B.Sc. BIOCHEMISTRY
Fifth Semester
IMMUNOLOGY
(BBC - 21)

Duration: 3Hrs. **Full Marks: 70**

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins. **Marks: 50**

1. Answer any *four* of the following questions: **(5×4=20)**

a) What is a tumour? Differentiate between benign and malignant tumours. (2+3=5)

b) Draw the structure of MHC class II. Mention the structural difference between Class I and Class II MHC molecule. (3+2=5)

c) What is an adjuvant? How adjuvants augment the immune response? (1+4=5)

d) What do you mean by affinity? How the equilibrium constant (*K*a) can be determined? (2+3=5)

e) Discuss briefly the immunological functions of Primary Lymphoid Organs. (5)

f) Give a diagrammatic description of the process of phagocytosis. (5)

g) What do you mean by atopy? Discuss allergic rhinitis as a localized anaphylaxis. (2+3=5)

2. Answer any *five* of the following questions: **(6×5=30)**

a) Define haematopoiesis. Give a diagrammatic representation of the formation different blood cells from a hematopoietic stem cell. (1+5=6)

b) Define immunogenicity and antigenicity. Discuss briefly the factors influencing immunogenicity. (2+4=6)

c) Explain the basic structure of immunoglobulin. What is the basis of classification of immunoglobulin? What are the major immunoglobulin types in man? (4+1+1=6)

d) What is radioimmunoassay? Discuss briefly the process of sandwich ELISA. (2+4=6)

e) What are cytokines? Mention the properties and therapeutic uses of Cytokines. (1+2+3=6)

f) Discuss the classical pathway of complement activation. Add a brief note on the functions of Complement. (4+2=6)

g) What is an allograft? What are the various patterns of allograft rejection? How such rejection can be detected? (1+4+1=6)

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REV-00
BBC/07/12 2015/12

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Duration: 20 minutes **Marks – 20**

(PART A- Objective Type)

I. Choose the correct answer: **1×20=20**

1. _____is an extreme, rapid, and often lethal overreaction of the immune response to something it has encountered before.
   a) Anaphylaxis b) Chemotaxix
   c) Autoimmunity d) Phagocytosis

2. Megakaryocytes are large myeloid cells that reside in the bone marrow and give rise to thousands of _____.
   a) platelets b) natural killer cells
   c) erythrocytes d) dendritic cells

3. _____is not developed from myeloid progenitors.
   a) erythrocytes b) monocytes
   c) megakaryocytes d) none of the above

4. Cytotoxic T cells typically express _____and see peptide bound to MHC class I.
   a) CD_8 b) CD_4 c) CD_{40} d) CD_{32}

5. An epitope associates with an antibody molecule at_____.
   a) the antibody binding site b) the H – chain constant region
   c) V – regions of H and L – chain combined d) the L – chain constant region

6. The site for T cell maturation is_____.
   a) Bone marrow b) Thymus c) Spleen d) Liver

7. Primary lymphoid organs include _____.
   a) Thymus and bone marrow b) Spleen and MALT
   c) Bone marrow and spleen d) Lymph node and spleen.

8. Antigens can be _____.
   a) proteins b) carbohydrates
   c) nucleic acids d) all of the above

9. The cell types or systems not a part of an innate immune response to a pathogen is_____.
   a) phagocytosis b) natural killer cells
   c) inflammatory response d) cytotoxic T cells

10._____ is not characteristic of an innate immune response.
a) Inflammation b) Increase in blood levels of specific antibodies
c) Activation of complement d) Increase in phagocytic cells at the site of infection

11.The _____ portion of an antibody molecule determines the antigen binding specificity, whereas the _____ portion determines the class to which it belongs.
a) heavy variable, light constant b) IgM, IgG
c) light and heavy variable, heavy constant d) light variable, heavy variable

12.The transplantation with the maximum success rate is _____.
a) Autograft b) Xenograft
c) Allograft d) none of the above

13.Immunologic memory is provided by _____.
a) B cells b) T cells
c) both a) and b) d) macrophages

14.Allergy is a type I hypersensitivity reaction that is mediated by _____antibodies.
a) IgM b) IgG c) IgE d) IgD

15._____ are tumours developed from the membrane surrounding the brain and spinal cord.
a) Myomas b) Meningiomas
c) Hemangiomas d) Neuromas

16.A particular cytokine may bind to receptors on a target cell in close proximity to the producer cell, exerting _____ action.
a) autocrine b) paracrine
c) endocrine d) none of the above

17.The classification scheme dividing hypersensitive reactions into four types was proposed by _____.
a) P. G. H. Gell and R. R. A. Coombs b) Paul Portier and Charles Richet
c) Joshua Lederberg and Norton Zinder d) none of the above

18.In _____, an individual produces auto-antibodies and sensitized TH_1 cells specific for thyroid antigens.
a) Hashimoto's thyroiditis b) Goodpasture's syndrome
c) Graves' disease d) Myasthenia gravis

19._____ was initially grouped as cytokines that act as mediators between leukocytes.
a) *Lymphokines* b) *Interleukin*
c) *Monokines* d) *Chemokines*

20.The interaction between antibody and soluble antigen leads to_____ reaction.
a) Agglutination b) Precipitation
c) Opsonization d) None of the above

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