BIOCHEMISTRY

PAPER-III

BCHEM/D/18/03/III

Time: 3 hours
Max. Marks:100

Important Instructions:

- *Attempt all questions in order.*
- *Each question carries 10 marks.*
- *Read the question carefully and answer to the point neatly and legibly.*
- *Do not leave any blank pages between two answers.*
- *Indicate the question number correctly for the answer in the margin space.*
- *Answer all the parts of a single question together.*
- *Start the answer to a question on a fresh page or leave adequate space between two answers.*
- *Draw table/diagrams/flowcharts wherever appropriate.*

Write short notes on:

1. a) Mechanism of graft rejection. 5+5
   b) Genetic basis of autoimmunity.

2. a) Tumour associated and tumour specific antigens. 5+5
   b) Major Histocompatibility Complex (MHC).

3. a) Structural properties of DNA binding proteins and their function. 5+5
   b) Post translational modifications and their importance.

4. a) Roles of siRNA and miRNA in cells. 5+5
   b) Telomerases in cancer and stem cells.

5. a) Housekeeping genes. 3+3+4
   b) Overlapping genes.
   c) Lac operon.

6. a) Thyroid auto-antibodies. 5+5
   b) Regulation of cyclin-dependent kinase activity.

7. a) The regulation of gene expression. 5+5
   b) BRCA-1 and BRCA-2 genes in cancers.

8. Describe any one autoimmune disease w.r.t mechanism of manifestation, how it affects the body and the ways in which this disease may be diagnosed and managed. 3+3+2+2

9. a) What is inflammation and how is it initiated? Discuss the consequences of the inflammatory response. 6+4
   b) Describe immune tolerance.

10. a) Describe the enzymes involved in the process of replication. 5+5
    b) Write a note on amyloidosis.

****