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



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

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| **Code :** | **18BT2002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASICS OF INDUSTRIAL BIOTECHNOLOGY** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (10X1 = 10 MARKS)** | | | |
| 1. | Modern Biotechnology started in \_\_\_\_\_\_\_\_\_\_\_ century. | CO1 | 1 |
| 2. | Name anyone microorganism used for industrial production of antibiotics. | CO3 | 1 |
| 3. | Define hypothesis. | CO2 | 1 |
| 4. | Draw the symbol used for stirring device in bioprocess. | CO2 | 1 |
| 5. | Cite an example for secondary metabolite. | CO4 | 1 |
| 6. | What is the natural source of Vitamin E? | CO4 | 1 |
| 7. | Give an example for meat tenderizing enzyme. | CO5 | 1 |
| 8. | Write the Michaelis and Menten equation. | CO6 | 1 |
| 9. | Cite one use of PHB in medical field. | CO5 | 1 |
| 10. | Name anyone microorganism used for lignocellulose bioconversion. | CO3 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | Compare the traditional biotechnology with modern biotechnology. | CO1 | 3 |
| 12. | What are primary metabolites? Give an example. | CO4 | 3 |
| 13. | Analyze the significance of 2 different phases of fermentation of industrial production of Vitamin B12. | CO3 | 3 |
| 14. | Analyze the significance of protease Bromelain. | CO5 | 3 |
| 15. | Why does EPS biopolymer have wide application in food and paint industries? | CO4 | 3 |
| 16. | Expand SCP and give its significance. | CO6 | 3 |

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| **PART – C (6 X 12 = 72 MARKS)**  **(Answer any five Questions from Q.no 17 to 23. Q.No 24 is a Compulsory Question)** | | | | |
| 17. |  | Give a brief survey on the products related to modern biotechnology and also outline the types of bioprocesses. | CO2 | 12 |
| 18. |  | Discuss the different types of process flow sheeting with illustrations. | CO4 | 12 |
| 19. |  | Explain the industrial production process for natural penicillin and discuss the steps involved in the production of semi-synthetic penicillin. | CO5 | 12 |
| 20. | a. | Discuss the factors and challenges that influence during the industrial production of enzymes. | CO3 | 6 |
| b. | Outline the industrial production process of amylase enzyme. | CO3 | 6 |
| 21. |  | Explain the process of industrial production of alcoholic products. | CO4 | 12 |
| 22. |  | Discuss the history of bioreactors and give the design of a bioreactor. | CO1 | 12 |
| 23. |  | Explain the industrial production process of Xanthan gum and give their uses. | CO6 | 12 |
|  | **Compulsory:** | | | |
| 24. |  | Describe the process of industrial production of monoclonal antibodies and discuss their applications. | CO5 | 12 |