

# Ap bio unit packet 38- 40 essay



**ASSIGN  
BUSTER**

Lissette Rivera Chapters 38-40 Answer all questions on looseleaf or type the answers in from the website and print. PART A: 1. Draw a general diagram of the life cycle of a seed plant. Indicate which steps are haploid and which are diploid. 2. Define microsporogenesis and megasporogenesis. In what portion(s) of the flower does each of these processes occur? What is the end product of each process? Microsporogenesis produces our microspores. It occurs in the sporangia of the anther in flowers.

Four haploid microspores are produced when the mother cell undergoes meiosis. Each microspore develops into a pollen grain. Megasporogenesis occurs in the sporangium of the ovule of a flower. After meiosis, the embryo sac is produced (egg, nucellus, antipodal cells, synergids). 3. Draw and label all parts of a complete flower. Indicate the functions of the major parts. 4. What is pollination? How does it differ from fertilization? Pollination is the transfer of pollen grains from the anther to the stigma of the plant through wind, animals, insects, etc.

It differs from fertilization in that fertilization is caused by pollination. Pollination also only occurs in plants whereas fertilization can occur to reproduction in all plants and animals. Pollination 5. Draw and label a mature ovule. Include the micro-pyle, integuments, nucellus, synergids, polar nuclei, egg, and anti-podals. Indicate the functions of each of these structures. 6. What stages of the life cycle are eliminated or bypassed when plants are cloned naturally? When plants are cloned on the farm or in the laboratory? The gametophyte generation is bypassed when plants are cloned naturally.

When plants are cloned on the farm or in the laboratory, cutting small pieces of plants can be grown into a complete plant. 7. What does the science of plant biotechnology do that artificial selection and/or cloning practices don't do? Biotechnology adds genes from other organisms to plants, which other artificial selection or cloning practices does not do. PART B: 1. One of the problems associated with growing plants in space is lack of gravity. a. How does gravity affect the normal growth of a plant's roots, stems, and other parts? Explain the mechanisms involved.

Under gravity, auxin accumulates on the lower side of the root and stems, and slows down elongation of cells in the roots under high concentrations. Auxin concentrations with  $10^{-8}$  and  $10^{-4}$  stimulate proton pumps. Enzymes break crosslinks between cellulose molecules and allow the cell to elongate. b. How would a lack of gravity affect normal growth? Seeds rely on the gravitropic responses when they're underground under absence of flight. c. Propose mechanisms to overcome the problems associated with a lack of gravity. Plant orientation is impacted by light. It counteracts lack of gravity.