
ASSIGNMENT 1

Name: _____

Student Number: _____

Grade: _____/100

MULTIPLE CHOICE: PLACE THE LETTER OF THE MOST CORRECT ANSWER IN THE BLANK SPACE NEXT TO THE QUESTION NUMBER. (3 POINTS EACH)

- _____ 1. Bees differ from wasps in having
a. a shorter cardo
b. plumose hairs
c. two rather than one pair of wings
d. three ocelli
e. two of the above
- _____ 2. The concept of bee space refers to
a. the distance between the entrance and the first comb
b. the average distance between worker bees in the nest
c. the width of a typical worker cell
d. the average distance that should be maintained between individual hives
e. none of the above
- _____ 3. Honey bees from Africa are
a. the same race as those from Europe
b. the same species as those from Asia
c. more similar to honey bees imported to the USA than to *Apis cerana*
d. one subspecies, *Apis mellifera scutellata*
e. none of the above
- _____ 4. Before moving to a new nest site, workers in a swarm
a. cluster around the colony's drones in the swarm
b. begin secreting wax for a new comb building
c. always forage for nectar
d. perform dorso-ventral abdominal vibration dances
e. none of the above

- _____5. Propolis
- a. is secreted by glands in the worker's abdomen
 - b. is necessary for comb construction
 - c. can be metabolized from nectar
 - d. is used to cure honey
 - e. none of the above
- _____6. The hairs on bees' eyes
- a. are presumably used to help control flight
 - b. are chemosensory hairs
 - c. help the bee to gauge distance
 - d. can be shaved off with no noticeable effects
 - e. detect polarized light
- _____7. The trachea in wing veins
- a. carry only hemolymph
 - b. make up the pollen rake
 - c. carry oxygen
 - d. are primitive in honey bees
 - e. none of the above
- _____8. The nasonov glands
- a. are found between the second and third thoracic segments
 - b. work in concert with the hypopharyngeal glands to attract swarming workers
 - c. are well-developed in workers and queens but not in drones
 - d. produce a 7-component attractant
 - e. two of the above
- _____9. Bee wings hook together because
- a. wings of any insect can not beat unless linked
 - b. the hind wing is longer than the forewing
 - c. it allows transfer of hemolymph and oxygen between wings
 - d. the hooks provide a sensory link, so that the front wings can tell what the hind wings are doing
 - e. none of the above
- _____10. Ovaries are best developed in
- a. mated queens
 - b. mated workers
 - c. queens prior to mating
 - d. wokers, irregardless of mating status
 - e. laying workers

TRUE - FALSE: WRITE TRUE OR FALSE IN THE BLANK TO THE LEFT OF THE QUESTION. (3 POINTS EACH)

- ____ 1. An anaphylactic reaction to a bee sting is common.
- ____ 2. Feral nests of tropical bees are frequently found outside of cavities.
- ____ 3. Queens differ from workers in having well-developed wax glands.
- ____ 4. Pollen baskets can only carry pollen from one type of flower at a time.
- ____ 5. Colonies of tropical bees tend to store less honey than temperate evolved honey bee races.
- ____ 6. Honey bees clean their antennae by using the antenna cleaner, found on the middle pair of legs.
- ____ 7. Venom from a bee's sting is only effective against vertebrates.
- ____ 8. Mandibles are used to help construct comb.
- ____ 9. When drone bees collect pollen, they carry it back to the nest in their honey stomachs rather than on their hind legs.
- ____ 10. Bees defecate both inside and outside the hive.

LONG ANSWER: ANSWER THE FOLLOWING QUESTIONS. (10 POINTS EACH)

- 1. What are the functions of the following structures:
 - a. retinal cell
 - b. tarsal pad
 - c. air sac
 - d. midgut
 - e. worker mandibular glands
- 2. What is foundation, and how is it used in bee hives?

3. Describe how humans have used bees prior to the invention of moveable frame hives.

4. Describe at least four different specialized functions of honey bee body hairs.