



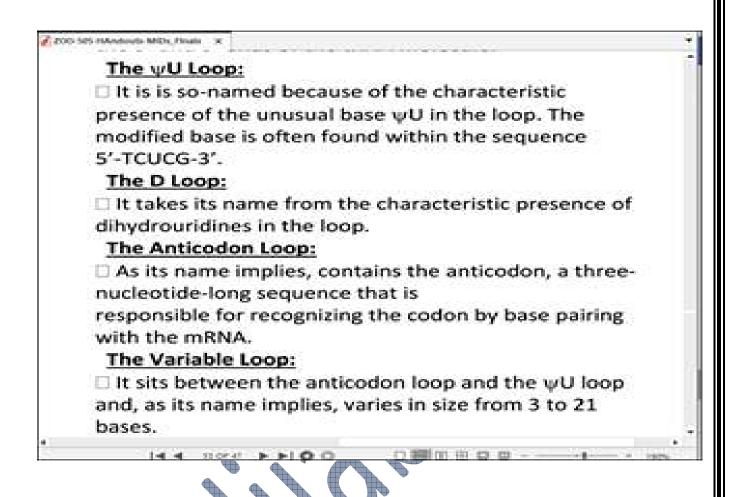
- 1. What is ORF..? 2
- 2. What is RNA splicing ..?
- 3. What is spliceosome..? 3
- 4. Write at least three loops tRNA..? 3
- 5. What are transitions and transversions mutation explain with diagram..? 5
- 6. Write a note on the elongation of transcription..? 5
- 7. Write the elements of Pol II core promoter..?
- 8. Write the name of polymerases found in Eukaryotes included plants..?
- 9. Write a detail note on DNA mutation..? 10
- 10. Write the names of three classes of RNA splicing found in the cell.?
- 1. What is ORF..? 2
- □ The protein-coding region(s) of each mRNA is composed of a contiguous, nonoverlapping string of codons called an open reading frame (commonly known as an ORF).

2. What is RNA splicing..?

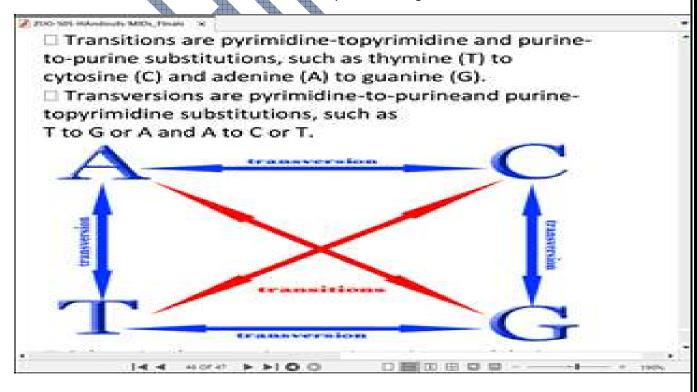
,
intron-containing genes must have their introns removed before they can be translated into proteins. ☐ The process of intron removal is called RNA
Splicing.
☐ It converts the premRNA into mature
mRNA containing only exons.
☐ RNA Splicing must occur with great precision to
avoid the loss, or addition, of even a single nucleotide
at the sites at which the exons are joined.
3. What is spliceosome? 3
\square The transesterification reactions are mediated by a
huge molecular "machine" called the Spliceosome.
☐ This complex comprises about 150 proteins and five
RNAs and is similar in size to a ribosome.
☐ In performing even a single splicing reaction, the

spliceosome hydrolyzes several molecules of ATP.

4. Write at least three loops tRNA..? 3



5. What are transitions and transversions mutation explain with diagram..? 5



6. Write a note on the elongation of transcription? 5
☐ Elongation
Once the RNA polymerase has synthesized a short
stretch of RNA (10 bases), it shifts into the
elongation phase.
 During elongation, the enzyme performs an
impressive range of tasks in addition to
the catalysis of RNA synthesis.
 1) It unwinds the DNA in front and reanneals it behind.
 2) It dissociates the growing RNA chain
from the template as it moves along.
3) And it performs the proofreading functions.
 Recall that during replication, in contrast, several
different enzymes are required to catalyze a
similar range of functions.
□ Termination
7. Write the elements of Pol II core promoter?
☐ The elements found in Pol II core promoter include
the TFIIB recognition element (BRE), the TATA
element (or box), the initiator (Inr), and the
downstream promoter elements (known as
DPE, DCE, and MTE).
8. Write the name of polymerases found in Eukaryotes included plants?
o. Write the name of polymerases found in Eukaryotes included plants:

whereas eukaryotic cells have three: RNA
polymerases I, II, and III (RNA Pol I, II, and III).
☐ Recently, two more DNA-dependent RNA
polymerases have been identified in recent years, and
have been called as Pol IV and Pol V.
☐ These are found only in plants, where they
transcribe small interfering RNAs.
9. Write a detail note on DNA mutation? 10
☐ DNA mutation can be defined as a permanent
transmissible change in the genetic material
(DNA/RNA).
☐ In other words, it is a permanent change in the
nucleotide sequence of the genome of an organism.
☐ DNA can be easily damaged even under normal
physiological conditions.
☐ Many different kinds of chemical and physical
agents can damage DNA.
☐ Some of these agents are endogenous which are
produced inside the cells as a result of normal
metabolic pathways.
☐ While some others are exogenous agents which
come from the surrounding environment.

☐ On one hand, DNA stability is required to ensure that the genetic information may pass accurately
from one generation to the next
☐ It is also required for the correct functioning of
thousands of genes.
☐ On the other hand the genetic variation is needed to drive evolution.
☐ If this variation would be lacking, the new
species, including humans, would have not arisen.
☐ So the life and biodiversity depend on a happy
balance between DNA damage (mutation)
and its repair.
☐ DNA mutations may be very simple (single base
change) or very complex and may include several
thousands of nucleotides.
$\hfill\square$ The simplest mutations are switches of one base for
another. There are two kinds of such mutations which
include:-
O Transitions

O Transversions ☐ Transitions are pyrimidine-topyrimidine and purine-to-purine substitutions, such as thymine (T) to cytosine (C) and adenine (A) to guanine (G). ☐ Transversions are pyrimidine-to-purineand purine-topyrimidine substitutions, such as T to G or A and A to C or T.
☐ Other simple mutations are insertions or deletions of a nucleotide or a small number of nucleotides.
 □ All such mutations that alter a single nucleotide are called point mutations. □ Other kinds of mutations cause more drastic changes in DNA, such as extensive insertions and deletions and gross rearrangements of chromosome structure.
10. Write the names of three classes of RNA splicing found in the cell?
☐ There are total three classes of splicing found in the cells:- ☐ Nuclear pre-mRNA ☐ Group II introns ☐ Group I introns

