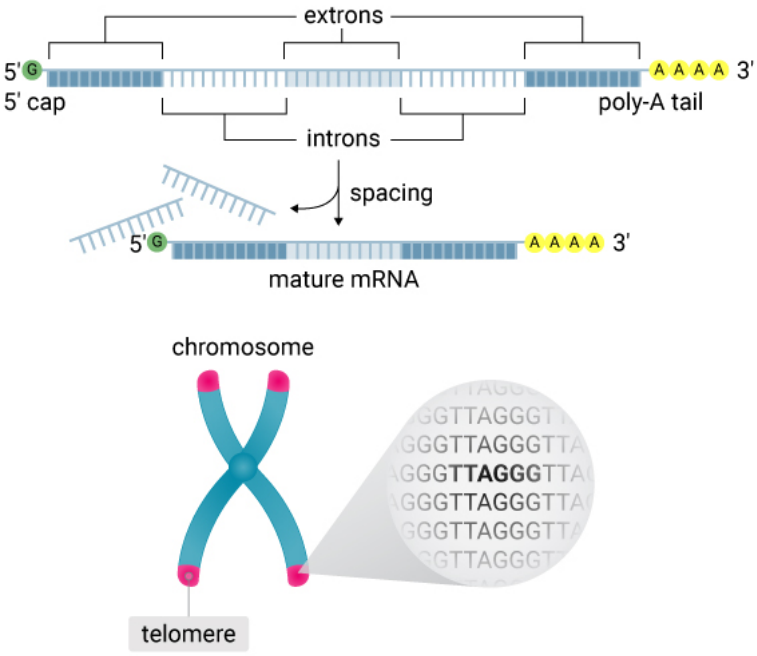
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QUESTION 1

Select the correct answer.

What are the functional similarities between poly-A tails found at the end of mRNA and telomeres found at the end of chromosomes?



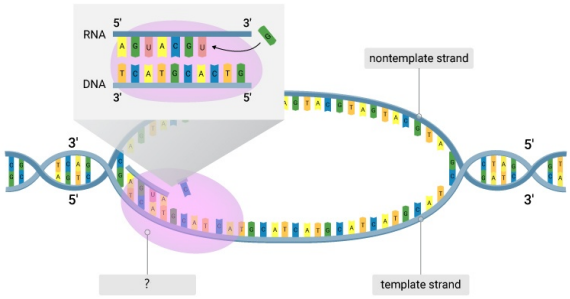
- Both function to release new strands of nucleic acid.
- Both act to proofread new strands of nucleic acid.
- Both function to protect the nucleic acid. ✓
- Both act as stop signals for sythesis of the nucleic acid.

QUESTION 2

Drag and drop the correct terms to complete the sentences.

At the start of transcription, the DNA unzips, and RNA polymerase ✓ binds to a region of DNA called the promoter.

This is a specific sequence of DNA that acts as a start ✓ signal.



origin of replication | template strand | stop | primer | DNA polymerase

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QUESTION 3

Select the correct answer.

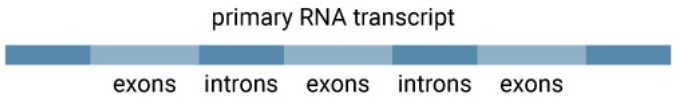
Exons are defined as coding sequences in an mRNA strand. What is the most reasonable conclusion based on the definition?

- ○ Exons do not have enough information to synthesize proteins.
- ○ Exons are the inherited genetic code for the whole cell.
- ◉ Exons contain the needed information to synthesize a protein. ✓
- ○ Exons are able to put together sequences in mRNA.

QUESTION 4

Select the correct answers.

What must happen to this RNA strand before it can be used to produce a protein?



- ☑ The introns must be removed. ✓
- ☐ The RNA strand needs to be copied.
- ☑ A protective cap must be added to the 5' end. ✓
- ☐ The exons must be removed.
- ☐ A protective cap must be added to the 3' end.
- ☑ A poly-A tail must be added to the 3' end. ✓
- ☐ A poly-A cap needs to be added to the 5' end.
- ☐ The introns and exons must be spliced together.

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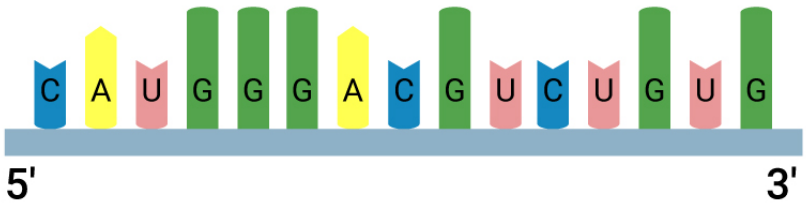
QUESTION 5

Select the best choice from the drop-down menus.

At the end of transcription, RNA polymerase reaches a stop signal at which point it detaches from the DNA and the RNA strand is released.

QUESTION 6

Drag and drop each feature to its correct location on an mRNA ready to exit the nucleus, and then drag and drop the label for each feature in the box underneath it.



protective cap

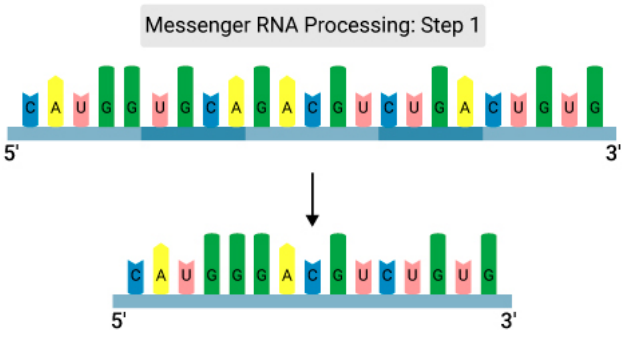
telomere

promoter

QUESTION 7

Drag and drop the correct terms to complete the sentences.

The pre-mRNA includes coding sequences called exons and non-coding sequences called introns. The introns are cut out by enzymes, and the exons are joined.



protected | promoters | capped | unwound | genes

QUESTION 8

Select the best choice from the drop-down menu.



The purpose of the poly-A tail ✓ added to the 3' end of mRNA is to increase stability.

QUESTION 9

Select the correct answer.

Which of the following statements is TRUE and would support the fact that pre-mRNA processing occurs inside the nucleus?

- The mRNA in the nucleus is double-stranded, and mRNA in the cytoplasm is single-stranded.
- The cytoplasmic mRNA is longer than the nuclear mRNA, suggesting that sequences have been added.
- The mRNA leaving the nucleus binds to a ribosome.
- ◉ The cytoplasmic mRNA is shorter than the nuclear mRNA, suggesting sequences have been removed. ✓

QUESTION 10

Select the best choice from the drop-down menus.

During splicing, the portions of pre-mRNA that are removed by enzymes ✓ are called introns ✓.



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