



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
Department of Genetics & Plant Breeding
Bachelor of Agriculture- Year III
Trimester II- Final Examination - 2017
HOR 705: Biotechnology of Horticultural Crops

Time Allowed: 3.00 hours plus (10 minutes reading time) Total Marks: 75

INSTRUCTIONS:

1. This paper consists of five pages including two pages Answer Sheet.
2. Please check to see that all your paper is complete.
3. Answer all the Objective Type Questions on the Answer Sheet and Descriptive Type Question in the Answer Booklet only.
4. The Answer sheet of the objective Type Questions should be tied with the main sheet.
5. Follow the same question number while writing answers in the answer booklet.
6. No written or printed material and mobile phones are allowed in the examination hall
7. Marks allocated for each question appears at the side of each question so allocate your time accordingly.
8. This paper is divided into Two Parts. First Part contains Objective Type Questions which is having three Sections – A, B & C. All questions of this part are compulsory. Second part is Descriptive Type which is having three sections D, E & F.

I. OBJECTIVE TYPE QUESTIONS (30 Marks)

Note: Answer only on the Answer Sheet provided with Question paper.

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|-----------|---|-------------------------|------------|
| Section A | : | Choose the best answer. | (10 Marks) |
| Section B | : | Fill in the blanks. | (10 Marks) |
| Section C | : | Match the following. | (10 Marks) |

II. DESCRIPTIVE TYPE QUESTIONS (45 marks)

There are **Six (6)** questions on Section D, you attempt only **Five (5)**, followed by Section E contain **Four (4)** questions, do attempt only **Three (3)**, and then in Section F **Three (3)** questions are given, do attempt only **two (2)** from it.

Note: Answer only on the Answer Booklet provided.

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| Section D | : | Definitions | (10 Marks) |
| Section E | : | Short Answer | (15 Marks) |
| Section F | : | Descriptive Question | (20 Marks) |

I. OBJECTIVE TYPE QUESTIONS

Note: To be answered only on the ANSWER SHEET provided with QUESTION PAPER.

A. FILL IN THE BLANKS.**(10x 1= 10 Marks)**

1. Edible vaccines are vaccines produced in _____.
2. _____ is the process of metabolizing sugars to yield energy.
3. _____ is the length of time a plant receives light in 24 hours.
4. _____ is the biological process that causes an organism to develop its shape.
5. _____ enzymes digest the cellulose in plant cell walls.
6. Cranberries and blueberries are two fruits that contain _____.
7. Chemical compounds that participate in the metabolism of plants are _____.
8. _____ is the carotenoid pigment that gives tomatoes their red color.
9. A _____ plant is one that carries a foreign gene inserted into its genome.
10. _____ is the technique which rapidly produce a large number of plants.

B. CHOOSE THE BEST ANSWER.**(10x1= 10 Marks)**

11. Cauliflower and broccoli are derived from the same genetic ancestor _____.
a Brassica oleracea b Brassica carinata.
c Brassica juncea. d Brassica napus.
12. _____ are micro-organisms which fix atmospheric nitrogen in the soil.
a Bio-fertilizers b Virus
c Fungus d Bacteria
13. Ethylene is one of the important compounds influence in _____.
a Leaf abscission b Aging
c Fruit ripening d All the above
14. The process in which the intake of oxygen and release of carbon dioxide is _____.
a Respiration b Photosynthesis
c Transpiration d Osmosis
15. _____ variation is seen in plants produced by plant tissue culture.
a Somaclonal b Chromosomal
c Genetic d Physiological
16. Alkaloids, Terpenoids and pigments are _____.
a Primary metabolites b Secondary metabolites
c Both a & b d None of the above
17. _____ are the cell aggregates or single cells are grown in liquid medium.
a Callus culture b Tissue culture
c Continuous culture d Suspension Culture
18. Functional foods are also called as _____.
a Pharmaceuticals b Nutraceuticals
c Farm Foods d None of the above
19. A bioreactor is a vessel for production of _____.
a Primary metabolites b Secondary metabolites
c Transgenic plants d None of the above
20. The reversion of mature cells to the meristematic state to form the callus is called _____.
a Dedifferentiation. b Redifferentiation.
c Differentiation. d None of the above

C. MATCH THE FOLLOWING:**(10x1 =10 Marks)****PART – A**

21. Genetic Engineering
22. Golden Rice
23. LUX
24. Ethylene
25. Parenchyma cells
26. Anther and Pollen
27. Sucrose
28. Acclimatization
29. Totipotency
30. Transpiration

PART-B

- A. 90% of water use
- B. Adapt to environment
- C. Altering the DNA
- D. Frequently used carbon source
- E. Gaseous plant hormone
- F. Green light
- G. Horticulture
- H. Measure of light intensity
- I. Plants from a cell
- J. Production of Haploids
- K. Unorganized Callus tissue
- L. Varieties
- M. Vitamin A

II. DESCRIPTIVE TYPE QUESTIONS*Note: To be answered only on the ANSWER BOOKLET provided.***D. DEFINITIONS - Attempt Any Five Questions***Each question carries TWO marks***(5 x 2 = 10 Marks)**

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|-------------------------------------|-------------------------------|
| 31. Somatic Hybrids | 34. Cybridization |
| 32. Meri-Stemming & Cloning | 35. Somaclonal Variation |
| 33. Primary & Secondary Metabolites | 36. Callus and Callus Culture |

E. SHORT ANSWER - Attempt Any Three Questions (1 Page each).*Each question carries Five marks***(3 x 5 = 15 Marks)**

37. Describe the role of biotechnology in improving horticultural crops.
38. Describe the role of Auxin, Cytokinin and Gibberellins in plant growth.
39. Write in detail about the importance of suspension culture
40. Write in detail about Anther and Pollen Culture.

F. DESCRIBE THE FOLLOWING - Attempt Any Two Questions (2 Pages each).*Each question carries TEN marks***(2 x 10 = 20 Marks)**

41. What is transgenic plants? Explain the key concepts of transgenics plants.
42. Explain protoplast culture? Briefly explain about the protoplast fusion techniques
43. What is bioreactor? Explain different types of Bioreactors?

The End**XXXXXXXXXXXX**

