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M.Sc. Semester II Examination (2022)
Biotechnology
Course/Paper – VII (Immunology)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin

Answer **any four** questions

1. With proper diagram describe the ultra-structure of any secondary lymphoid organ/tissue. Mention the functional significance of different internal zones of the organ/tissue you described. What is Common lymphoid progenitor?

5+4+1=10
2. a) What was the immunological 'puzzle' solved by Tonegawa and his coworkers based on their classic experimental results published in 1976? Schematically explain how they solved it.
b) Explain Receptor editing mechanism.

(2+4)+4=10
3. a) Why are the complements named so? Explain Jules Bordet's experimental strategy and findings to discover the complements.
b) TLR function bridges between innate and adaptive immunity – Justify.

(1+4)+5=10
4. a) Distinguish with example between recombinant- and DNA vaccination strategies. What is toxoid?
b) How are the antigens processed in the cytosolic pathway? What are the roles of CD4 and CD8 costimulatory molecules?

(4+1)+(3+2)=10
5. Elucidate the general properties of cytokines. With appropriate diagram and example explain the classification scheme of chemokines. What is lymphocyte homing?

5+4+1=10
6. Write Short note on *any four* of the followings.

2½×4=10

 - a) Opsonization
 - b) 12/23 rule
 - c) Thymic selection
 - d) Structure of Class-I MHC
 - e) PAMP
 - f) Ig domain