

**SF-17011**

(553) M.Sc. Zoology (Third Semester)  
Examination, Dec.-2023

**Compulsory / Optional**

**Paper - III**

**IMMUNOLOGY AND DEVELOPMENTAL  
BIOLOGY**

*Time : Three Hours ]*

*[Maximum Marks : 080*

*[ Minimum Passing Marks : 26*

**Note :** Answer From both the Section as  
Directed. The figures in the right-  
hand margin indicate marks.

**Section- A**

1. Answer the following objective type type  
questions:  $1 \times 10 = 10$

- (i) Which type of immunity develops in  
the body after birth?

**(2)**

- (ii) What is the first antibody produced  
in response to an antigenic threat?
- (iii) Where does antigen binding sites  
are present?
- (iv) What is adjuvant?
- (v) What is the ratio of heavy chain and  
light chain in an antibody molecule?
- (vi) What is antigenic drift?
- (vii) What is first line of defense?
- (viii) Name the part of processed antigen  
that binds to the MHC molecule and  
recognized by T cells.
- (ix) Why do nerve cells never divide?
- (x) What are blastomeres?
2. Answer the following short answer type  
questions:  $2 \times 5 = 10$
- (i) Differentiate between primary and  
secondary lymphoid organs.

(3)

(ii) What are antibody isotypes?

Describe their functions.

(iii) What are the main functions of the complement system?

(iv) What do you mean by morphogenetic movements?

(v) Write a short notes on primitive streak.

### Section- B

Answer the following long answer type questions:  $15 \times 4 = 60$

3. Describe various cells of immune system.

OR

Are antigen and immunogen are similar?  
Write about the factors influencing immunogenicity of the pathogen.

4. What is the process of B cell maturation, activation & differentiation?

(4)

OR

Give a detail account of classes and subclasses of immunoglobulins.

5. Explore the differences between MHC class I and MHC class II proteins.

OR

What are different types of hypersensitivity reactions?

6. What is cleavage? Write a detail note on its various types and patterns.

OR

Explain the following terms in relation to morphogenesis :

- (a) Palisading
- (b) Invagination
- (c) Evagination
- (d) Cell death