

ANSWERS

**Section 1 (Multiple-Choice Questions)**

1. In which animal does the bot fly *Tracheomyia macropi* (Oestridae) develop?
  - a. Ring-tailed possum
  - b. Red kangaroo**
  - c. Wombat
  - d. Tasmanian devil
  
2. Which genus of scale insect produces cochineal, the most famous insect-produced dye?
  - a. *Porphyrophora*
  - b. *Pseudococcus*
  - c. *Dactylopius***
  - d. *Maconellicoccus*
  
3. Chan's megastick, *Phobaeticus chani*, is known for what?
  - a. Longest insect**
  - b. Largest insect
  - c. Longest lived insect
  - d. Rarest insect
  
4. Which of the following genera transmit West Nile virus?
  - a. *Culex*
  - b. *Aedes*
  - c. *Ochleotatus*
  - d. All of the above**
  
5. Although honeybees may swarm at any time of the day, during what hours of the day is swarming most likely to occur?
  - a. 6AM to 10AM
  - b. 10AM to 2PM**
  - c. 2PM to 6PM
  - d. 6PM to 10PM
  
6. Tomato spotted wilt virus is transmitted by thrips. In which stage of a thrips life cycle is this virus acquired?
  - a. Egg
  - b. Immature**
  - c. Adult
  - d. All of the above

7. *Helicoverpa zea* is a major generalist pest. On what crop was *Helicoverpa zea* first described?
  - a. Tomato
  - b. Cotton
  - c. **Corn**
  - d. Cabbage
  
8. What is the technical term for immature insects that are aquatic from the orders Plecoptera, Odonata and Ephemeroptera?
  - a. **Naiad**
  - b. Nymph
  - c. Larva
  - d. Juvenile

### Section 2 (Short Answer Questions)

1. Some male Lepidoptera possess wing scales associated with glands that produce aphrodisiac scents. What are these wing scales also known as? (**androconia**)
2. Name any two species of insects that have completely sequenced genomes. You must give the scientific names. (**note: there could be more that listed here: *Drosophila melanogaster*, *D. yakuba*, *D. willistoni*, *D. virilis*, *D. simulans*, *D. sechellia*, *D. persimilis*, *D. mojavensis*, *D. grimshawi*, *D. erecta*, *D. ananassae*, *D. pseudoobscura*, *Culex quinquefasciatus*, *Anopheles gambiae*, *Pediculus humanus corporis*, *Nasonia nitripennis*, *Tribolium castaneum*, *Apis mellifera*, *Acyrthosiphon pisum*, *Aedes aegypti***)
3. Tracheal expansions are found in the wings of many insects. These expansions are also known as air sacs.
4. In the process of light production in some insects, luciferin is converted to \_\_\_\_? (**luciferase, bonus marks for drawing the chemical structure of luciferase**)
5. Sex ratios in the butterfly *Hypolimnas bolina* have been observed to fluctuate extremely (1:100 to 1:1 male:female). What is responsible for this fluctuation? (**Wolbachia; Wolbachia induced cytoplasmic incompatibility for bonus marks**)
6. Fabricius was a student of which great entomologist? (**Linnaeus**)
7. What insect structure in the Diptera has the function of maintaining body orientation and balance? (**halteres**)
8. What is the common and scientific name of the toad imported into Australia in the 1930s for the control of sugar cane pests? (**cane toad, *Rhinella marina*, formerly *Bufo marina*, for bonus marks: Joseph Lyons (prime minister at the time who administered the release of the toad)**)

### Section 3 (True or False)

1. Polyembryony occurs when an egg develops into two or more embryos, and occurs among some parasitic wasps. **(TRUE)**
2. In ancient Egypt, when a man died his stomach was removed and replaced by a scarab. This is because scarabs symbolise eternal life. **(FALSE, the scarab replaced the heart)**
3. The first record of using predatory insects in pest control was by the Chinese. They used ants to control caterpillars and large boring beetles in trees. **(TRUE)**
4. Gama-aminobutyric acid (or GABA) is the transmitter that inhibits synapses in insects. **(TRUE)**
5. Pollen baskets of the honeybee are located on their tarsus. **(FALSE, they are located on the tibia)**
6. The order of insects which contain the fastest flyers in the insect world is the Odonata. **(FALSE, it is the Lepidoptera, Sphingidae (hawk moths) can reach 33 miles per hour)**
7. *Gambusia affinis* is the scientific name of the fish introduced in many parts of the world including Australia as a biological control agent against mosquitoes. **(TRUE)**
8. The Giant Birdwing is the largest butterfly in the world, and is endemic to Papua New Guinea. **(FALSE, it's home land is the Solomon Islands)**

### Section 4 (Short Answer Questions)

1. If an insect species is parasitic on itself, what term might you use to describe it? **(autoparasitism or adelphoparasitism)**
2. Where was Lyme disease first discovered? **(Lyme, Connecticut, USA)**
3. Name the organ which releases juvenile hormone into the hemolymph. **(corpus allatum)**
4. How many species of cicada take seventeen years to complete their life cycle? **(three)**
5. I am a unique structure that only reproductive female insects possess. What am I? **(ovipositor)**
6. Mass envenomation occurs when you get stung multiple times by multiple vespid wasps. Which organ in your body will suffer the most damage as a result of mass envenomation? **(kidney)**
7. In which movie do ants fight back and shrink a kid to ant size? **(The Ant Bully, 2006)**
8. The first sex pheromone was isolated from what insect? **(silkworm, *Bombyx mori*)**

Thank You to all participants (both eligible for the prize and observers). Please feel free to forward any comments, concerns and/or suggestions to Gurion Ang (gurion.ang@gmail.com) that will enable us to bring you more events like these.