



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

**B.Sc. (General) Degree in Applied Sciences  
Third Year – Semester II Examination – February/March 2019**

**BOT 3201 – PLANT TISSUE CULTURE**

**Time: Two (02) hours**

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**Answer FOUR (04) questions.**

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1. a) Describe the role of essential components in basal tissue culture medium. **(60 marks)**  
  
b) Define the following terms with respect to *in-vitro* propagation.
  - i. Dedifferentiation of tissues / cells.
  - ii. Somatic embryogenesis
  - iii. Biotransformation
  - iv. Chimera plants **(4x10 marks)**
2. Discuss the following with respect to *in-vitro* propagation.
  - a) Use of somoclonal variations to produce “man desired” plants. **(50 marks)**
  - b) Germplasm preservation for plant breeding and crop improvement. **(50 marks)**
3. Discuss the use of cell cultures in commercial production of secondary metabolites. **(100 marks)**
4. “*In-vitro* propagation is a useful tool in horticulture” Citing examples, 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 USA alone over 350,000 trees / year are needed to meet the demand thus making the drug very expensive. Using your knowledge in plant taxonomy and *in-vitro* propagation, suggest (describe) possible cost-effective avenues for **Taxol** production. **(100 marks)**

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