**Dr Mohd Abu Zaid**

**4th Assignment for BSc (H) Biotechnology Sem 4 subject Immunology**

**Fill ups**

1. Members of \_\_\_\_\_\_\_\_\_\_\_ protein family are involved in activating & inhibiting T cells.
2. HIV kills \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lymphocytes.
3. In response to antigen Frequency of CD8+ T cells proliferation is\_\_\_\_\_\_\_\_\_\_\_\_\_ than that of CD4+ T cells.
4. Granzymes are enzymes that cleave & activate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Each CTL can kill \_\_\_\_\_\_\_\_\_\_\_\_ number of target cell
6. CD8+ T lymphocytes also secrete cytokine \_\_\_\_\_\_\_\_\_\_\_\_, which activates \_\_\_\_\_\_\_\_\_\_\_\_\_
7. NK-activating cytokines type I interferons (IFNs), and IL-12. IL-15 is important ffunction is to\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. Viruses survive in cells by reduce the loading of class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ MHC molecules by their antigenic peptides.
9. If a host cell does not contain MHC-1 molecule, then \_\_\_\_\_\_\_\_\_\_\_\_ is activated.
10. Immune cells which are principal mediators of ADCC is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Short notes**

1. Explain, the functions of adjuvants.
2. Name and give the role of different types of inhibitory receptors on T lymphocytes
3. Write a note on clonal expansion?
4. Explain the Role of perforin in effector function of T cells.
5. Why costimulators are not needed for activation of Cytotoxic T lymphocytes?
6. How immune system responds if Macrophages itself get infected.
7. Write a note on activating receptors of NK cells?
8. Differentiate ITAMs and ITIMs and give their functions
9. Explain Why NK get activated only by stressed cells and not by normal healthy cells?
10. Discuss different mechanism microbes have evolved to resist T cell mediated host defense.

**Essay type questions**

1. Write a note on costimulators and their importance in cell mediated immune response?
2. Explain how activation of CD8+ T cells differ from CD4+ T cells.
3. Explain, the differentiation of CD4+ T cells into different subsets and give the function of each.
4. Write a note on effector function CD4+ T lymphocytes?
5. Describe the activation of NK cells.