensive. Suggest how *in vitro* propagation could be used in cost-effective production of **Taxol**. (100 marks)

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