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



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

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| **Code :** | **14BT2040** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ANIMAL BIOTECHNOLOGY AND CELL CULTURE TECHNIQUES** | **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. | Infer the role of endotoxins and antibiotics in the cell culture medium. | CO1 | 10 |
| b. | Discuss about serum characteristics and its advantages and disadvantages when used in medium. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Outline the design of cell culture laboratory and write a note on the types of equipments used in the cell culture lab. | CO1 | 10 |
| b. | Appraise the steps involved for the separations of cells from the tissue sample with necessary illustrations. | CO1 | 10 |
|  |  |  |  |  |
| 3. |  | Explain the role played by stirred bio reactors, continuous flow reactors and air lift fermentors in the scaling up of suspension type of cell culture and discuss their application. | CO2 | 20 |
| **(OR)** | | | | |
| 4. | a. | Explain the process and the protocols involved in 3D spheroid culture. | CO1 | 10 |
| b. | Enumerate the importance of membrane intergrity assays and discuss the protocol involved. | CO1 | 10 |
|  |  |  |  |  |
| 5. | a. | Elucidate the pathway and the steps involved in the identification of the specific antibodies raised against specific epitope of the antigen. | CO2 | 10 |
| b. | Infer multistep targeting of monoclonal antibodies for cancer treatment with suitable examples. | CO2 | 10 |
| **(OR)** | | | | |
| 6. |  | Describe the physical, chemical and biological methods of gene transfer involved for the development of transgenic animals. | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | Demonstrate the use stem cells for the development of transgenic animals with suitable examples. | CO3 | 20 |
| **(OR)** | | | | |
| 8. | a. | Discuss in detail about the aseptic measures to the followed in the cell culture lab. | CO3 | 10 |
| b. | Elaborate about the ethical issues in animal biotechnology. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the different types of materials used as scaffolds in tissue engineering. | CO3 | 10 |
| b. | Discuss the procedures involved in tissue engineering for culturing of urothelial and human dermal fibroblast cells. | CO3 | 10 |