

5. (a) Explain the principle behind immunohistochemistry and immunofluorescence staining microscopy?
- (b) Discuss the principle behind the enzyme-linked immunospot assay (ELISPOT)? How does ELISPOT detect and quantify cytokine-secreting cells in a sample?
- (c) How have vaccines contributed to the control or eradication of diseases? (6,6,6)
6. (a) What role do vitamins, such as vitamin C and vitamin D, play in supporting immune health?
- (b) How does a sedentary lifestyle affect immune function, potentially leading to dysfunction?
- (c) What are immunity boosters and immunomodulators, and how do they influence the immune system's function? (6,6,6)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5806

H

Unique Paper Code : 3184002002

Name of the Paper : Health and Body Defense System

Name of the Course : **B.Sc. (H) Biomedical Science (NEP-UGCF-2022)**

Semester : IV – Generic Elective

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question No. 1 is compulsory.
4. Give illustrations and examples wherever required.
5. Subparts of the questions should be attempted together.

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1. (a) Give a brief account on the following (**Any three**) :

- (i) NK cell
- (ii) Immunogen
- (iii) Agglutination
- (iv) Cytokines (3×3=9)

- (b) Differentiate between (**Any three**) :

- (i) Active and Passive Immunity
- (ii) MHC class I restriction and MHC class II restriction
- (iii) Negative selection and Positive selection
- (iv) Primary and Secondary Lymphoid organ (3×3=9)

2. (a) Write short note on (**Any four**)

- (i) Immunotherapeutics
- (ii) Western blotting
- (iii) Antigen Presentation

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- (iv) Clonal expansion

- (v) PAMPS (4×3=12)

- (b) What are chemical barriers in the immune system, and how do they protect the body from pathogens? (6)

3. (a) Discuss basic properties of Cytokines. Elaborate the role of cytokines and chemokines in regulating inflammation?

- (b) Explain the mechanisms by which complement proteins opsonize pathogens for phagocytosis?

- (c) Explain the structure and function of lymph nodes as secondary lymphoid organs? (6,6,6)

4. Give a schematic representation and brief explanation of the following :

- (a) Antibody Structure

- (b) Oxygen dependent killing

- (c) PRR (6,6,6)