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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 & Immunotechnology

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. A chemokine with indirect antiviral activity:(CO1) 1
- (a) TNF
 - (b) TGF
 - (c) INF
 - (d) IL
- 1-b. Which of the following does not protect body surfaces: (CO1) 1
- (a) Skin
 - (b) Mucus
 - (c) Gastric acid
 - (d) Salivary amylase
- 1-c. 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-d. The stimulation of antigen specific T cells by appropriately presented antigen alone results in _____ (CO2) 1
- (a) Cytotoxicity
 - (b) Allergy

- (c) Cell division
- (d) Production of IL-3
- 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. Artificially acquired passive immunity refers to immunity from: (CO3) 1
- (a) Transfer of antibodies from mother to foetus across the placenta
- (b) Recognition of an antigen by B cells
- (c) Injection of the antigen in a vaccination
- (d) injection of immunoglobulins
- 1-g. 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-h. Major Histocompatibility Complex is a tight cluster of linked _____ (CO4) 1
- (a) Carbohydrates
- (b) Proteins
- (c) Genes
- (d) Lipid molecules
- 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. Define immunity? (CO1) 2

2.b.	What are 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.	Define autoimmunity? (CO5)	2

SECTION-B

30

3. Answer any five of the following:-

3-a.	Discuss about the different types of primary lymphoid organs in detail? (CO1)	6
3-b.	What do you understand by inflammation? What are the different hallmarks of inflammation? (CO1)	6
3-c.	Discuss in detail about the antigenic specificity? (CO2)	6
3-d.	Discuss about the characteristics of good antigen? (CO2)	6
3.e.	Describe briefly about the antigen-antibody interaction? (CO3)	6
3.f.	Discuss briefly about the structure and function of MHC molecules? (CO4)	6
3.g.	Discuss briefly about the use of immuno-therapy in cancer treatment? (CO5)	6

SECTION-C

50

4. Answer any one of the following:-

4-a.	How many immune organs you know about? (CO1)	10
4-b.	Write an essay on how the food and diet can help in boosting the immunity? (CO1)	10

5. Answer any one of the following:-

5-a.	Explain the immunological basis of self –non-self discrimination? (CO2)	10
5-b.	What are antigenic determinants? Discuss its different types? (CO2)	10

6. Answer any one of the following:-

6-a.	What is meant by cross reactivity? What causes cross reactivity? How do antibodies cross react? (CO3)	10
6-b.	Explain in detail about the different types of immunologic reactions occurs due to antigen -antibody interaction? (CO3)	10

7. Answer any one of the following:-

7-a.	Explain in detail about the structure and function of MHC molecules? (CO4)	10
7-b.	Explain in detail the exogenous and endogenous pathways of antigen processing and presentation? (CO4)	10

8. Answer any one of the following:-

8-a.	How is immune tolerance achieved? Why do we need immune tolerance? What are the two types of immune tolerance? (CO5)	10
8-b.	What is an autoimmune disease? Give some examples? What are the causes of autoimmune disease? What are its symptoms? (CO5)	10