

2015

M.Sc.

2nd Semester Examination

BIOTECHNOLOGY

PAPER—BIT-203

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group — A

1. Answer any five questions from the following : 2×5

- (a) What is ITAM? State its significance.
- (b) Compare affinity and avidity of an antibody.
- (c) What are anaphylatoxins? Mention its role.

(Turn Over)

- (d) Mention the role of adjuvant in immunization.
- (e) What do you mean by degranulation of mast cell?
- (f) How would you distinguish Pro-B Cell and Pre-B Cell?
- (g) "MHC genes are codominantly expressed" — Justify the statement.
- (h) What is allelic exclusion? Mention its importance.

Group — B

Answer any *two* questions from the following : 5×2

2. How is the junctional flexibility causes antibody diversity through V-D-J gene rearrangement?
3. Briefly discuss the classical and alternative pathway of complement activation.
4. Discuss the mechanism of signal transduction of B-cell with suitable diagram.
5. Describe the Principle of Western blotting? Why this technique is used?

Group — C

Answer any *two* questions from the following : 10×2

6. Explain the principle of HAT selection. What modifications are needed to prepare a humanized antibody? Briefly discuss different immunological techniques based on Precipitation reaction. 3+2+5
7. (a) Write the names and functions of secondary lymphoid organs.
- (b) Explain the role of CD4 and CD8 in immune responses.
- (c) Explain the role of different co-stimulatory signals leading to T-cell activation.
- (d) Write differences between ELISA and RIA. 2+2+3+3
8. Why subunit vaccines are preferred than attenuated vaccines during immunization? Briefly discuss the production and uses of recombinant vaccines. 2+(6+2)

9. With a suitable diagram, describe different components of immunoglobulin-G (IgG). What will happen when it is digested with different Proteases? Distinguish between epitope, Paratope and aggretope. 4+3+3
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