

MOLECULAR IMMUNOLOGY AND IMMUNOINFORMATICS

Attempt all the questions. Time: 3 hours. Observe Silence in the examination hall.

Q1. What do you understand by the following terms as they have been discussed in class? (20 PTS)

- i. **Immune System –**
- ii. **Immunology –**
- iii. **Lymphatic system –**
- iv. **Lymph nodes –**
- v. **Thymus –**
- vi. **Spleen –**
- vii. **Thymus –**
- viii. **Immunogen –**
- ix. **Antigen –**
- x. **Hapten –**

Q2. State any three functions of the spleen (5PTS)

Q3. State any three functions of the lymphatic system (5 PTS)

Q4. A vaccine is a substance that stimulates a primary response against an antigen without causing symptoms of the diseases. Discuss the four types of traditional vaccines. (10 pts)

Q5. Explain the following listed factors that influence immunogenicity.

a) Contribution of the immunogen (10 PTS)

- i. Foreignness –**
- ii. Size –**
- iii. Chemical composition**
- iv. Physical form –**
- v. Degradability -**

b) Contribution of the biological system (10 PTS)

- i. Genetic factors –**
- ii. Age –**

c) Method of administration (10 PTS)

- i. Dose –**
- ii. Route –**
- iii. Adjuvants -**

Q6. State and explain four chemical natural composition of immunogens (10 PTS)

Q7. Define Immunoglobulin. State and explain two general function of immunoglobins. (10 PTS)

Q8.

a. What are Cytokines? (5 PTS)

b. Discuss briefly what you understand by the compliment system as was discussed in class (5 PTS)

End of exam. Good luck!