



Fill in the blanks:

6. The Eukaryotic transcription system has \_\_\_\_\_ RNA polymerases.
7. Linking number is always an \_\_\_\_\_.
8. The main DNA repair enzyme in Prokaryotes is \_\_\_\_\_
9. The Óri' sequence is initially recognized by \_\_\_\_\_
10. Proteins that prevent the parental DNA strands from forming H-bonds during replication is called \_\_\_\_\_
11. In Eukaryotes, priming for replication is carried out by \_\_\_\_\_
12. During Prokaryotic transcription, promoters are recognized by \_\_\_\_\_
13. Helix-turn-helix motifs are common in \_\_\_\_\_ factors
14. 5'cap formation is a modification found in eukaryotic \_\_\_\_\_
15. Stop codons are also known as \_\_\_\_\_ codons
16. Tryptophan operon in E.coli is an example of \_\_\_\_\_ operon

**III. Answer any seven in brief:**

( 7 x 2 = 14 marks)

1. What is the function of the  $\omega$  subunit of RNA polymerase?
2. Define Nucleosome and linker DNA.
3. Define Right-handed helix.
4. Priming of DNA replication in Prokaryotes
5. Leucine Zipper proteins
6. Promoter clearance
7. Pseudouridine
8. Define Silencer and inhibitor
9. Differentiate between positive and negative regulation

**IV. Answer in detail:**

( 4 x 8 = 32 marks)

1. Write in detail about the structure of DNA and various forms of DNA.

**OR**

1. Justify the following statements
    - (a) Each nitrogenous base has its preferred tautomeric form
    - (b) Major groove of DNA is rich in chemical information.
  2. Describe the structure of ARS and outline the initiation of replication in Eukaryotes
- OR**
2. Write a note on
    - a) Termination of DNA replication in Eukaryotes
    - b) Control of replication in Prokaryotes

3. Explain in detail how the RNA polymerase finds the promoters with a note on the interaction between promoter sequences and Sigma factor

**OR**

3. Describe transcription by RNA polymerase II describing the role of various transcription factors in detail.

4. Explain in detail the role of tRNAs and rRNAs in bacterial translation

**OR**

4. Describe trp operon and its control. Explain how it differs from lac operon?

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