POST-GRADUATE COURSE

Term End Examination — June, 2017

ZOOLOGY

Paper - 6B : Immunology and Microbiology

Time : 2 Hours   Full Marks : 50

(Weightage of Marks : 80%)

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

1.   Answer *two* questions : $9 \times 2 = 18$

    a)   What is complement system ? Describe the classical pathway of complement system. Add a note on MAC mediated lysis. $2 + 4 + 3$

    b)   Give an account of the cells of immune system. Distinguish between primary and secondary lymphoid organs. What is MALT ? $5 + 2 + 2$

    c)   State the major functional components of invertebrate immune system. Add a note on naturally occurring humoral defense process in invertebrates. $6 + 3$

    d)   What do you mean by allergic rhinitis ? Distinguish between systemic and localized anaphylaxis with suitable example. $3 + 6$

2.   Answer *three* questions : $6 \times 3 = 18$

    a)   What do you mean by IgE mediated hypersensitivity ? Cite the examples of allergens from six different sources. $3 + 3$

    b)   Describe the process of organization and expression of immunoglobulin gene with suitable diagram. $3 + 3$

    c)   Define hapten. Describe the Landsteiner's experiment on hapten-carrier conjugate with suitable example. $2 + 4$

    d)   Define Major Histocompatility Complex. Describe briefly the function of MHC. $2 + 4$

    e)   Describe the role of 'somatic hypermutation' and 'V-D-J gene rearrangement' in introduction of diversity in immunoglobulin gene. $3 + 3$

    f)   Define immunity. Discuss the features of innate and adaptive immunity. $2 + 4$

3.   Answer *two* questions : $4 \times 2 = 8$

    a)   Give a comparative account of antigen recognition process of *T*-cells and *B*-cells.   4

    b)   Describe the properties of complement system.   4

c)   Discuss about the composition and mechanism of action of Freund's complete and Freund's incomplete adjuvant.   2 + 2

d)   Give an account of the functional gene segments of light and heavy chains in human Ig molecules.   4

4.   Answer *two* questions the following :   3 × 2 = 6

a)   Write brief notes on : $1\frac{1}{2}$ + $1\frac{1}{2}$

   i)   ITAM

   ii) APC.

b)   Describe the patterns of outbreak of infection.   3

c)   Discuss the role of 'plasmatocytes' and 'amoeboid neoblast' in imparting immunity in invertebrates. $1\frac{1}{2}$ + $1\frac{1}{2}$

d)   Describe the structure of high affinity $F_C E RI$.   3

———————