

BIOCHEMISTRY

PAPER-IV

Time: 3 hours
Max. Marks:100

BCHEM/D/20/03/IV

Important Instructions:

- *You are provided with 5 answer sheet booklets. Each individual answer sheet booklet consists of 10 pages excluding the covering jackets.*
- *Answers to all the questions must be attempted within these 5 answer sheet booklets which must be later tagged together at the end of the exam.*
- *No additional supplementary answer sheet booklet will be provided.*
- *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. Technique of development of transgenic animals and their uses in medical research. 10
2. Techniques involved in proteomic studies. 10
3. Gut microbiome, prebiotics and probiotics. 10
4. a) Glucagon-like peptide -1 and its analogues. 5+5
b) Anti-GAD antibody.
5. Techniques for determination of primary and quaternary structure of proteins. 10
6. Reverse transcriptase-polymerase chain reaction (RT-PCR) and antigen testing in COVID-19 diagnosis. 10
7. Laboratory tests for thyroid function evaluation and role of anti-TPO antibodies in diagnosis of thyroid disorders. 10
8. Techniques of HLA typing & matching and disease association with different HLA types. 10
9. Impact factor of a journal and H-index of an author. 10
10. a) CRISPR system in genetic engineering. 5+5
b) Calculation of sample size in animal studies.
