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SARDAR PATEL UNIVERSITY

T.Y.B. Sc. (Bioinformatics) – Sixth Semester Examination (CBCS)

Friday, 1st April 2016

2:30 p.m. to 5:30 p.m.

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) **All the BCR's present on a single B cell are?**
A) Identical B) Non -identical C) of ten different kind D) Different
- (2) **B-7 would interact with:**
A) CD4 B) CD28 C) CD 45 D) B-220
- (3) **Both B-cells and T-cells of immune system are generated in:**
(A) Spleen (B) Lymph nodes (C) Bone marrow (D) Thymus
- (4) **Most of the Complement proteins are synthesized by?**
A) B-cells B) T-cells C) Hepatocytes D) Spleen
- (5) **Classical complement pathway is the component of:**
A) Innate immunity B) Acquired immunity C) Both A & B D) None of these
- (6) **Cytokine action is mostly :**
A) Autocrine B) Endocrine C) Paracrine D) Both A and C
- (7) **AIDS belongs to which type of immunodeficiency:**
(A) Primary (B) Secondary (C) Both (D) Tertiary
- (8) **Genes which regulate the cell cycle are known as:**
(A) cyclins (B) Protoncogenes (C) Oncogenes (D) IFN
- (9) **How much time is required for development of Type-IV hypersensitivity?**
(A) 24 hrs (B) 12 hrs (C) 48-72 Hrs (D) Instantly
- (10) **Tumorous cells are specifically killed by:**
(A) IFN (B) TNF (C) Interleulin (D) Erythropoietin

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- Q.2 Answer any TEN from the following:** [20]
- (1) Make a diagram of BCR.
 - (2) Enumerate various receptors present on TCR
 - (3) Define Class Switching
 - (4) Enumerate various factors affecting antibody diversity
 - (5) Define complement and mention its significance.
 - (6) Mention components of alternative complement pathway
 - (7) Define cytokines and enumerate various types of cytokines.
 - (8) What is cancer? Mention its types.
 - (9) What is autograft and allograft?
 - (10) Mention symptoms of SCID.
 - (11) Enumerate various applications of bioinformatics in immunology.
 - (12) What is delayed type hypersensitivity?
- Q.3 (a)** Give a comparative account of B and T lymphocytes [5]
- (b)** Explain T_H cell activation with labeled diagram [5]
- OR**
- Q.3 (a)** Explain B- cell differentiation with labeled diagram. [5]
- (b)** Briefly explain TCR with labeled diagram. [5]
- Q.4 (a)** With labeled diagram explain light chain gene rearrangement. [5]
- (b)** Give a comparative account of classical & alternative complement pathway. [5]
- OR**
- Q.4** Explain Classical complement pathway with labeled flow chart. [10]
- Q.5 (a)** Write a note on immunosuppressive drugs [5]
- (b)** Mention various functions of cytokines. [5]
- OR**
- Q.5 (a)** Mention various reasons for conversion of normal cell to cancerous cell [5]
- (b)** Briefly explain graft rejection reaction [5]
- Q.6 (a)** Write a note on Type-I hypersensitivity [5]
- (b)** Write a short note on SCID [5]
- Q.6 (a)** Briefly explain any one systemic autoimmune disorder in brief. [5]
- (b)** Discuss the role of bioinformatics in vaccine development [5]

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