



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
School of Agricultural Sciences & Forestry
Department of Crop Production
Bachelor of Science in Agriculture– Year 3
Final Examination
Trimester 2 - 2019
HOR705- Biotechnology of Horticultural Crops

Writing Time: 3:00 hours
Reading Time: extra 10 minutes allowed at the beginning of the exam
Total Marks: 100

INSTRUCTIONS:

1. This paper consists of **THREE** pages.
2. Please check to see that all your paper is complete.
3. Answer all questions in the Answer Booklet only.
4. No written or printed material and mobile phones are allowed in the examination hall.
5. Marks allocated for each section appears at the side of each question so allocate your time accordingly.
6. This paper is divided into Three Section

Section A: Objective questions (10 Marks)
Section B: Short answer (40 Marks)
Section C: Essay (60 Marks)

Section A: Objective type questions**(10 Marks)****Attempt ALL questions****(1 x 10 = 10 Marks)**

1. The temperature for doing cryopreservation is _____.
a -180°C *b* -170°C
c -190°C *d* -200°C
2. The reversion of mature cells to the meristematic callus is called _____.
a Dedifferentiation *b* Redifferentiation
c Differentiation *d* None of the above
3. Which hormone is involved in fruit ripening?
a Cytokinin *b* Indole Acetic Acid
c Auxin *d* Ethylene
4. Plant callus is a mass of unorganized _____ cells.
a Parenchyma *b* Collenchyma
c Sclerenchyma *d* None of the above
5. _____ variation is the variation seen in plants produced by plant tissue culture.
a Somaclonal *b* Chromosomal
c Genetic *d* Physiological
6. Amino acids, proteins and enzymes are _____.
a Primary metabolites *b* Secondary metabolites
c Both a & b *d* None of the above
7. _____ are the cell aggregates or single cells are grown in liquid medium.
a Callus culture *b* Tissue culture
c Continuous culture *d* Suspension Culture
8. Functional foods are also called as _____.
a Pharmaceuticals *b* Nutraceuticals
c Farm Foods *d* Fast foods
9. _____ is natural plant hormone ,helps the plants to adapt in stress environments.
a Indole acetic acid *b* Sulfuric Acid
c Abscisic Acid *d* Hydrochloric acid
10. The process in which the intake of oxygen and release of carbon dioxide is _____.
a Respiration *b* Photosynthesis
c Transpiration *d* Osmosis

Section B: Short answer**(40 Marks)****Section B 1: Attempt any FIVE questions****(5 x 3 = 15 Marks)****Apply the knowledge and generate answers for the following with diagrams:**

11. Primary and Secondary metabolites
12. Callus and types of callus.
13. Hybridization and Cybridization.
14. Shoot and Root Morphogenesis.
15. Three plant growth regulators and it functions
16. Protoplast culture

Section B 2: Attempt any FIVE questions**(5 x 5 = 25 Marks)**

17. Haploid cell cultures (Anther and pollen culture)
18. Plant growth promoters and inhibitors.
19. Steps in somatic hybridization.
20. Callus culture and Suspension culture.
21. Biochemical and Morphological methods of acclimatization.
22. Artificial seeds and its usage in horticulture.

Section C: Essay**(50 Marks)****Demonstrate with diagram and generate information on the following****Attempt any FOUR questions****(4 x 12.5 = 50 Marks)**

23. Genetic engineering and its influence in development of horticulture.
24. Plant cell cultivation and the use of five bioreactors.
25. Physical and chemical factors for plant growth.
26. Callus culture and types of embryogenesis with suitable diagram.
27. Role of biotechnology in the development of horticulture. Justify with examples

THE END**XXXXXXXXXXXX**