{68}   SARDAR PATEL UNIVERSITY
BACHELOR OF SCIENCE (B.SC.)VITH SEMESTER EXAMINATION
Friday, 29th March 2019, 10:00 AM TO 01:00 PM
SUBJECT: BIOINFORMATICS
COURSE: US06CBNF03
(ADVANCED IMMUNOLOGY)

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: [10]

1   B-7 on APC's would interact with which receptor on T_H cells:
    A) CD4   B) CD28   C) CD 45   D) B-220

2   Most of the Complement proteins are synthesized by?
    A) B-cells   B) T-cells   C) Hepatocytes   D) Spleen

3   Cytokines playing a significant role in inflammation are :
    A) Interleulins B) Inflammokines C) Chemokines   D) TNF

4   The C5 convertase of alternative pathway is:
    A) C4b2a   B) C3bBb   C) C3bBb3b   D) C2b4a

5   How much time is required for development of Type-IV hypersensitivity?
    A) 24 hrs   B) 12 hrs   C) 48-72 Hrs   D) Instantly

6   Process of generation of different classes of antibodies have same antigenic specificity is?
    A) Diffotyping B) Class switching C) Restriction   D) Immuno-typing

    T lymphocytes are generated in:
    A) Thymus   B) Thyroid   C) Bone marrow   D) Spleen

8   Mutation in which of these genes results into cancer:
    A) Oncogenes   B) Proto-oncogenes C) Mutagenes   D) Carotenes

9   Type –I Hypersensitivity is mediated by:
    A) IgG   B) IgE   C) IgD   D) IgA

10 HIV generally attacks:
    A) B-cells   B) Mast cells   C) Dendritic cells D) T-helper cells

Q.2   Answer any <u>TEN</u> from the following:

1. Make a diagram of B cell with receptors.
2. Define class switching and mention its significance.
3. What are somatic hypermutations ?
4. Define complement. What are various functions of complement proteins.
5. Enumerate various components of alternative complement pathway.
6. Define cytokines and mention their types.
7. What is Allograft and Xenograft?
8. Define cancer and metastasis.
9. Enumerate four immunosuppressive drugs.
10. Which gender is more affected with autoimmunity and why?
11. What is delayed type hypersensitivity?
12. What is the role of bioinformatics in vaccine development

Q.3 (a) Give a comparative account of B and T lymphocytes.   [5]

    (b) Write a note on B-cell activation.   [5]

<div align="center"><u>OR</u></div>

Q.3   With the help of labeled diagram explain B-cell maturation, activation and differentiation in detail.   [10]

Q.4 (a) Write a note on classical pathway.   [5]

    (b) Briefly explain various factors affecting antibody diversity.   [5]

<div align="center"><u>OR</u></div>

Q.4 (a) Make a diagrammatic representation of Immunoglobulin light chain gene rearrangement.   [5]

    (b) Give a comparative account of classical and alternative complement pathway.   [5]

Q.5 (a) Briefly explain various types of cytokines with their function.   [5]

    (b) Explain the role of Immunosuppressive drugs with examples   [5]

<div align="center"><u>OR</u></div>

Q.5 (a) Briefly explain mechanism of Graft rejection.   [10]

    (b) Give a comparative account of normal and cancerous cell.

Q.6 (a) Define Hypersensitivity. Briefly explain Type-I Hypersensitivity.   [5]

    (b) Write a short note on SCID, its causes and symptoms.   [5]

<div align="center"><u>OR</u></div>

Q.6 (a) Mention various mechanisms for generation of autoimmunity.   [5]

    (b) Mention various applications of Bioinformatics in Immunology.   [5]

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