

BIOCHEMISTRY
PAPER-IIITime: 3 hours
Max. Marks:100

BCHEM/J/20/03/III

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. Explain how: 7+3
 - a) Replication of both leading and lagging strands of DNA are carried out by a single DNA polymerase enzyme complex in a single direction of the replication fork.
 - b) Fluoroquinolones function as effective inhibitors of prokaryotic DNA replication.
2.
 - a) Mechanism and clinical implications of defects in nucleotide excision repair system. 6+4
 - b) Role of DNA recombination in DNA repair system.
3.
 - a) Next generation sequencing of DNA, 5+5
 - b) Role of introns in splicing mechanisms.
4. Describe in brief the importance of: 6+4
 - a) Genome wide association study.
 - b) mRNA editing in regulation of lipid metabolism.
5. Write brief explanatory notes on: 4+6
 - a) Maintenance of stringency of genetic code by Aminoacyl tRNA synthetases,
 - b) Protein targeting failure.
6. Describe the regulation of eukaryotic gene expression by: 5+5
 - a) Si (small interfering) RNAs.
 - b) Epigenetic mechanisms.
7. Explain how: 6+4
 - a) Antibody diversity occurs.
 - b) Expression sequence tagging (EST) helps in the mapping of genome.

P.T.O.

BIOCHEMISTRY
PAPER-III

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| 8. | a) DNA vaccines. | 4+6 |
| | b) Cytokine storm and its clinical importance. | |
| 9. | Explain in brief: | 5+5 |
| | a) Targeted cancer therapy. | |
| | b) Biochemical basis of metastasis of malignant cells. | |
| 10. | a) BRCA1 and BRCA2 as tumour suppressor genes. | 5+5 |
| | b) Production of monoclonal antibodies by hybridoma technique. | |

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