

**BIOCHEMISTRY**

PAPER – IV

BIO/D/15/03/IV

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.	What in DNA electrophoresis? Give its principle and uses in a clinical laboratory.	2+8
2.	Write the principle of cell sorting by flow cytometry. Name cell surface markers used for sorting of cancer-stem cells from non-stem cancer cells.	5+5
3.	What is chromatography? Give principles of adsorption and partition chromatography.	2+(4+4)
4.	What are the markers of bone turnover? Add a note a their clinical significance.	5+5
5.	a) What are life style diseases? b) How can they be managed? c) Write the molecular mechanisms by which obesity predisposes a person to coronary heart disease.	2+4+4
6.	What are stem cells? Add a note on their therapeutic potential and its controversies.	2+(4+4)
7.	Write the properties and biological effects of dietary fibres in health and disease. Write the mechanism of digestion and absorption of dietary lipids in intestine.	5+5
8.	State the principle of RT (Reverse Transcriptase)-PCR. Write its application in research and diagnosis giving suitable examples.	4+6
9.	a) What is the biochemical basis for the action of oral contraceptives? b) State the advantages and disadvantages of DNA vaccination.	5+5
10.	Justify that heart is an endocrine organ and its clinical significance.	5+5

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