

COURSE CODE: 11B2WBT853

MAX.MARKS: 35

COURSE NAME: Immunoinformatics

MAX. TIME: 2 Hrs

COURSE CREDITS: 3

Note: All questions are compulsory. Carrying of mobile phone and calculator during examinations will be treated as case of unfair means. Marks are indicated in square brackets.

1. Describe following *w.r.t.* Immunoinformatics:

(a) IEDB (b) Immunome (c) B-cell and T-cell epitopes (d) Structural parameters for epitope predictions (e) Physico-chemical properties of epitopes (CO-1, 2, 3) [1*5=5]

2. Describe Mapitope prediction algorithm with an example. (CO-2) [4]

3. Describe the working of Epitopia server. (CO-2, 3) [3]

4. Provide data on various kind of databases for B-cell, T-cell epitopes and Molecular evolution of immune system. (CO- 1, 3) [3]

5. Discuss various applications of immunoinformatics with special reference to reverse engineering for vaccine design. (CO- 2, 3) [3]

6. Discuss about immune system modeling. (CO- 3) [2]

7. List important requirements of Monoclonal antibodies to be used as Immunotherapeutic agents for cancers. Discuss the direct and indirect effects of monoclonal antibodies on cancer cells.

(CO- 3) [5]

8. Write short notes on the following: (CO- 3) [2*2.5=5]

a. Antibody Directed Enzyme Prodrug Therapy (ADEPT).

b. Gene-Directed Enzyme Prodrug Therapy (GDEPT).

9. What is multivalent vaccine? Draw a schematic representation of a strategy to obtain multivalent vaccine. (CO- 1, 3) [2.5]

10. Explain the toxigenicity of Anthrax. Describe the treatment options and vaccines available for Anthrax. (CO- 2) [2.5]