

### Information Unit Practice Problems

1. Name the process that is used to copy DNA to get 2 identical strands of DNA.
2. Name the process that uses DNA to construct a mRNA strand.
3. Name the process that uses mRNA to construct a protein using tRNA and rRNA.
4. Complete the missing sequences of the following DNA strands

A. T G A G C T T T A C  
A C \_\_\_\_\_ A A T \_

B. G C A T A A G A G G  
C \_\_\_\_\_ T \_\_\_\_\_ C

C. A C C T A G C A T C  
\_\_\_\_\_

5. What would be the resulting mRNA strand from this DNA sequence?

DNA – A C C T A G C A T C

mRNA – \_\_\_\_\_

6. What would be the DNA sequence that was used to make this mRNA strand?

mRNA – U G C A U U C G A G

DNA – \_\_\_\_\_

7. EXTRA: Suppose you are given a sequence of polypeptides containing the following sequence of amino acids: lysine, tyrosine, histidine, glycine, and valine. Use the portion of the genetic code given in the table below to determine the **DNA sequence** that codes for this polypeptide sequence. (Hint: work backwards starting from the amino acid, then to the mRNA, then to the DNA that can code for the mRNA)

mRNA	Amino Acids
AAA, AAC	Lysine
UAU, UAC	Tyrosine
CAU, CAC	Histidine
GGU, GGC, GGA, GGG	Glycine
GUU, GUC, GUA, GUG	Valine

Multiple Choice: Choose the DNA sequence that can correctly create the sequence of amino acids

- A. UUUAUAGUACCGCAC
- B. TTGATAGTACCGCAC
- C. GGACGCTGCAACACC
- D. TTTATGGTCCCCTG

# Answer Key

1. **DNA Replication**

2. **Transcription**

3. **Translation**

4.

A. T G A G C T T T A C  
A C T C G A A A T G

B. G C A T A A G A G G  
C G T A T T C T C C

C. A C C T A G C A T C  
T G G A T C G T A G

5. DNA – A C C T A G C A T C

mRNA – U G G A U C G U A G

6. mRNA – U G C A U U C G A G

DNA – A C G T A A G C T C

7. **Choice B**