

**BIOCHEMISTRY****PAPER-III**Time: 3 hours  
Max. Marks: 100

BCHEM/D/19/03/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. What is Cell mediated immunity and Humoral immunity? What are paraproteins? Write its clinical significance. 5+3+2
2. a) Biochemical effects of tumour growth. 5+5  
b) Consequences of cancer treatment.
3. Enumerate the causes of DNA damage and repair mechanisms. What are clinical significance/manifestations of defective DNA repair mechanisms? 5+5
4. What is the effect on the Lactose operon of a mutation that inactivates adenylate cyclase? Add a note on Mobile DNA elements. 6+4
5. Enlist the different types of ROS (Reactive oxygen species) affecting human health. How are they generated/produced? Enumerate three enzymes acting/combating as scavengers. 3+4+3
6. a) What are Proto-oncogenes and oncogenes with examples? 3+4+3  
b) Mention important growth factors.  
c) List three commonly used Tumor markers and its clinical uses.
7. Describe cloning of human DNA in bacteria using Recombinant DNA technology. Briefly describe about DNA library. 6+4
8. What is Restriction Fragment Length Polymorphism (RFLP)? Write a note on Gene therapy and its applications. 4+(3+3)
9. Describe auto-immune disorders. What is the role of Immune system in organ transplantation? 6+4
10. a) Chaperons. 3+3+4  
b) HSPs (Heat Shock Proteins).  
c) Protein Targeting.

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