7.(30 pts) According to your textbook, a *mitogen* is "a soluble substance, usually a protein, that induces mitosis in a resting population of cells, thereby causing the cells to resume proliferation." We haven't studied mitogens, *per se*, and you should answer the following questions extrapolating from material you have learned this term.

A. (12 pts) Present a hypothetical scheme to account for the action of a mitogen on cell proliferation, beginning from the effect of increased mitogen concentration in the extracellular space and ending with mitosis, and using appropriate diagrams

B. (6 pts) Choose one aspect of your scheme - the initial step or the nuclear events, for example - and describe one test of its validity, indicating clearly what the results of the test would show.

C. (6 pts) Scientists have suggested some forms of cancer may be the result of mitogen activity. Describe one genetic mechanism whereby normal growth under control of a mitogen might become carcinogenic.

D. (6 pts) Assuming you wished to develop a **safe, specific** drug that would interfere with the mitogen or otherwise inhibit its effect, towards what part of your scheme would you target the drug? Why?