

U.G. 4th Semester Examination - 2022
Molecular Biology & Biotechnology
[HONOURS]

Course Code : MBBT-H-402-T-CCR-9

(Immunology)

Full Marks : 40 Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable

1. Answer any **five** of the following: $2 \times 5 = 10$
- a) What is the role of skin in innate immunity?
 - b) What is the difference between Allotype and Ideotype?
 - c) What is the difference between Native and Naive antibody?
 - d) Why is Thymus considered as the principal organ of immunity?
 - e) Why Proteasome only works in Endogenous pathway of antigen processing?
 - f) What are super antigens?
 - g) What is the major differences between monoclonal and polyclonal antibody?

h) What is the result of pepsin and papain digestion of immunoglobulins?

2. Answer any **two** of the following: $5 \times 2 = 10$
- a) Why is antigenic shift more virulent than antigenic drift? What kind of immune response is triggered by super antigens and why? —Explain. $2+3$
 - b) What is antibody titer assay? Explain with example. Why is titer measured in RIA? $3+2$
 - c) Why increasing level of structural heterogeneity leads to increased antigenicity? What is the role of epitope in elicitation of antigenicity? $3+2$
 - d) Why True positive and True negative are always desirable, whereas False positive and False negative are not in ELISA? Explain. 5
3. Answer any **two** of the following: $10 \times 2 = 20$
- a) Explain the reason of washing step with buffer in ELISA. Define the process of competitive ELISA. Why ELISA is preferred over rapid antigen test? $3+4+3$

[Turn Over]

- b) What are hot and cold antigens? If you are asked to go for sequencing of individual polypeptide of IgG, how will you proceed to isolate before sequencing and why? Explain. What are the advantages of ELISA over RIA?
3+3+4
- c) What is immunoglobulin superfold? Why nasal secretion is considered as a tool of host defense mechanism against pathogen invasion? Explain the advantages of DNA vaccine. Why attenuated vaccines possess the risk factor of reversal after vaccination? 3+3+2+2
- d) Why organ replacement surgery requires MHC typing along with blood group matching? What is the role of hapten in hapten– BSA conjugate? What is the difference between complete and incomplete adjuvants? What is antibody Class switching? 3+2+3+2
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