Quiz 7: Bi 421/521: Virology. 6 Dec. 2002: Name or Student ID: __________________

1. Pkr activity shuts down: (1)
   a) cap recognition
   b) translational elongation
   c) translational termination
   d) translational initiation
   e) GTP binding by eIF2α

2. Bacteriophage have ____d_____ virion morphologies (1)
   a) helical
   b) icosahedral
   c) filamentous
   d) all of the above

3. Why is phage therapy so attractive? (1)
   a) antibiotic resistant bacteria
   b) It has been well tested on humans
   c) It is more specific than antibiotics
   d) It not harmful to non-bacterial cells
   e) It is cheaper than antibiotics

4. What is the normal % of infectious particles for HIV-1 (1)
   a) 100%
   b) 10%
   c) 5%
   d) 1% (this will be given credit)
   e) 0.1%

5. Describe one technique used with lentiviral vectors to reduce the risk of infecting the incorrect cell. (2)
   1. Use pseudotyping to direct the vector to a cell where it cannot reproduce.
   2. Disable some of the virus proteins so that the virus cannot spread.
   3. Use a helper virus, co-transfect with a plasmid which contains essential proteins.

6. Why is ATP hydrolysis not needed during T4- phage tail contraction? (2)
   Because it has been used to make the virus tail in a constrained and unstable state.

7. Describe one advantage and one disadvantage to making viral proteins from a polyprotein. (2)

   Advantage: The viral genome can be smaller. There is another step that can be regulated.
   Disadvantage: The same amount of each protein is made and the virus needs more of some proteins than others so there is a lot of waste.