Name:_____ Dr. Reichler's Bio 325-uex Fall 2008 Quiz 11/6

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

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

3) After surgery to remove a tumor under what circumstances would you want to follow-up with radiation or chemotherapy?

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

5) 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?

6) What is one advantage and one disadvantage to sexual reproduction?

7) Would introducing sterile male voles be an effective population control in either prairie or montane voles? Why or why not?

8) Would non-monogamy lead to more or less genetic diversity?

9) How would the reproductive resources differ for female birds and mammals? What about male birds and mammals?

10) Tish is pregnant, and she had sex with two men. One a few days before she ovulated, and the other the day after she ovulated. Who is most likely the father?

11) What scenario would cause males to be more choosy about who they mate with?

12) How might monogamy decrease a pair's chance of having offspring?

13) What are female purple martins that are mated with young males gaining when they mate with a nearby older male?

Answers:

1) *There is a continuous and concentrated exposure to the toxins.*

2) *Absent, p53 should induce apoptosis in cells with mutations.*

3) *If the tumor is benign, eadiation might be used to ensure that all cancer cells are removed or dead. If the cancer is malignant, chemotherapy might be used to kill any other tumors that were not removed or detected during surgery.*

4) *Differences in mRNA expression. It does not tell us about protein levels.*

5) *Reduced expression of cell adhesion genes could indicate malignant cancer. Increased expression of MDR could indicate that chemotherapy will not be effective.*

6) *The main advantage is increased genetic diversity. The disadvantages are the difficulty in finding a mate, the chance of getting a disease during mating, and having to compete for mates.*

7) *Montane voles are not monogamous, so introducing sterile males would not decrease reproduction rates. But in the monogamous prairie voles, the females mated to the sterile males will have fewer or no offspring.*

8) *More mates would give rise to more genetic diversity?*

9) *The major resource for female birds is material for making the large eggs while female mammals provide fewer material resources, but are more limited by the relatively long gestation time that limits the number of times they can reproduce. Both male birds and mammals do not need to expend major resources for reproduction, just sperm.*

10) *Sex after ovulation rarely results in pregnancy. The egg must be fertilized while it is moving through fallopian tubes to properly implant in the uterus.*

11) *If the number of times they can mate is limited and/or they put significant resources into reproduction.*

12) *If they are not compatible with each other, if they cannot produce viable offspring.*

13) *Age is one measure of "quality" genes. The female mated to the younger male can gain "better" genes by also mating with the older male. There is no guarantee that the older male has "quality" genes, but there are few ways for the female to know whether the younger male has "quality" genes.*