

**B.Sc. 4<sup>th</sup> Semester (Honours) Examination, 2022 (CBCS)**

**Subject: Zoology**

**Paper: CC - 10**

**(Immunology)**

**Full Marks: 40**

**Time: 2 Hrs.**

*The figures in the right hand margin indicate full marks.*

*Candidates are required to give the answers in their own words as far as practicable.*

**Group - A**

1. Answer any **five** questions of the following: 2×5=10
- a) Why is hapten considered as incomplete antigen?
  - b) Differentiate between an epitope and a paratope.
  - c) What is Natural Killer (NK) cell? State its function.
  - d) State the functions of Antigen Presenting Cell (APC).
  - e) Name the classical C3 convertase. Mention its functions.
  - f) State the relationship between Duffy blood group and malaria.
  - g) What do you know about booster dose?
  - h) State the significance of Membrane Attack Complex (MAC).

**Group - B**

2. Answer any **two** questions of the following: 5×2=10
- a) What is meant by opsonin? Compare and contrast opsonization with neutralization. 1+4
  - b) What are the basic mechanisms by which the B cells and the T cells are stimulated? Use diagrams to support your answer. 3+2
  - c) Enumerate the classical pathway of complement activation with a flow diagram. 5
  - d) Differentiate between idiotypic and allotypic. Add a note on anaphylactic response. 2+3

**Group - C**

- 3.**    *Answer any **two** questions of the following:* 10×2=20
- a)**    How does vaccination differ from premunition? Elaborate any four basic types of vaccines with their mechanism of actions. 2+8
- b)**    Draw and describe the basic structure of IgE. How do the differences in the molecular weight among different classes of immunoglobulins modulate their functions? 6+4
- c)**    Describe in detail the basic structure of MHC II with its crucial functions. How does it differ from MHC I? 7+3
- d)**    What are monoclonal antibodies? Detail the steps of their production by the hybridoma technology. 2+8
-