

Biology 370 - Animal Behavior
Spring 2008 - Dr. Carey - Exam 2

1. Define: (3 pts each)
 - A. umwelt
 - B. Type I orientation
 - C. free running period
 - D. zeitgeber
 - E. CREM
2. Define lateral inhibition. Describe the inhibition process that allows you to more precisely determine the frequency (pitch) of a sound. (15 pts)
3. It has been discovered that homing pigeons can sense ultraviolet light. How might that sense be used to orient a pigeon when “normal” visual cues are absent? Describe how you would set up a well-controlled experiment to determine whether pigeon actually do use UV light in orientation. (20 pts)
4. Describe the Wiltschko hypothesis as to how birds might orient using the Earth’s magnetic field as a compass. Geologic evidence indicates that Earth’s magnetic field reverses polarity periodically (e.g. magnetic north becomes south and vice versa). If birds actually do use the Wiltschko method for orientation, how would a polarity reversal affect their movements? Logically support your answer. (20 pts)
5. Make relative comparisons of a honeybee dance when finding the food sources described below. In each case the dance is done at 12 noon when the sun is due south of the hive. Be sure to discuss speed, duration, and form of the dance. (7 pts each)
 - A. a high quality food supply is found 75m due south of the hive.
 - B. a poor quality food supply is found 1000m nw of the hive.
 - C. a medium quality food supply is found 40m w of the hive.
6. A species of bird breeds in Antarctica, then spends the winter in Argentina at about 35° S. latitude. Do you think it would use stars for orientation like Sauer’s warblers or like Emlen’s buntings? Why? (9pts)