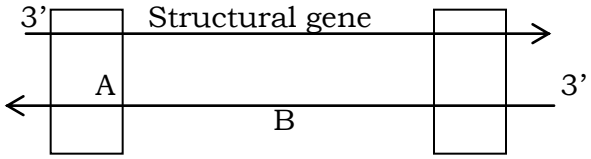
Class XII

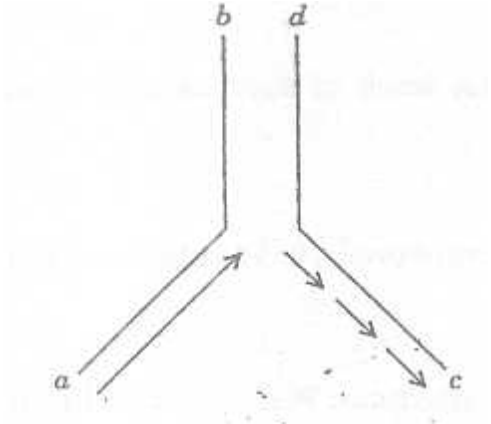
TOPIC:-MOLECULAR BASIS OF INHERTANCE

ONE MARK QUESTIONS

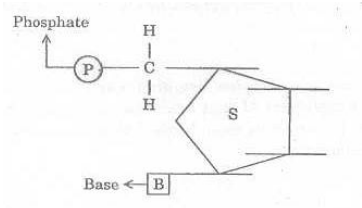
1 Name the parts 'A' and 'B' of the transcription unit given below.



2 Name the types of synthesis 'a' and 'b' occurring in the replication fork of DNA as shown below.



3 Mention the carbon positions to which the nitrogenous base and the phosphate molecule are respectively linked in the nucleotide given below:

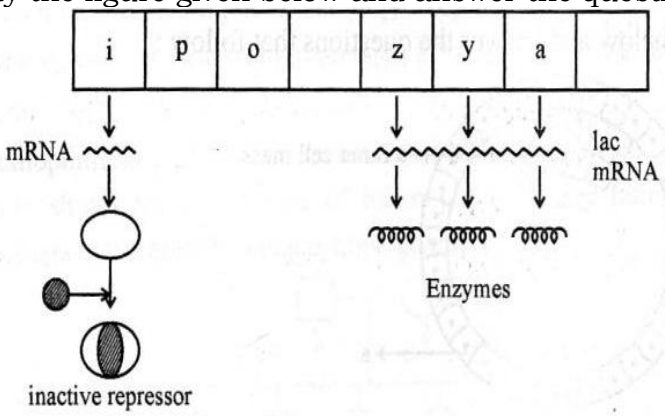


4 Mention the two additional processing which hnRNA needs to undergo after splicing so as to become functional.

5 Name the enzyme involved in the continuous replication of DNA strand. Mention the polarity of the template strand.

TWO MARKS QUESTIONS

6 Study the figure given below and answer the questions:



a) How does the repressor molecule get inactivated?
b) When does the transcription of lac mRNA stop?
c) Name the enzyme transcribed by the gene 'z'.

7 Explain the dual function of AUG codon. Give the sequence of bases it is transcribed from and its anticodon.

8 Name the category of codon UGA belongs to. Mention another codon of the same category. Explain their role in protein synthesis.

9 Differentiate between a template strand and a coding strand of DNA.

10 Given below is a part of the template strand of a structural gene
TAC CAT TAG GAT
a) write its transcribed mRNA strand with its polarity.
b) Explain the mechanism involved in initiation of transcription of this strand.

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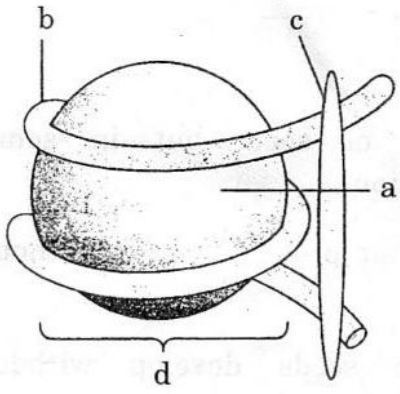

a) What is this diagram representing?
b) Name the parts a, b and c.
c) In the eukaryotes the DNA molecules are organized within the nucleus. How is the DNA molecule organized in a bacterial cell in absence of a nucleus?

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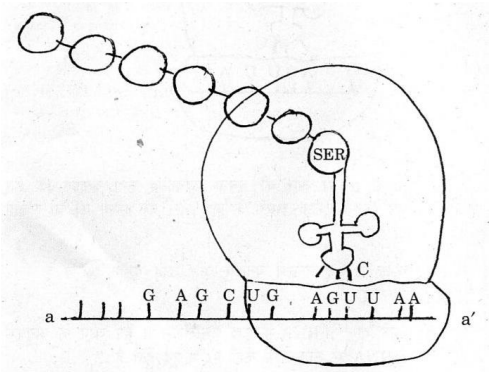

a) Identify the polarity from a' to a, in the above diagram and mention how many more aminoacids are expected to be added to this polypeptide chain.
b) Mention the DNA sequence coding for serine and the anticodon of tRNA for the same amino acid.
c) Why are some untranslated sequences of bases seen in mRNa coding for a polypeptide? Where exactly are they present on mRNA?

FIVE MARKS QUESTIONS

13 Explain Hershey-Chase experiment. What was proved through this experiment?

14 What is semiconservative DNA replication? How was it experimentally proved and by whom?