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



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

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| **Code :** | **14BI2002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INSTRUMENTAL METHODS OF ANALYSIS** | **Max. Marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Outline the working principle of pH meter with a neat diagram and describe the steps involed in determination of pH of a solution and state any two applications of pH in the field of biotechnology. | CO2 | 20 |
| **(OR)** | | | | |
| 2. | a. | Explain in detail the different types of buffers and its applications in the field of biotechnology with sutiable examples. | CO2 | 15 |
| b | State the role of any two buffers used in the isolation of DNA. | CO2 | 05 |
|  |  |  |  |  |
| 3. |  | Define Beers law. Give a detailed account on instrumentation and working principle of UV visible spectrophotometer with a neat diagram. | CO1 | 20 |
| **(OR)** | | | | |
| 4. |  | Explain the working principle of Atomic Absorption Spectroscopy and its applications in the field of biotechnology. | CO1 | 20 |
|  |  |  |  |  |
| 5. |  | Discuss in detail the steps involved in purification and quantification of secondary metabolites using HPLC with a neat diagram. | CO1 | 20 |
| **(OR)** | | | | |
| 6. | a. | Define electrophoresis. | CO1 | 03 |
| b. | Explain in detail the instrumentation and working protocol of Agarose Gel electrophoresis with a neat diagram. | CO1 | 17 |
|  |  |  |  |  |
| 7. |  | Illustrate the principle and instrumentation of Geiger Muller Counter in detection of radioactive isotope molecules. | CO3 | 20 |
| **(OR)** | | | | |
| 8. |  | Discuss the methods of radioactive decay and detection of radio active istopes using Scintillation counter with a neat diagram. | CO3 | 20 |
|  | | **Compulsory:** |  |  |
| 9. | a. | What is thermogravimetry? | CO3 | 3 |
| b. | Explain in detail the principle involved in determination of thermal stability of the polymers using DSC. | CO3 | 17 |