

(97)

SARDAR PATEL UNIVERSITY
B.Sc. (Genetics) – Fifth Semester Examination (CBCS)

Monday, 28th December 2020

02:00 p.m. to 04:00 p.m.

US05CGEN23: Immunogenetics

Total Marks: 70

Note: (1) Figures to the right indicate marks.
 (2) Draw a neat and labeled diagram, wherever necessary.

- Q. 1 Choose the most appropriate answer from the four alternatives given: [1 X 10=10]**
- (i). **Agglutination reaction is more sensitive than precipitation for the detection of _____.**
 (a) Antigens (b) Antibodies (c) Complement (d) Antigen-antibody complexes
- (ii). **Antigen binding sites are present in _____.**
 (a) Fab regions of an antibody (b) F_c region of an antibody
 (c) Only in the light chain (d) Only in the heavy chain
- (iii). **The second most abundant Ig is _____.**
 (a) IgM (b) IgA
 (c) IgG (d) IgE
- (iv). **The _____ controls the activation of the B cell.**
 (a) B cell receptor (b) T cell receptor (c) C cell receptor (d) All of these
- (v). **Mechanism of cutting and joining DNA coding for Ig genes is known as _____.**
 (a) Decay-accelerating factor (b) Somatic hyperelongation
 (c) Both (a) and (b) (d) V(D) J recombination
- (vi). **Monoclonal antibodies can distinguish subsets of _____.**
 (a) B-cells (b) T-cells
 (c) Both (a) and (b) (d) F -Cells
- (vii). **The engulfing and ingestion of bacteria or other foreign bodies by _____.**
 (a) Antibodies (b) Phagocytes (c) Immunity cells (d) Immunoglobulin genes
- (viii). **Class I MHC genes encodes _____ on the surface of nearly all nucleated cells.**
 (a) Peptide expressed (b) Glycoproetins expressed (c) Lipids expressed (d) None of these
- (ix). **_____ are the examples of autoimmune diseases.**
 (a) Hashimitos thyroiditis (b) Rheumatoid arthritis (c) Systemic lupus (d) All of them
- (x). **Example of primary immunodeficiency is _____.**
 (a) SCiD
 (b) Tetanus
 (c) Malaria
 (d) None of these

Q.2 Fill in the Blanks and True or False questions:

[1 x 8=08]

- (i). ELISA allows for rapid screening and quantification of the presence _____ in a sample.
- (ii). All immunogens are antigens. (True/False)
- (iii). Monoclonal antibodies are immune system fatty acids that are created in the lab. (True/False)
- (iv). Hybridoma technology is a method for producing large numbers of identical _____.
- (v). Both T and B cells use surface molecules to recognize antigen. (True/False)
- (vi). The MHC in humans is known as human leukocyte antigens (HLA) complex. (True/False)
- (vii). SCID and AIDS could be called immune disorder. (True/False)
- (viii). Type IV category of hypersensitivities is IgE-mediated. (True/False)

Q.3 Short answer questions (Attempt any 10 out of 12).

[2 x 10=20]

- (i). What is Heptanes?
- (ii). Define epitopes.
- (iii). Write major characteristics of antigen-antibody reactions.
- (iv). Write a short note on TCR.
- (v). What is hybridoma technology?
- (vi). Write the role of cytokines in immune response.
- (vii). What do you mean by antigen-presenting cells?
- (viii). Define inflammation, give the signs of inflammation.
- (ix). What is transplantation?
- (x). What do you mean by immunodeficiencies?
- (xi). Define toxoid vaccine.
- (xii). What is recombinant vaccine? Give its example.

Q.4 Long answer questions (Attempt any 4 out of 8).

[8 x 4=32]

- (i). Write a detail note on precipitation curve.
- (ii). Discuss in detail about principles and types of enzyme linked Immunosorbent assay.
- (iii). Give an overview of means for antibody diversity.
- (iv). Explain in detail about deletional joining of Ig genes.
- (v). Give structure and types of MHC. Write a note on functions of MHC class II.
- (vi). Write an explanatory note on activation of complement proteins by alternative pathway.
- (vii). What is autoimmunity? Give a detail account of mechanisms of generation of auto immune disorders.
- (viii). Write a detail note on: Hashimoto's thyroiditis and Rheumatoid arthritis.

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