Name:_____KEY_____ Dr. Reichler's Bio 325 Fall 2007 Quiz 10/26 (pre-exam #2)

1) What technique would allow you to determine in a few hours if some corn had been genetically modified with the Round-up resistance gene?
Successful amplification of the Round-up® resistance gene by PCR using primers specific for this gene.

2) When preparing a eukaryotic gene for expression in bacteria, would you do PCR or reverse transcription first?
RT first to make the cDNA then PCR to amplify the gene you want to clone.

3) Would you be able to insert a gene cut with one restriction enzyme into a plasmid cut with a different restriction enzyme?
Not if the sticky ends do not match. Non-complementary sticky ends will keep the gene of interest and the plasmid from coming together for ligase to make covalent bonds.

4) If you grew some transformed bacteria on X-gal, but forgot to put antibiotic, what color would you expect most of the bacteria to be?
White. Even the bacteria without the plasmid will survive, and no plasmid means no lacZ to make the blue color. There may be a few blue colonies representing transformed bacteria with the plasmid containing the intact lacZ gene.

5) How are bacteria used in the transformation of plants and animals?
For plants we can use Agrobacterium. In animals a bacteria are often used to replicate the DNA, as a plasmid, that we then inject into the animal.

6) Why would adding too much dideoxy nucleotide limit the number of nucleotides that you could sequence?
After the incorporation of the didieoxy nucleotide, the elongation of the DNA strand stops. Too much ddNTP will mean that the reaction will stop with very short strands of DNA.