SEAT No._____

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Sardar Patel University
M. Sc. (III Semester) Examination
Saturday, 2nd January, 2021
2.00 p.m. to 4.00 p.m.
Biotechnology
PS03CBIT02 – Immunology

Total marks: 70

Q.1A Select the right/most appropriate answer for the following: (08 marks)

A. Which of the following is found in secretions?
   a. IgM
   b. IgA
   c. IgE
   d. Both a and b.

B. Which one is the first and efficient complement activating Ig molecule produced?
   a. IgM
   b. IgA
   c. IgE
   d. IgD

C. B_2 – microglobulin is associated with
   a. Immunoglobulin G
   b. Complement protein C3
   c. MHC class I molecule
   d. All of the above

D. Histamine is
   a. Anti-inflammatory agent
   b. PAMP
   c. Cytokine
   d. Inflammatory agent

E. Hemolytic anemia is
   a. Type I hypersensitivity reaction
   b. Type III hypersensitivity reaction
   c. Type II hypersensitivity reaction
   d. Type IV hypersensitivity reaction

F. Histamine is involved in
   a. Antigen presentation
   b. Inflammation
   c. B cell activation
   d. Germinal centre formation

G. Kuffer cells are usually found in
   a. Liver
   b. Lungs
   c. Kidney
   d. Brain

H. Somatic hyper mutation results in
   a. Ig class switching
   b. Affinity maturation of antibody
   c. Macrophage activation
   d. Inflammatory reaction

Q.1B Attempt the following (one mark each) (16 marks)

1. Penicillin can cause all four types of hypersensitivity reactions. (True/False)
2. What are syngenic mice?
3. What is the difference between effector T cell and naïve T cell?
4. Where is exogenous antigen processed?
5. What is thymic selection?
6. What is ELISPOT?
7. What is RIA?
8. Name two secondary immunodeficiency diseases.
9. What is an opsonin?
10. Region between two CDR is known as_____.
11. Where is TAP located?
12. What is CRP?
13. What is the role of C5b6789?
14. Antigen-Antibody interactions are irreversible. (True/False)
15. Cytokine first produced upon T_H cell activation is _____.
16. Most efficient agglutinating Ig molecule is _____.

Q.2 Answer/attempt **any seven** from the following: (14 marks)

a) Explain the structure of Class I MHC molecule.
b) What is cancer?
c) Draw and label IgM molecule.
d) What is central immune tolerance?
e) What are monoclonal antibodies?
f) Explain hematopoiesis?
g) What are RNS?
h) What is MHC restriction of T cells?
i) What is action of chemokines?

Q.3 Explain steps leading to inflammation. (08 marks)

OR

Explain structure and function of lymph node. (08 marks)

Q.4 Discuss agglutination and precipitation reactions. (08 marks)

OR

Discuss ELISA in detail. (08 marks)

Q.5 Discuss process of B cell maturation. (08 marks)

OR

Discuss processing of endogenous antigens. (08 marks)

Q.6 Discuss Type I hypersensitivity detail. (08 marks)

OR

Explain graft rejection process. (08 marks)

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