REVIEW UNIT 8: PLANT FORM & FUNCTION — SAMPLE QUESTIONS

A. Sample Multiple Choice Questions
Complete the multiple choice questions to review this unit.

1. Plant stems bend towards the light source as a result of increased (1999:30)
   a. chlorophyll synthesis on the side of the stem near the light source
   b. cell division on the side of the stem near the light source
   c. cell division on the side of the stem away from the light source
   d. cell elongation on the side of the stem near the light source
   e. cell elongation on the side of the stem away from the light source

2. The gametophyte is the dominant generation in which of the following plants (1999:33)
   a. Dicots
   b. Monocots
   c. Gymnosperm
   d. Ferns
   e. Mosses

3. The driving force for the movement of materials in the phloem of plants is (1999:35)
   a. gravity
   b. a difference in osmotic potential between the source and the sink
   c. root pressure
   d. transpiration of water through stomates
   e. adhesion of water to vessel elements

4. In plants, the initiation of flowering in response to photoperiod is triggered by changes in (1999:36)
   a. ethylene
   b. auxin
   c. gibberellic acid
   d. phytochrome
   e. cytokinin
5. The rate of flow of water through the xylem is regulated by (1999:48)
   a. passive transport by the pith
   b. the force of transpirational pull
   c. the number of companion cells in the phloem
   d. active transport by the sieve-tube members
   e. active transport by tracheid and vessel cells

6. On a sunny day, the closing of stomata in plant leaves results in (1999:52)
   a. a decrease in CO₂ intake
   b. a shift from C₃ photosynthesis to C₄ photosynthesis
   c. an increase in transpiration
   d. an increase in the concentration of CO₂ in mesophyll cells
   e. an increase in the rate of production of starch

7. Root meristem

8. Male gametophyte

9. Triploid nutritive tissue (endosperm)

10. Seed coat

11. Apical meristem of the shoot
B. Sample Free Response Questions

1. 2005:3

Angiosperms (flowering plants) have wide distribution in the biosphere and the largest number of species in the plant kingdom.

a. **Discuss** the function of FOUR structures for reproduction found in angiosperms and the adaptive (evolutionary) significance of each.

b. Mosses (bryophytes) have not achieved the widespread terrestrial success of angiosperms. **Discuss** how the anatomy and reproductive strategies of mosses limit their distribution.

c. **Explain** alternation of generations in either angiosperms or mosses.

2. 2003B:2

Hormones play important roles in regulating the lives of many living organisms.

a. For TWO of the following physiological responses, **explain** how hormones cause the response in plants.
   - increase in height
   - adjustment to change in light
   - adjustment to lack of water

b. For TWO of the following physiological responses, **explain** how hormones cause the response in animals.
   - increase in height
   - adjustment to change in light
   - adjustment to lack of water

c. **Describe** TWO different mechanisms by which hormones cause their effects at the cellular level.
3. 2003:2

Regulatory (control) mechanisms in organisms are necessary for survival. Choose THREE of the following examples and explain how each is regulated.

- Flowering in plants
- Water balance in plants
- (Water balance in terrestrial vertebrates)
- (Body temperature in terrestrial vertebrates)