

Uva Wellassa University, Sri Lanka
Faculty of Science & Technology
Science & Technology Degree Program
3 level 2nd Semester Examination – Jan. /Feb. 2016
SCT 313-2 Cell and Tissue Culture



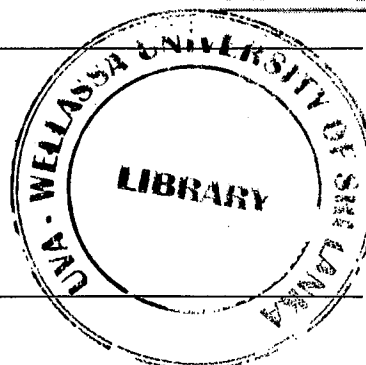
Instructions to candidate

Time allocation: Two (02) hours

Number of questions: Four (04)

Total marks allocated: 100

Answer all questions



1.

- a. List the main components of a standard plant tissue culture medium.
(06 mark)
- b. Give the reasons/importance for incorporating the following components in a plant tissue culture medium.
 - i. Sucrose
 - ii. FeNaEDTA
 - iii. Activated charcoal(15 mark)
- c. Name four commercially available ready-to-use plant tissue culture media other than MS (Murashige and Skoog, 1962).
(04 mark)

2.

- a. Name the two major types of callus cultures and briefly describe them.
(05 marks)
- b. Draw the typical growth curve of a callus culture until six weeks from the culture initiation. Label the five phases of growth. Indicate with an arrow on the curve you drew, the ideal time to change the culture medium.
(15 marks)
- c. Give two applications of callus cultures.
(05 marks)

3. Write short notes on the importance of the following culture types in plant breeding and propagation.

a. Embryo culture and embryo rescue.

b. Anther culture.

(25 marks)

4. A commercial Tissue culture facility involved in *in vitro* propagation of aquatic plants, experiences heavy financial losses due to plantlet death during hardening/acclimatization process. Initial studies have revealed that the acclimatization process adapted by the company at present is highly inefficient where 80% of the platelet died during the process. Assume that you have been hired by this company as an adviser considering your expertise in plant tissue culture. How would you advise the said company to overcome this problem?

(25 marks)