

Name _____ Group # _____

1. (2 points) Fill in the DNA complement of the rest of this strand. Indicate both the 5' and 3' ends of the new strand.

5' -A T T C G C A C T G-3'
3' -T A A G C G T G A C-5'

2. (2 points) Define translation

The process by which an mRNA is used directs the synthesis of a protein.

3. (2 points) Define transcription

The process by which DNA is copied into an mRNA strand.

4. (2 points) What "end" of an mRNA strand is generated first?

The 5' end is generated first, the chain is elongated through the 3'OH on the sugar. The 5' end has a free phosphate (prokaryotic) or methylG cap (eukaryotic) group.

5. (2 points) Name the chemical group in the 5-carbon ribose sugar that confers the major differences between DNA and RNA.

RNA has a hydroxyl group on the 2' carbon of the ribose sugar; DNA has no hydroxyl group on the 2' carbon (2'-deoxyribose).

6) (2 points) How much of a 10X solution of Tris buffer will you need to make one liter of 1X Tris buffer?

(show calculation rationale). 100 ml

7. (4 points) Name two approaches you will use this week to determine the concentration of a solution of DNA:

-measuring A260 using a spectrophotometer

-using ethidium bromide staining and serial dilution comparing to control fluorescence

8. (4 points) Answer true or false to the following statements.

a) EtBr is a mutagen **True**.

b) Tips that only came into contact with water can be thrown in the regular trash **False**.

c) Bottles containing LB media can be kept open without risking contamination **False**.

d) A P-1000 is the most accurate pipetman to dispense 180 μ l of a solution **False**.