

**B.Sc.(Hons)Semester- IV Exam,2022**

**Subject- Biotechnology (Hons.)**

**PAPER- CC 9 (Immunology)**

**TIME-2 Hours**

**Full Marks - 40**

**1 .Answer *any five* from the followings:**

**2x 5 = 10**

- (a) What is hapten? Give an example.
- (b) What is the need of adaptive immunity.
- (c) Expand the acronyms: HLA, HGPRT
- (d) What is the need of innate immunity?
- (e) Name two lymphoid organs.
- (f) What is Membrane attack Complex (MAC)?
- (g) What do mean by phagolysosome?
- (h) What do you mean by opsonin?

**2. Answer *any two* from the followings:**

**5 x 2 = 10**

- (a) Elucidate the mechanism of antibody class switching.
- (b) Briefly explain with a diagram endocytic pathway for antigen processing.
- (c) What are Toll-like receptors (TLRs)? Briefly describe cellular distribution and functions of different TLRs in mediating immune response.
- ( d) Describe the structure of antibody with a neat labelled diagram.

**3. Answer *any two* from the followings:**

**10 × 2 =20**

- (a) Illustrate any two mechanisms for generating diversified antibody in our B cells. **5 + 5 = 10**
- (b) Differentiate between monoclonal and polyclonal antibody. How hybrid cells are produced by Hybridoma technology? **3 + 7 = 10**
- (c) Describe the basic structure of T Cell receptor with a neat diagram.
- (d) Differentiate between antigen and immunogen.What are the basic criteria for being an immunogen? **3 + 7 = 10**

