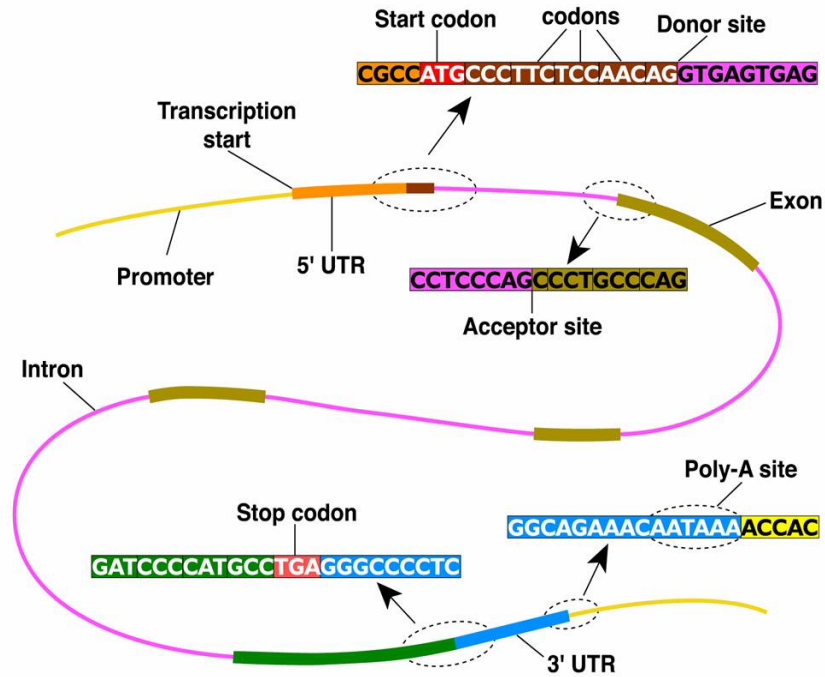


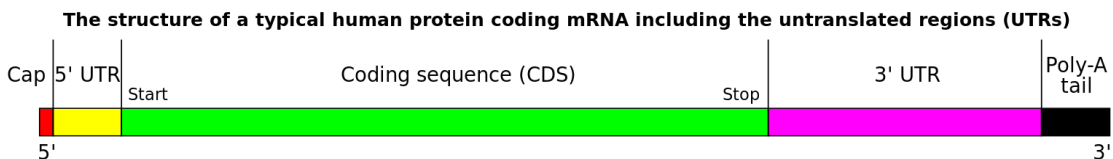
Name: _____

Transcription/Translation Worksheet

Below is a diagram of a gene as it might appear in the chromosome of a eukaryotic cell. The abbreviation UTR stands for “untranslated region.”



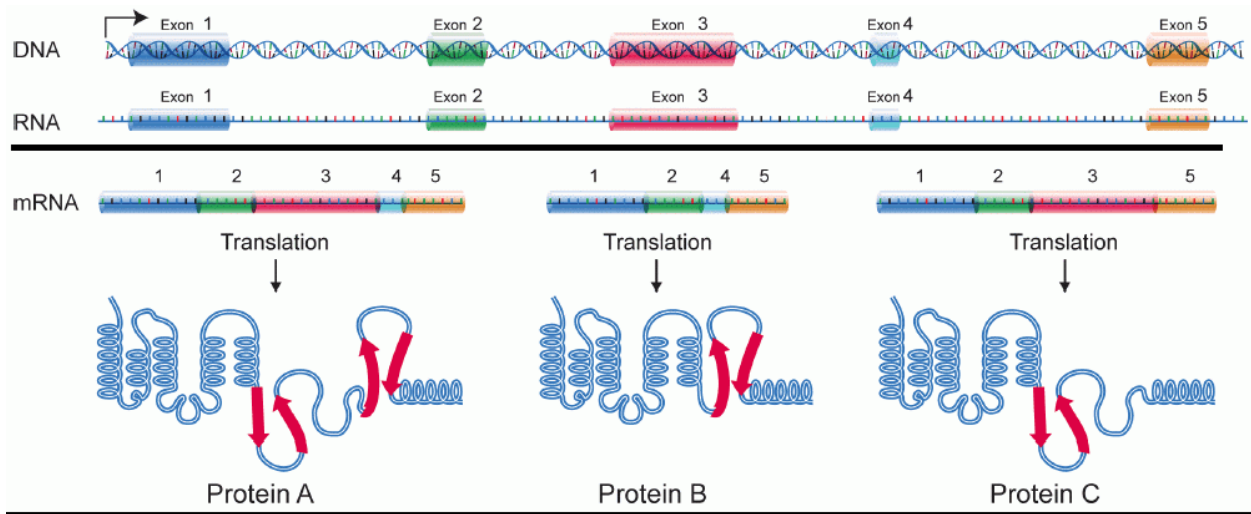
- Using diagrams as necessary, outline the steps between this form and final mRNA (example below). Be sure to include the names of important components performing each step (e.g. transcription factors, RNA Polymerase etc.).



- What is missing from this diagram that is necessary for strong transcription?
- What are the first two and the last two amino acids of the protein encoded? There is a codon table below.

Second base

		Second base					
		U	C	A	G		
First base	U	UUU } Phenylalanine F UUC } UUA } Leucine L UUG }	UCU } Serine S UCC } UCA } UCG }	UAU } Tyrosine Y UAC } UAA } Stop codon UAG } Stop codon	UGU } Cysteine C UGC } UGA } Stop codon UGG } Tryptophan W	U	C
	C	CUU } Leucine L CUC } CUA } CUG }	CCU } Proline P CCC } CCA } CCG }	CAU } Histidine H CAC } CAA } Glutamine Q CAG }	CGU } Arginine R CGC } CGA } CGG }	U	C
	A	AUU } Isoleucine I AUC } AUA } AUG } Methionine M start codon	ACU } Threonine T ACC } ACA } ACG }	AAU } Asparagine N AAC } AAA } Lysine K AAG }	AGU } Serine S AGC } AGA } Arginine R AGG }	U	C
	G	GUU } Valine V GUC } GUA } GUG }	GCU } Alanine A GCC } GCA } GCG }	GAU } Aspartic acid D GAC } GAA } Glutamic acid E GAG }	GGU } Glycine G GGC } GGA } GGG }	U	C
						A	G
						Third base	



Briefly explain how the single gene shown can result in 3 different proteins?