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**SUBJECT CODE NO: - FF-6549**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**M.Sc. (Sem-III) (Zoology)**  
**Examination January-2023**  
**Immunobiology ZOO-302**

[Time: 3:00 Hours]

[Max. Marks: 80]

Please check whether you have got the right question paper.

N. B

1. Question paper is divided in PART A & PART B
2. PART A is compulsory.
3. Attempt any FIVE questions from the PART-B.
4. Draw well labelled diagram wherever necessary.

**PART-A**

Q1 Attempt the following multiple choice questions.

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- 1) Which of the following immunity is obtained during a life time?
  - a) Acquired immunity
  - b) Active immunity
  - c) Passive immunity
  - d) None of the above
- 2) How many types of antibodies are there?
  - a) Five
  - b) Three
  - c) Two
  - d) Four
- 3) Which of following cells of the immune system do not perform phagocytosis?
  - a) Macrophage
  - b) Neutrophil
  - c) Eosinophil
  - d) Basophil
- 4) Which of the following does not protect body surface?
  - a) Skin
  - b) Mucus
  - c) Salivary amylase
  - d) Gastric acid
- 5) Pattern recognition receptors (PRR) include -----
  - a) LPS
  - b) PAMPs
  - c) Lipotichoic acid
  - d) Lectin-like molecules

- 6) The mononuclear phagocyte system does not include
  - a) Endothelial cells
  - b) Kupffer cells
  - c) Monocytes
  - d) Macrophages cells
  
- 7) Innate immunity present since birth and it has no -----
  - a) Memory
  - b) Pain
  - c) Energy
  - d) Sensation
  
- 8) Which of the following are not the characteristics of a good antigen?
  - a) Large in size
  - b) Foreignness
  - c) Highly complex
  - d) Reproduce only by binary fission
  
- 9) Which of the following is a secondary lymphoid organ?
  - a) Kidney
  - b) Spleen
  - c) Liver
  - d) Heart
  
- 10) Severe combined immunodeficiency (SCID) can be treated with –
  - a) Thymic transplantation
  - b) Immunotherapy
  - c) Intravenous immunoglobulin (IvIg)
  - d) Haemopoetic stem cell transplants (HSCT)

### PART-B

(Attempt any FIVE)

- |   |    |
|---|----|
| Q2 Describe the autoimmune disease and pathogenic mechanisms.                     | 12 |
| Q3 What are the general properties of effectors T-cells and their cytokines?      | 12 |
| Q4 Write the mechanism of antigen receptor signalling.                            | 12 |
| Q5 Explain the antigen-antibody receptor interactions.                            | 12 |
| Q6 Give an account on typical structure of antibody and antigen-antibody complex. | 12 |
| Q7 Describe the arrangement of genes and maturity in bone marrow.                 | 12 |
| Q8 Write a note on following (any three)  | 12 |
| a) TLR-4 recognition  |    |
| b) Adaptive immunity  |    |
| c) Sensor cells   |    |
| d) Non IgE  |    |