Printed Pages: 01 **Subject Code: NBT404**

Paper Id: 154247 **Roll No:** | | | | | | | | | | |

BTECH
(SEM IV) THEORY EXAMINATION 2018-19
IMMUNOLOGY

Time: 3 Hours ***Total Marks:100***

Notes: *Assume any Missing Data.*

SECTION A

1. Attempt **all** parts. Each part carries equal marks: **(2X10=20)**

(a) How M cell participate in immunity.
(b) Give the examples of macrophages present in different parts of body and names of different lymphoid cells.
(c) Define the role of dendritic cell in generating immune response.
(d) Briefly describe the alloantigen and Haptens
(e) Uncover the mechanism of class switching (Isotype) .
(f) Outline the types of Tumor antigens.
(g) Comment on IgM and IgE
(h) Explain the following: ELISA, TNF, LPS, MHC.
(i) Elucidate the Super-antigens.
(j) Demarcate the landscape features of Antigen Presenting Cells with example.

SECTION B

2. Attempt any three question from this section **(10x3=30)**

(a) How innate immunity is different from adaptive immunity.
(b) Briefly describe the Structure of Class I and class II MHC molecule with appropriate diagram.
(c) Illuminate the principal of Western blot and ELISA.
(d) Illustrate the different steps used in monoclonal antibodies production.
(e) Write notes on classical pathway of complement system.
(f) Throw Light on the type II hypersensitive reaction.

SECTION- C

3. Attempt any one part of the following: **(10x1=10)**

(a) Diagrammatically show the process of inflammation and phagocytosis.
(b) Describe the physio -chemical barriers of the innate immunity.

4. Attempt any one part of the following: **(10x1=10)**

(c) How ABO blood group system works?
(d) What merits are required to be a good immunogen ? Distinguish the immunogen from antigen.

5. Attempt any one part of the following: **(10x1=10)**

(a) Outline the different functions of complement system.
(b) Write brief notes on the applications of cytokines and monoclonal antibodies and adjuvents

6. Attempt any one part of the following: **(10x1=10)**

(a) Give a concise picture of Primary and secondary lymphoid organs with suitable figure.
(b) Explain the different types of antibodies in detail.

7. Attempt any one part of the following: **(10x1=10)**

(a) How protection against intracellular pathogens works? Take HIV virus as an example.
(b) Write short notes on different types of vaccines.