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



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

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| **Code :** | **14BT2016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ENZYME ENGINEERING** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Discuss the recommendations and guidelines to be followed in nomenclature of enzymes. | CO1 | 6 |
| b. | Summarize the IUB and MB system of classification of enzymes. | CO1 | 14 |
| (OR) | | | | |
| 2. | a. | Comment on the chemical nature of enzymes. | CO1 | 8 |
| b. | What are isoenzymes? Discuss the isoenzymes with suitable examples. | CO1 | 6 |
| c. | Differentiate the constitutive enzymes and inducible enzymes. | CO1 | 6 |
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| 3. | a. | Write notes on Lock and Key model of mechanism of enzyme catalysis. | CO2 | 6 |
| b. | Illustrate the Michaelis –Menton equation for a single substrate reaction catalyzed enzyme. | CO2 | 14 |
| (OR) | | | | |
| 4. |  | Elaborate the factors that are affecting the enzyme activity in detail. | CO2 | 20 |
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| 5. | a. | Sketch the various techniques used to extract the soluble enzymes from plant, animal and microbial sources. | CO2 | 15 |
| b. | Write notes on detergents used in extraction of membrane bound enzymes. | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | Illustrate the principle and operations of size exclusion chromatography to purify enzymes. | CO2 | 15 |
| b. | How can be the molecular size of the enzyme determined using the gel filteration chromatography? | CO2 | 5 |
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| 7. | a. | Discuss the advantages and disadvantages of enzyme immobilization. | CO3 | 8 |
| b. | Explain the methods of enzyme immobilization by Entrapment and Membrane confinement or encapsulation. | CO3 | 12 |
| (OR) | | | | |
| 8. | a. | Describe the applications of immobilized enzymes in the field of medicine. | CO3 | 10 |
| b. | Construct the industrial applications of the Immobilized raffinase. | CO3 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the principle and components of a biosensor. | CO3 | 10 |
| b. | Describe the principle and design of Amperometric biosensors. | CO3 | 10 |