



FIJI NATIONAL UNIVERSITY
College of Agriculture, Fisheries & Forestry
Department of Crop production
Bachelor of Agriculture/Education- Year III
Trimester III- Final Examination - 2017

ABT 701: Agricultural Biotechnology

Time Allowed: 3.00 hours

Total Marks: 100

INSTRUCTIONS:

1. This paper consists of six 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. No written or printed material and mobile phones are allowed in the examination hall
6. Marks allocated for each question appears at the side of each question so allocate your time accordingly.
7. 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 (40 Marks)

To be answered only on the Answer Sheet Provided.

- | | | |
|------------------|---------------------------|------------|
| Section A | : Choose the best answer. | (15 Marks) |
| Section B | : Fill in the blanks. | (15 Marks) |
| Section C | : Match the following. | (10 Marks) |

II. DESCRIPTIVE TYPE QUESTIONS (60 marks)

There are Six (6), Five (5) & Three (3), descriptive type questions provided on Section D, E & F, then attempt any Five (5), Four (4) and Two (2) questions respectively and write the answers only on the Answer Booklet.

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|------------------|-------------------------|------------|
| Section D | : Define the following. | (15 Marks) |
| Section E | : Short Description. | (25 Marks) |
| Section F | : Essay 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.****(15 x 1 = 15 Marks)**

1. _____ biotechnology represents marine and aquatic application.
2. _____ who described the role of bacteria in spoilage and basis for fermentation.
3. The sex in bacteria is denoted by the presence and absence of _____.
4. _____ is a specific type of enzyme that facilitates the joining of DNA strands.
5. _____ are organisms that are exact genetic copies.
6. The most common process of artificial plant cloning is referred to as _____.
7. The naturally occurring growth substances are commonly known as _____.
8. _____ is also called the stress hormone.
9. _____ is a process of physiological and anatomical adjustment to ex vitro conditions.
10. _____ a soil bacterium known as 'nature's own genetic engineer'.
11. _____ dissolve in the high pH insect gut and become active.
12. PCR is a method for _____ DNA.
13. _____ is the process where the double strand DNA opens to single stranded DNA.
14. _____ is a rice variety that has been developed to produce pro-vitamin A.
15. _____ is naturally produced in all cows.

B. Multiple choice questions**(15 x 1 = 15 Marks)**

16. _____ is the guiding policy to biotechnology regulation for the use to human beings.
 - a. Bio-safety
 - b. Bio-ethics
 - c. Bio-policy
 - d. Bio-politics
17. _____ is the safety in use of genetically modified organisms
 - a. Bio-safety
 - b. Bio-ethics
 - c. Bio-policy
 - d. Bio-politics
18. _____ can be defined as the extension of shelf life by the use of micro biota.
 - a. Preservation
 - b. Biopreservation
 - c. Artificial Preservation
 - d. Cold storage
19. _____ is commonly known as Bovine Growth Hormone or rBGH.
 - a. rBST
 - b. rBGH
 - c. Nisin
 - d. Both a & b
20. _____ foods refer to foods that are least likely to cause allergic reactions in humans.
 - a. Low allergic foods
 - b. Staple foods
 - c. Hypoallergenic
 - d. None of the above
21. Taq DNA Derived from _____.
 - a. *Thermus tuberciosus*.
 - b. *Thermus amphilus*
 - c. *Thermus phyllatus*.
 - d. *Thermus aquaticus*.
22. _____ allows the direct transfer of one or just a few genes of interest.
 - a. Genetic engineering
 - b. Morphogenesis
 - c. Gene cloning
 - d. Plant tissue Culture
23. Shoot regeneration is promoted by a _____.
 - a. Auxin
 - b. Cytokinin
 - c. Gibberellin
 - d. Ethylene
24. The Primary Hardening takes place in _____.
 - a. Shade House
 - b. Green House
 - c. Laboratory
 - d. Growth Room
25. _____ influence the leaf abscission, the aging and dropping of leaves
 - a. Auxin
 - b. Cytokinin

26. _____ condition means free from any type of microorganisms
 a. Sterilize b. Aseptic
 c. Pasteurize d. Septic
27. _____ produces copies of genes or segments of DNA.
 a. Gene morphing b. Gene amplification
 c. Gene cloning d. Both b & c
28. _____ propagation is a cloning technique famous among farmers.
 a. Natural b. Vegetative
 c. Non Vegetative d. Artificial
29. _____ enzymes that cut a DNA molecule
 a. Restriction b. Liberation
 c. Ligase d. Isomerase
30. _____ was the scientist who first developed recombinant DNA technology..
 a. James Watson b. Karoly Ereky
 c. Francis Crick d. Paul Berg

C. Match the following:

(10 x 1 = 10 Marks)

PART - A

PART-B

- | | |
|----------------------------|-------------------------------|
| 31. Karoly Ereky | A. 90-97°C. |
| 32. Molecular Markers | B. Use of traditional methods |
| 33. Ligase | C. Carbon Source of Media |
| 34. Plasmid | D. Coined biotechnology |
| 35. Dolly | E. Crown gall Disease |
| 36. Sucrose | F. Exist in bacteria cell |
| 37. Bacillus thuringiensis | G. Increase in milk quantity |
| 38. Denaturation | H. Join the DNA strand |
| 39. BGH | I. Sir Ian Wilmut |
| 40. Holistic ideology | J. Tool to locate plant genes |

II. DESCRIPTIVE TYPE QUESTIONS

Note: To be answered only in the ANSWER BOOKLET.

D. Attempt Any **FIVE** Questions

(5 x 3 = 15 Marks)

Analyze the below terms and provide information

41. Plasmid and role of plasmid in rDNA technology
42. Cloning. Natural and Artificial Coning
43. Totipotency, Morphogenesis and Plasticity
44. Polymerase chain Reaction and its major steps.
45. Biopreservation and its application.
46. Biosafety and its Concepts.

E. Attempt Any **FIVE** Questions (1 Page each).

(5 x 5 = 25 Marks)

Apply the knowledge and provide suitable answers for the following:

47. The role of biotechnology in Agriculture
48. The Role of Auxin, Cytokinin and Gibberellins in plant growth.
49. The Golden rice and Hypoallergenic rice varieties.

50. The role of bio preservatives in enhancing the shelf life of dairy products.
51. The social issues of biotechnology.
52. Briefly describe about transformation and, what are the two types of transformation?

F. Essay question - Attempt Any **TWO** Questions (2 Pages each).

(2 x 10 = 20 Marks)

Demonstrate with diagrams and provide relevant explanations for the following

53. The process of animal cloning.
54. 6 different stages of plant tissue culture.
55. The role of Bt genes in production of resistant varieties.

The End

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B. Sc. Agriculture/Education Trimester-III, Final Examination-2017
Unit Code & Name: ABT 701 – Agricultural Biotechnology

I. Objective Type Questions - Answer Sheet

Total Marks: 40

A.	1.		
	2.		
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B.	16.		
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C.	31.		
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