Printed Page:-04 **Subject Code**:- **ABT0402**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (2023 - 2024)

Subject: Immunology & Immunotechology

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION A **20**

1. Attempt all parts:-

1-a. INFγ are primarily produced by _____ (CO1) 1

(a) NK cells

(b) Th-1 cells

(c) Macrophages

(d) Both (b) and (c)

1-b. A chemokine with indirect antiviral activity:(CO1) 1

(a) TNF

(b) TGF

(c) INF

(d) IL

1-c. In agglutination reactions, the antigen is a.....in precipitation reactions, the antigen is a..... (CO2) 1

(a) whole cell/soluble molecule

(b) Soluble molecule/whole cell

(c) Bacterium/virus

(d) Protein/carbohydrates

1-d. The heavy chain of Immunoglobulin molecules are: (CO2) 1

(a) Encoded by a constant region exon

(b) Expressed by T cells

(c) No glycosylated

(d) Heavily phosphorylated

1-e. A living microbe with reduced virulence that is used for vaccination is considered: (CO3) 1

(a) A toxoid

(b) Dormant

(c) Virulent

(d) Attenuated

1-f. Which of the following convey the longest-lasting immunity to an infectious agent? (CO3) 1

(a) Naturally acquired passive immunity

(b) Artificially acquired passive immunity

(c) Naturally acquired active immunity

(d) All of these

1-g. Which of the following statement is true about Th-1 cells? (CO4) 1

(a) They do not produce TNFγ

(b) They do not express CD4

(c) They do not binds to soluble proteins

(d) They do not activate

1-h. Complement fixation is one of the most important host defense against infections. The complement is activated by; (CO4) 1

(a) IgM Only

(b) IgG only

(c) both IgM and IgG

(d) all five classes of antibodies activate complements.

1-i. The ability of the immune system to recognize self-antigens versus nonself antigen is an example of: (CO 5) 1

(a) Specific immunity

(b) Tolerance

(c) Cell-mediated immunity

(d) Antigenic immunity

1-j. Which of the following option is the mechanism for induction of immune tolerance? (CO5) 1

(a) Central Anergy

(b) Peripheral Anergy

(c) Clonal Anergy

(d) All of the above

2. Attempt all parts:-

2.a. What is immunity? (CO1) 2

2.b. Define antigens? (CO2) 2

2.c. Define active immunity? (CO3) 2

2.d. Which kinds of cells express MHC class II? (CO 4) 2

2.e. What is meant by immunity without infection? (CO5) 2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a. What are cytokines? Discuss their structure and function? (CO1) 6

3-b. Write down the applications of cytokines? (CO1) 6

3-c. Discuss about the characteristics of good antigen? (CO2) 6

3-d. Discuss about epitopes and paratopes in detail? (CO2) 6

3.e. Discuss briefly about precipitation reactions? (CO 3) 6

3.f. Discuss the role of antigen presenting cells? (CO4) 6

3.g. Discuss briefly about the use of immuno-therapy in cancer treatment? (CO5) 6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a. Differentiate between innate and adaptive immunity. How you boost the immunity? (CO1) 10

4-b. Write an essay on how the food and diet can help in boosting the immunity? (CO1) 10

5. Answer any <u>one</u> of the following:-

5-a. Draw the basic structure of an Immunoglobulins and discuss its structural properties? (CO2) 10

5-b.	Hybridoma technology is used to produce monoclonal antibodies. Discuss?(CO 2)	10

6. Answer any <u>one</u> of the following:-

6-a.	Explain in detail about the different types of immunologic reactions occurs due to antigen -antibody interaction? (CO3)	10
6-b.	Explain in detail about the precipitation reactions occurs due to antigen-antibody interaction? (CO3)	10

7. Answer any <u>one</u> of the following:-

7-a.	Explain in detail about the role of antigen presenting cells? (CO 4)	10
7-b.	Explain in detail the exogenous and endogenous pathways of antigen processing and presentation? (CO4)	10

8. Answer any <u>one</u> of the following:-

8-a.	What is an autoimmune disease? Give some examples? What are the causes of autoimmune disease? What are its symptoms? (CO5)	10
8-b.	What do you understand by the term immune response? Explain in detail about the immune response in plants. (CO5)	10