PLNT 3140 - Introductory Cytogenetics

Name:

Student ID number:

Assignment 1

### 1) (2 points) Experiments were performed using probes for both euchromatic regions and heterochromatic regions of chromosomes. Summarize the main conclusions that you can draw from these observations.

**2) (2 points) A computer simulation was done in which four signals (to represent the four copies of a chromosome in tetraploid cells) were placed at random positions in nuclei. What do you think the authors were trying to show, from this simulation?**

**3) (1 point) Tissue culture cells were separated into different fractions using a Fluorescence Activated Cell Sorter. Because cells in G1, S and G2 phases have different amounts of DNA (see B, inset), cells labelled with the DNA-specific dye Hoechst 33342 can be separated into 3 samples, each containing a population of cells from these three phases of the cell cycle. (Since mitotic cells tend to be a small percentage of the population, we can ignore the fact that the G2 sample would also be expected to include a small amount of M-phase cells.). What was the purpose of this experiment, and what can you conclude from it?**