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

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

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| **Code :** | **17BT2021** | **Duration :** | **3 Hrs** |
| **Sub. Name:** | **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. | Explain the various cellular factors employed in innate immunity. | CO1 | 10 |
| b. | Discuss the structure and function of lymph node. | CO1 | 6 |
| c. | Distinguish between cell mediated immunity and humoral immunity. | CO1 | 4 |
| **(OR)** | | | | |
| 2. | a. | Explain the structure and function of the thymus and spleen. | CO1 | 12 |
| b. | Discuss the biochemical factors employed to fight against infectious microorganisms. | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | Explain the various types of lymphocytes present in the immune system. | CO1 | 15 |
| b. | Write note on granulocytes and haematopioesis. | CO1 | 5 |
| **(OR)** | | | | |
| 4. | a. | Describe the structure and functions of MHC-I. | CO1 | 8 |
| b. | Explain the concept of antigen processing and presentation with a suitable example. | CO2 | 12 |
|  |  |  |  |  |
| 5. | a. | Describe the structure and biological functions of IgG and IgA. | CO2 | 15 |
| b. | What are the factors affecting antigenicity? Explain. | CO2 | 5 |
| **(OR)** | | | | |
| 6. | a. | Discuss the biosynthesis and significance of classical pathway of complement system. | CO2 | 10 |
| b. | Explain the mode of action and applications of haptens and adjuvants. | CO2 | 10 |
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| 7. | a. | Explain the symptoms, mechanisms, prevention and treatment of Type-I anaphylactic hypersensitivity. | CO2 | 14 |
| b. | Discuss the characteristics and causes of autoimmune diseases. | CO2 | 6 |
| **(OR)** | | | | |
| 8. | a. | Describe the types and mechanism of graft rejection. | CO2 | 15 |
| b. | Explain the mechanism of tumor associated antigen. | CO2 | 5 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the principle and mechanism involved in ELISA and RIA. | CO3 | 15 |
| b. | Write note on chimeric antibody and humanized antibody. | CO3 | 5 |