

M.Sc. ZOOLOGY
FOURTH SEMESTER (SPECIAL REPEAT)
IMMUNOLOGY, BIOINFORMATICS & RESEARCH METHODOLOGY
MSZ-401

SET
A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

(Objective)

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

- How many chapters and sections are there in the Cruelty to Animal Act of India?
 - Chapters/ 39 sections
 - 7 Chapters/ 38 sections
 - 7 Chapters/ 29 sections
 - None
- In Empirical research:
 - Data gathered through observation and experiments
 - Specific hypotheses are developed and tested
 - Both
 - None
- In research, accuracy means:
 - Truth in the statement
 - Correctness of the statement
 - Both
 - None
- Factors influencing antigenicity of an antigen:
 - Chemical nature of antigen
 - Molecular weight of antigen
 - Foreignness
 - All of the above
- What type of cells of immune system stay permanently on vital organs of the body?
 - Neutrophils
 - Macrophages
 - B cells
 - T cells
- The immune cells originate at bone marrow and mature at thymus are:
 - NK cells
 - Dendritic cells
 - B cells
 - T cells
- T cells that migrate to the site of infection and directly encountered with infected cells are:
 - Cytotoxic T cells
 - Helper cells
 - Memory T cells
 - Regulatory T cells
- Which phagocytic cells of immune system are involved in killing large helminth parasitic worms?
 - Neutrophils
 - Mast cells
 - Eosinophils
 - Basophils
- The Antibody which is most efficient in agglutination reaction is:
 - IgG
 - IgM
 - IgA
 - IgE

10. The maximum rate of precipitation occurs in:
- The zone of antigen excess
 - The zone of equivalence
 - The zone of antibody excess
 - None of the above
11. In Sandwich ELISA:
- Antibody is sandwiched between two antigen
 - Antigen is sandwiched between two antibodies
 - Antigen and antibody remains parallel
 - None of the above
12. Indirect ELISA is routinely used for detecting:
- Secondary antibody
 - FIV disease
 - HIV Infection
 - Fluorescent antibodies
13. The surface of a large antigen on which the antibody will bind is:
- Active site
 - Antigenic site
 - Epitope
 - Hapten
14. True with monoclonal antibodies is:
- They are more sensitive than conventional antisera
 - They are formed of a single class of immunoglobulin with single antigenic determinant sites
 - They are produced by myeloma -T cell hybridoma
 - They are produced by a single clone of T lymphocytes
15. The full form of EMBL is:
- England Molecular Biology Laboratory
 - European Molecular Biology Laboratory
 - European Mendlian Biology laboratory
 - Established Molecular Biology laboratory
16. The expanded form of the abbreviation DDBJ is:
- DNA Data Bank of Japan
 - DNA - DNA data bank of Japan
 - DNA- Data Bank of Britain and Japan
 - None of the above
17. The incorrect statement about Fab segment of Immunoglobulin is that:
- Fab determines the biological properties of immunoglobulin
 - It is an insoluble fragment
 - Two chains of Fab are held together by disulphide linkage
 - Two Fabs in antibody
18. Memory cells of immune response are clones of:
- Macrophages
 - B-cells
 - T-cells
 - Both B-cells and T- cells
19. Which one of the following conditions determines acceptance and rejection of tissues during transplantation?
- Recipient must have all types of antibodies
 - MHC of donor and recipient should be matched
 - Dendritic cells of recipient should be higher in number
 - Donor's APC's should be matched with recipient

20. Which of the following vaccine components causes allergic reactions?
- a. Viral capsid
 - b. Bacterial LPS
 - c. Egg Antigen
 - d. Hidden Antigen

(Descriptive)

Time : 2 Hr. 30 Mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. What do you mean by research? What are the objectives of scientific research? Discuss about those aspects which should not be included during research. 2+4+4=10
2. Define literature review. How can we distinguish good and poor literature review? State the importance of literature review. 2+4+4=10
3. Write short notes on: (*any two*) 5+5=10
 - a) Trade mark
 - b) Copy right
 - c) GI
4. Elucidate in detail the structure and function of an Antibody. 10
5. Discuss briefly about T cell receptor with special emphasis on TCR complex and the molecules involved therein. 10
6. What do you understand by sequence alignment? Find out the difference between similar and identical. Explain local and global alignment of sequences 3+3+4=10
7. What are the differences between innate and acquired immune system? Describe the mechanisms involved in innate immune response. 2+8=10
8. Name any two antigen presenting cells (APCs). Describe the mode of actions of APCs. 2+8=10

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