

2019

(May)

ZOOLOGY

(Major)

Course : 603

(Molecular Biology and Immunology)

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

1. (a) Fill in the blanks : 1×5=5

(i) The left-handed double helical form of DNA is called _____.

(ii) In transcription process, the DNA sequence of a gene is transcribed to make an _____ molecule.

(iii) Most abundant class of immunoglobulin is _____.

(iv) _____ cells are involved in cell-mediated immunity.

(v) HIV is a virus and AIDS is a _____.

(b) Draw the labelled diagram of the following : 3½×2=7

(i) Cloverleaf model of tRNA

(ii) Molecular structure of IgG

2. Describe any one of the experiments to demonstrate that DNA is the hereditary material. 7

Or

Explain the Watson and Crick model of DNA with suitable diagram.

3. Describe the mechanism of DNA replication. Name the enzymes involved in this process. 5+2=7

Or

Explain the process of mRNA transcription in prokaryote. 7

4. Explain the regulation of gene expression in prokaryote. 7

Or

What is operon? Discuss the *lac operon* model of gene expression. 2+5=7

(3)

5. Write the application of monoclonal and polyclonal antibodies. $3\frac{1}{2}+3\frac{1}{2}=7$

Or

Describe the roles of major histocompatibility complex (MHC). Explain with diagram on MHC class I molecule and class II molecule.

$2+5=7$

6. Write short notes on any *two* of the following : $4\times 2=8$

(a) Lymphoid organ

(b) Antigens

(c) Vaccines
