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



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

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| **Code :** | **16BT2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MICROBIOLOGY AND IMMUNOLOGY** | **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. | Illustrate Bright Field Microscope with a neat diagram and mention the different parts of the microscope and their function. | CO2 | 10 |
|  |  | Experimentally prove the process of spontaneous generation with appropriate examples. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Enumerate the principle, role of dyes and steps involved in Gram staining with a neat flow chart. | CO1 | 14 |
| b. | Indicate the five kingdom concept of living organisms. | CO2 | 6 |
| 3. | a. | Draw a neat structure of prokaryotic cell with illustrations. | CO1 | 5 |
|  | b. | Compare and contrast the structure and chemical composition of Gram positive and Gram negative bacterial cell wall. | CO2 | 15 |
| **(OR)** | | | | |
| 4. | a. | Define generation time with examples. Enlist the different phases of bacterial growth curve with a neat diagram. | CO3 | 10 |
|  | b. | Demonstrate the different types of culture media and nutrients required for the growth of bacteria. | CO2 | 10 |
| 5. | a. | Enumerate the different types of sterilization methods used to control microorganisms. | CO2 | 20 |
| **(OR)** | | | | |
| 6. | a. | Indicate hypersensitivity reactions and write the clinical symptoms of allergic reactions. | CO3 | 8 |
|  | b. | Summarize the structure and functions of immunoglobulins. | CO3 | 12 |
| 7. | a. | Demonstrate the principles of *in vitro* monoclonal antibody production, and comment on the different structural types of therapeutic monoclonal antibodies available. | CO2 | 20 |
| **(OR)** | | | | |
| 8. | a. | Classify immunological techniques and illustrate applications of immunological technique – ELISA. | CO3 | 20 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Write an overview of the humoral and cell mediated immune response in defense against invading pathogens. | CO3 | 20 |