



School: School of Science
Program/s: MSc Life Science
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2022

Course Code: LS204
Date: 8/12/2022
Time: 11:30 AM to 1:30 PM

Course Name: Plant Tissue Culture
Total Marks: 40
Total Pages: 2

Instructions:

- Write each answer on a new page.
- Use of a calculator is permitted/not permitted
- Any other relevant instructions if any

Q. No.	Details	Marks	COs*	BTL#
Q.1	MCQ	8	CO1, CO2, CO3, CO4, CO5,	BT1, BT2, BT3

- All the nutrient media are developed from _____.
 - Knop's salt solution
 - White's salt solution
 - Both A and B
 - None of these
- Autoclave works at
 - 121°C and 150 PSI
 - 21°C and 20 PSI
 - 121°C and 120 PSI
 - 121°C and 15 PSI
- Which of the following is not a culture media?
 - White media
 - MS media
 - BS media
 - None of the above
- The ability of a plant to regenerate an entire plant from the cell is known as _____.
 - Polarity
 - Morphogenesis
 - Totipotency
 - Plasticity
- The most widely used chemical for protoplast fusion is _____.
 - Mannitol
 - Sorbitol
 - Mannol
 - PEG
- Which of the following method is best suited for the production of virus-free cultures?
 - Embryo culture
 - Meristem culture
 - Ovule culture
 - Anther culture
- Batch cultures are a type of suspension cultures where
 - Medium is continuously replaced
 - Medium is loaded only in the beginning
 - No depletions of medium occurs
 - Cellular wastes are continuously removed and replaced
- A synthetic seed is produced by encapsulating somatic embryos with ____.

- a) Sodium Chloride
- b) Sodium Alginate
- c) Sodium Acetate
- d) Sodium Nitrate

Q.2	Answer in one line	8	CO1, CO2, CO3, CO4, CO5.	BT1, BT2, BT3
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1. What is a callus?
2. Which vitamins are used in tissue culture?
3. Give any 2 advantages of root culture
4. Which hormonal combination induces shoot formation?
5. What is nurse culture?
6. How many stages are there in micropropagation?
7. Give names of synthetic auxins.
8. What is suspension culture

Q.3	Answer in brief (Any Six)	12	CO1, CO2, CO3, CO4, CO5.	BT1, BT2, BT3
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1. Explain haploid cultures
2. Write down the protocol to prepare somaclonal variants.
3. Differentiate between somaclonal and gameclonal variants.
4. Describe flower culture.
5. What are the applications of micropropagation?
6. What are the components of media in tissue culture?
7. Which processes of sterilization are used in tissue culture?

Q.4	Short Notes (Any three)	12	CO1, CO2, CO3, CO4, CO5.	BT1, BT2, BT3
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1. Soma clonal variants
2. Protoplast culture
3. Application of protoplast culture
4. Bioreactor.

*****End of Question Paper*****