

**PD-387-S.E.-CV-19**  
**M.Sc. ZOOLOGY (3<sup>rd</sup> Semester)**  
**Examination, Dec.-2020**  
**Paper-III**

**IMMUNOLOGY AND DEVELOPMENTAL BIOLOGY**

**Time : Three Hours]**

**[Maximum Marks : 80**

**[Minimum Pass Marks : 29**

**Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.**

**Section-A**

**1. Answer the following multiple choice type questions:-** **1x10=10**

(a) Which of the following immunity is present from our birth.  
(i) Active immunity (ii) Passive immunity (iii) Innate immunity (iv) Acquired immunity

(b) The common disorder caused by a poor immune system include.  
(i) Auto immune disease (ii) Deficiency diseases (iii) Epidemic diseases (iv) None of above

(c) Which of the following cell is involved in cell-mediated immunity  
(i) T-Cells (ii) B-Cells (iii) Stem Cells (iv) Macrophages

(d) How many types of antibodies are there?  
(i) Two (ii) Three (iii) Five (iv) Four

(e) A complete antigen is capable of.  
(i) Inducing an immune response (ii) Can interact with antibody  
(iii) Induces antibody production (iv) All of these

(f) Haptens are immunogenic upon binding covalently to a carrier protein.  
(i) Covalently to a carrier protein (ii) Covalently to an antigen  
(iii) Covalently to a paratope (iv) None of these

(g) Antibodies are.  
(i) Prostaglandins (ii) Steroids (iii) Glycoprotein (iv) Lipoproteins

(h) During B-Cell maturation, which of the following stage expresses surrogate light chain complexed with the heavy chain?  
(i) Pro-B Cell (ii) Pre-B Cell (iii) Immature (iv) Mature B-cell

(i) If the first cleavage furrow divides zygote completely into two, the cleavage is.  
(i) Meroblastic (ii) Holoblastic (iii) Discaldel (iv) Radial

(j) Which of the following statement is correct.  
(i) Morphogenesis are always transcription factors  
(ii) Morphogenesis are paracrine factors that are produced in group of cells and travel to another population of cells.  
(iii) Morphogenesis are involved in conditional specification  
(iv) Combination of (ii) & (iii)

**2. Differentiate between the following:-** **2x2=04**

(a) (i) Active and Acquired immunity (ii) Cleavage and Gastrulation

**(b) Explain the following:-** **2x3=06**

(i) Hypersensitivity (ii) Morphogenesis

**Section-B**

**15x4=60**

**Answer all questions.**

**3. Give an account of nature of immune response.**

**OR**

**Discuss cells and organs of immune system.**

**4. Explain B-Cell maturation, activation and differentiation.**

**OR**

**Discuss structure and functions of antibodies.**

**5. Give an account of complement system and its regulation.**

**OR**

**Discuss major histocompatibility complex.**

**6. Explain formation of three germinal layers during embryogenesis.**

**OR**

**Write notes on:-**

**(i) Cleavage and its significance (ii) Histogenesis and morphogenesis of nervous system.**