Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18AG2014** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INTRODUCTION TO BIOTECHNOLOGY** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | | **Course Outcome** | **Marks** |
| **PART – A (20 X 1 = 20 MARKS)** | | | | |
| 1. | | The restriction enzymes are called as \_\_\_\_\_\_\_\_\_\_ . | CO2 | 1 |
| 2. | | The \_\_\_\_\_\_\_\_\_\_ is the first artificial cloning vector developed from *E.coli* plasmid ColEl. | CO2 | 1 |
| 3. | | The \_\_\_\_\_\_\_\_\_\_ virus infects mainly the members of Cruciferae. | CO3 | 1 |
| 4. | | Expand HRP. | CO2 | 1 |
| 5. | | \_\_\_\_\_\_\_\_\_\_ are derived from a single clone of cells which recognize only one kind of antigen. | CO2 | 1 |
| 6. | | \_\_\_\_\_\_\_\_\_\_ are unique fused cell that produces quantities of specific antibodies and divide continuously. | CO2 | 1 |
| 7. | | Attachment of cells or protoplast into a matrix is called \_\_\_\_\_\_\_\_\_\_ . | CO1 | 1 |
| 8. | | In 1917 \_\_\_\_\_\_\_\_\_\_ coined the term biotechnology. | CO1 | 1 |
| 9. | | The mRNA is found in \_\_\_\_\_\_\_\_\_\_ . | CO1 | 1 |
| 10. | | \_\_\_\_\_\_\_\_\_\_ are the extra chromosomal, replicating and circular DNA present in the bacterial cell. | CO2 | 1 |
| 11. | | The most common enzyme used in PCR is a thermostable enzyme called \_\_\_\_\_\_\_\_\_\_ . | CO2 | 1 |
| 12. | | The charged molecules can be separated by applying an electric field which is called \_\_\_\_\_\_\_\_\_\_. | CO2 | 1 |
| 13. | | Lac and trp operons are examples of \_\_\_\_\_\_\_\_\_\_ . | CO1 | 1 |
| 14. | | \_\_\_\_\_\_\_\_\_\_ is found in the nucleus with small amounts in mitochondria and chloroplasts. | CO1 | 1 |
| 15. | | Expand GMO and GEO. | CO3 | 1 |
| 16. | | Cell culture was first successfully undertaken by \_\_\_\_\_\_\_\_\_\_ in 1907. | CO2 | 1 |
| 17. | | Monsanto (USA) produced glyphosate under the trade name \_\_\_\_\_\_\_\_\_\_ which is widely used in non-selective herbicide. | CO3 | 1 |
| 18. | | \_\_\_\_\_\_\_\_\_\_ is an entomocidal bacterium that produces an insect control protein. | CO3 | 1 |
| 19. | | Give the three stop codons in protein synthesis. | CO1 | 1 |
| 20. | | \_\_\_\_\_\_\_\_\_\_ is the process by which the information in the mRNA molecule is decoded into a polypeptide chain. | CO1 | 1 |

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| **PART – B (10 X 5 = 50 MARKS)**  **(Answer any 10 from the following)** | | | |
| 21. | Explain the different types of RNA with a neat sketch. Add a note on their functions. | CO1 | 5 |
| 22. | Post transcriptional modification - Explain the mechanism. | CO1 | 5 |
| 23. | Explain mutation and its causes with their types and example. | CO2 | 5 |
| 24. | Differentiate between DNA and RNA. | CO1 | 5 |
| 25. | What is bioremediation? Explain the concept of bioremediation in water. | CO3 | 5 |
| 26. | What is agarose gel electrophoresis? Write in detail its working. | CO2 | 5 |
| 27. | Write short notes on southern and northern blotting and its working. | CO2 | 5 |
| 28. | What is rDNA technology? Write notes on vaccines. | CO2 | 5 |
| 29. | Why *Escherichia coli* is the most suitable host for cloning foreign genes? Which was the first gene cloned in *E.coli*? | CO2 | 5 |
| 30. | What is bioethanol? Give details of all components required in its upstream and downstream processing. | CO3 | 5 |
| 31. | Write the scope and importance of biotechnology in agriculture. | CO1 | 5 |
| 32. | Explain the DNA Finger Printing and RFLP in detail. | CO2 | 5 |

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| **PART – C (2 X 15 = 30 MARKS)**  **(Answer any 2 from the following)** | | | | |
| 33. | a. | Explain in detail the PCR technology, its type and application. | CO2 | 8 |
| b. | Describe the process of transcription and its phases with neat diagram. | CO1 | 7 |
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| 34. | a. | Explain how the ELISA test works and its types with application in diagnosing diseases. | CO2 | 8 |
| b. | Write an essay on different methods used in production of transgenic plants. | CO3 | 7 |
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| 35. | a. | Give a detailed account of animal cell culture and evolution of cell lines. | CO2 | 8 |
| b. | Explain the restriction endonucleases. Describe the cloning vectors studied by you. | CO2 | 7 |