

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 MSc EXAMINATION- Feb-2024

Course Code (Credits): 20MS1BT212 (3)

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.*

1. The experimental work of Emil von Behring and Shibasaburo Kitasato in 1890 gave the first insights into the mechanism of humoral immunity. In 1883, even before the discovery of humoral immunity, Elie Metchnikoff demonstrated that cells also contribute to the immune state of an animal. In due course, a controversy developed between those who held to the concept of humoral immunity and those who agreed with Metchnikoff's concept of cell-mediated immunity. Explain both humoral as well as cell mediated concept of immunity and Share your thoughts on which idea is more accurate and why. [4]
2. One of the greatest enigmas facing early immunologists was the specificity of the antibody molecule for foreign material, or antigen. The earliest conception of the selective theory dates to Paul Ehrlich in 1900 was used to explain the specificity of serum antibody but in the 1930s and 1940s, the selective theory was challenged by instructional theories. Later on in 1950, Clonal Selection Theory was proposed by Burnet et al. to explain origin and specificity of antibody molecule. Briefly explain the notion of instructional and selective theories, as well as their drawbacks. Additionally, use a ray diagram to thoroughly explain the clonal selection theory. [1.5+1.5+3]
3. Immunity—the state of protection from infectious disease has both a less specific and more specific component. The less specific component, innate immunity, provides the first line of defense against infection. Most components of innate immunity are present before the onset of infection and constitute a set of disease-resistance mechanisms that are not specific to particular pathogens. Innate immunity can be seen to comprise four types of defensive barriers to provide protection, explain all the barriers in details [5]