

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB-2023

Course Code(Credits): 18B11BT513 (4)

Max. Marks: 15

Course Name: Immunology

Course Instructors: Dr. Abhishek

Max. Time: 1 Hour

*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

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1. The initial encounter of a naive immunocompetent lymphocyte with an antigen induces a primary response; a later contact of the host with antigen will induce a more rapid and heightened secondary response, explain why? Also detail out that Innate immunity is not specific to any one pathogen but rather constitutes a first line of defense, explain why? [5] [CO-1]
2. In a classic experiment at Pouilly-le-Fort in 1881, Pasteur first vaccinated one group of sheep with heat-attenuated anthrax bacillus (*Bacillus anthracis*) then challenged the vaccinated sheep and some unvaccinated sheep with a virulent culture of the bacillus. All the vaccinated sheep lived, and all the unvaccinated animals died. Give your justification in detail [3] [CO-1]
3. A controversy developed between those who held the concept of humoral immunity mean Antibodies/immunoglobulin were responsible for the immune state of an animal and those who agreed with Metchnikoff concept of cell mediated immunity mean cells (Phagocytes, major effectors of immunity) also contribute to the immune state of an animal. It was later shown that both are correct. Justify this statement in your own words [3] [CO-1]
4. Specific immunity exhibits four characteristic attributes, which are mediated by lymphocytes. List these four attributes and briefly explain how they arise. What would be the disadvantages of having only an adaptive immune system? Comment on how possession of both types of immunity enhances protection against infection. [4] [CO-2]