

Sardar Patel University**M. Sc. (Integrated) Biotechnology Examination, Sixth Semester****Monday, 18th March, 2019****02:00 p.m. to 05:00 p.m.****PS06CIGB01: Fundamentals of Immunology****Total Marks: 70**

Notes: - (1) Figures to the right indicate marks.

(2) Draw neat and labeled diagram, wherever necessary.

Q.1 Choose the Correct Answers of the Following. [08]

1. Which of the following is site of selection of T lymphocytes?
(a) Spleen (b) Liver (c) Bone marrow (d) Thymus
2. The following is not an example of granulocyte.
(a) Neutrophil (b) Basophil (c) Eosinophil (d) Monocyte
3. Complement proteins are in general synthesized by _____.
(a) Thymus (b) Spleen (c) Bone marrow (d) Liver
4. _____ is produced and secreted first upon antigenic exposure?
(a) IgA (b) IgG (c) IgM (d) IgD
5. More than 90% of T cells have _____ receptor.
(a) $\alpha\beta$ (b) $\alpha\gamma$ (c) $\delta\gamma$ (d) $\delta\beta$
6. The following is true for MHC genes.
(a) Polymorphic (b) polygenic (c) codominant expression (d) all the three
7. WIDAL test is an example of _____.
(a) Tube test (b) Ring test (c) Slide test (d) none of these
8. Coombs test used for detection of _____.
(a) Anti B (b) Anti C (c) Anti D (d) Anti O

Q.2 Answer the following in short. (Attempt Any Seven) [14]

1. Enlist the characteristics of innate immunity.
2. What are double positive T cells?
3. Narrate Chemical and Enzymatic method to reveal basic antibody Structure.
4. Narrate about Epitopes.
5. What are antigen presenting cells?
6. Differentiate between peptide binding by MHC class I and II molecules.
7. Give concept of cross reactivity.
8. Narrate about Coomb's test.
9. What is precipitation curve?

- Q.3 (A)** Discuss the steps in phagocytosis and mechanism of killing of phagocytosed microbes. [06]
- (B)** Discuss various cellular components of innate immunity [06]
- OR**
- (B)** Describe primary lymphoid organs in detail. [06]
- Q.4 (A)** Describe the factors that influence Immunogenicity. [06]
- (B)** Explain Immunoglobulin's IgM, IgG and IgA with suitable diagram. [06]
- OR**
- (B)** Describe generation of C3 and C5 convertases by different pathways of complement activation. [06]
- Q.5 (A)** Discuss positive and negative selection of T cells during maturation in thymus. [06]
- (B)** Give a brief account of Junctional flexibility, somatic hypermutation and P and N nucleotide addition in detail. [06]
- OR**
- (B)** (i) Describe activation of B lymphocytes by thymus dependent and independent antigens. [06]
- (ii) Differentiate between naïve and memory B cells.
- Q.6 (A)** What is ELISA? Explain different types of ELISA with suitable diagrams. [06]
- (B)** Explain RID and Rocket immune-electrophoresis in detail. [06]
- OR**
- (B)** Describe production of DNA vaccine in detail. [06]

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