

[Time: 2½ Hours]

[Marks:60]

Please check whether you have got the right question paper.

- N.B:**
1. All questions are **compulsory**.
 2. Use of **simple calculator** is **allowed**.
 3. **Figures** to the **right** indicate **full marks**.

- Q.1 1 Write only michaelis – menten Equation. 12
2. Name two types of non-constitutive genes and give their example.
 3. Name the gene that codes for an enzyme Transacetylase.
 4. Define cofactor and give its example.
 5. Draw the graph for temperature effect w.r.t to enzyme kinetics.
 6. Conversion of signals on cell's surface into cellular response is called as -----.
 7. Phenomenon where a defective cell escapes programmed cell death is called as -----.
 8. DISC, involved in apoptosis stands for -----.
 9. A ----- is a type of hybrid plasmid that contains a lambda phage cos sequence .
 10. Different restriction enzymes identified from different bacteria having same recognition sequence with the same cleavage site are called -----.
 11. ----- is a DNA molecule , capable of replication in a host organism , into which a gene is inserted to construct a recombinant DNA molecule .
 12. A synthetic double – stranded piece of DNA carrying a number of restriction sites is called -----.
- Q.2 A) Write note on :- 6
1. Effect of temperature and pH.
 2. Feedback Inhibition
- B) Drive an equation for michaelis – menten kinetics and list the assumptions made for the study. 6
- OR
- C) Define enzyme kinetics studies? Derive an double reciprocal plot and comment on the graph. 6
- D) Define enzyme. Write a note on enzyme classification along with its biochemical properties. 6
- Q.3 A) Explain transcription mechanism in detail. 6
- B) Define operon. Explain Lac operon in detail. 6
- OR
- C) How gene splicing takes place in Eukaryotes. Explain. 6
- D) Explain briefly DNA replication and the role of enzyme involved in it. 6

- Q.4 A) Write note on the following. 6
1. Ion- channel linked receptors.
 2. Tyrosine kinase receptors.
- B) What are Tight Junctions? How are hemi desmosomes different from Desmosomes and describe the signaling cascade in phosphorylation 6
- OR
- C) Why is calcium called as ubiquitous secondary messenger? Describe the regulation of calcium concentrations in blood by hormonal signaling. 6
- D) Under what conditions does a cell decide to commit suicide? Give the significance of programmed cell death w.r.t humans. 6
- Q.5 A) What is Gene therapy? Describe with flow chart steps involved in c-DNA library constructions and also give its applications. 6
- B) Taking any suitable example cells describe the complete process involved in recombinant DNA Technology. 6
- OR
- C) Explain in detail a chemical and a physical method of rDNA transformation into host cells. 6
- D) Write a note on applications of rDNA Technology in tackling various human Diseases. 6