

Jaypee University Of Information Technology, Waknaghat

Test -3 Examinations-2023

B.Tech- V Semester (Biotechnology)

Course Code (Credits): 18B11BT513 (4)

Max. Marks: 35

Course Name: Immunology

Course Instructors: Dr. Abhishek

Max. Time: 2.0 Hour

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

1. Some of the risks associated with attenuated or killed whole organism vaccines can be avoided with vaccines that consist of specific, purified macromolecules derived from pathogens explain how? Also write down the advantages and disadvantages of using attenuated organisms as vaccines? [5] [CO-5]
2. In some autoimmune diseases, antibodies act as agonists, binding to hormone receptors in lieu of the normal ligand and stimulating inappropriate activity this usually leads to an overproduction of mediators or an increase in cell growth. Conversely, auto-antibodies may act as antagonists. Using this concept explain the mechanism of **graves disease** and **myasthenia gravis** [5] [CO-4]
3. Hypersensitivity reactions are exaggerated or inappropriate immunologic responses occurring in response to an antigen or allergen. Hypersensitive reactions are divided into four types. Three types of hypersensitivity occur within the humoral branch and fourth type of hypersensitivity depends on reactions within the cell-mediated branch. Write down the fundamental mechanism of all four type (Type I,II,III and IV type) of hypersensitivity reaction and also explain the significance of complement system in hypersensitivity reactions. [5] [CO-5]
4. The somatic-variation theory held that the germ line contains a limited number of variable genes, which are diversified in the somatic cells by mutational or recombinational events during development of the immune system. To date, seven means of antibody diversification have been identified in mice and humans among all Combinatorial V-(D)-J joining or VDJC recombination play important role in diversity. Pictorially explain the VJC joining or VDJC joining in light and heavy chain also explain the significance of RSS sequence in antibody diversity. [5] [CO-3]
5. What effect does thymectomy have on a neonatal mouse or on an adult mouse? Explain why these effects differ. Also explain what happen if you would remove the bursa of Fabricius (bursectomy) from birds. In addition at above write down the difference between sIg and mIg using neat and clean diagram [5] [CO-2]

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6. Some microorganisms are classified as intracellular pathogens. Define this term and explain why the immune response to these pathogens differs from that to other extracellular pathogens, also explain the antigen processing pathway in case of intracellular and extracellular antigen [5] [CO-1]
7. The immune system consists of different organs and tissues that are found throughout the body. These organs can be classified functionally into two main groups viz The primary lymphoid organs and secondary lymphoid organs. Both these organ are necessary to provide immunity against an immunogen, explain how? Also detail out the mechanism of Hematopoiesis and its significance in adaptive immunity [5] [CO-2]

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