Name:_____ Dr. Reichler's Bio 325 TTh 7:30-9pm Fall 2007 Quiz 11/08

1) What is different in a cell in G1 and G2 phases of the cell cycle?

2) Can DNA replication initiate anywhere on the DNA?

3) What is different between DNA replication on the leading and lagging strand?

4) Helicase unwinds the DNA, and then DNA polymerase copies the unwound DNA, so these two proteins both act on the same region of DNA. Of the other proteins involved in DNA replication, which ones act on the same regions of the DNA?

5) Why is it important for a cell to be able to identify recently copied DNA? How does *E. coli* do this?

6) What is the problem at the ends of DNA replication, and how is this problem resolved?

7) What does the problem in #6 protect you from?

8) In what human cells would you expect to find the shortest telomeres?

9) What can be learned by looking at the length of someone's telomeres?

10) During mitosis, why does the DNA line up in the middle of the cell?

11) Would you expect many genes to be expressed during mitosis?

12) Why are multiple mutations required for a cell to become cancerous?

13) Are short telomeres a positive or negative signal for mitosis?

14) How could looking at someone's genes help determine their risk of developing cancer? Could data about someone's environment help determine their risk of developing cancer? Explain.

15) Why might lung cancer be such a deadly form of cancer?

16) Is p53 gene of a cancerous cell likely to be absent or over-expressed?

17) What is measured by microarray analysis, and what is one weakness of the data obtained?

18) What are two changes that you could detect by microarray analysis of a cancer cell that would lead to using or not using a particular cancer treatment?