

Chapter 1  
**INTRODUCTION TO MOSQUITOES**

Chapter Questions

1. The number of mosquito species distributed throughout the world is approximately:

- ☐ a. 5,000.
- ☐ b. 1,500.
- ☐ c. 3,500.
- ☐ d. 500.

2. Black fly larvae inhabit:

- ☐ a. Swiftly moving water.
- ☐ b. Ponds with emergent and floating vegetation.
- ☐ c. Treeholes.
- ☐ d. Coastal tidal salt marshes.

3. Mosquitoes belong to the phylum:

- ☐ a. Culicidae.
- ☐ b. Diptera.
- ☐ c. Insecta.
- ☐ d. Arthropoda.

4. An insect is probably a mosquito if it has:

- ☐ a. Long antennae, two wings and a black abdomen.
- ☐ b. A proboscis, two wings and scales on the wing veins.
- ☐ c. A proboscis, four wings and a long abdomen.
- ☐ d. Short antennae and four wings.

5. Adult crane flies are correctly called "mosquito hawks" because they eat adult mosquitoes:

- ☐ a. True.
- ☐ b. False.

6. The genus name for an organism is:

- ☐ a. Always capitalized (the first letter).
- ☐ b. Always underlined or written in italics.
- ☐ c. Sometimes abbreviated.
- ☐ d. All of the above.

7. The only single, non-paired structure projecting from the head of the adult mosquito is the:

- ☐ a. Antenna.
- ☐ b. Proboscis.
- ☐ c. Palpus.
- ☐ d. Eye.

8. Mosquitoes have existed since the age of the dinosaurs:

- ☐ a. True.
- ☐ b. False.

9. Midges belong to the family:

- ☐ a. Chironomidae.
- ☐ b. Culicidae.
- ☐ c. Tipulidae.
- ☐ d. Simuliidae.

10. Mosquito larvae are sometimes called:

- ☐ a. Squirmers.
- ☐ b. Tumblers.
- ☐ c. Wormers.
- ☐ d. Wigglers.

Chapter 2  
**MOSQUITO BIOLOGY**

Chapter Questions

1. Insects shed their exoskeleton and emerge as a larger form of the same stage or a different stage through the process of:  
  - \_\_\_ a. Sloughing.
  - \_\_\_ b. Shedding.
  - \_\_\_ c. Molting.
  - \_\_\_ d. Metamorphosis.
2. Female mosquitoes with the capacity to produce viable eggs without taking a blood meal are:  
  - \_\_\_ a. Parthenogenic.
  - \_\_\_ b. Autogenous.
  - \_\_\_ c. Lucky.
  - \_\_\_ d. Photosynthetic.
3. The genus of mosquitoes which lay their eggs in rafts on the water surface is:  
  - \_\_\_ a. *Anopheles*.
  - \_\_\_ b. *Aedes*.
  - \_\_\_ c. *Culex*.
  - \_\_\_ d. *Psorophora*.
4. Environmental conditions favoring long-term survival of adult mosquitoes include:  
  - \_\_\_ a. Heavy rainfall and strong winds.
  - \_\_\_ b. Cool temperatures and high humidity.
  - \_\_\_ c. Hot temperatures and low humidity.
  - \_\_\_ d. Short days and snowfall.
5. Male mosquitoes sometimes form aerial swarms to attract females for mating:  
  - \_\_\_ a. True.
  - \_\_\_ b. False.
6. Mosquito pupae are sometimes called:  
  - \_\_\_ a. Tumblers.
  - \_\_\_ b. Wrigglers or Wigglers.
  - \_\_\_ c. Commas.
  - \_\_\_ d. Polywogs.
7. Adult mosquitoes that are active during the daytime are called:  
  - \_\_\_ a. Normal.
  - \_\_\_ b. Crepuscular.
  - \_\_\_ c. Nocturnal.
  - \_\_\_ d. Diurnal.
8. Immature and adult mosquitoes take air into their bodies from the outside through their:  
  - \_\_\_ a. Spiracles.
  - \_\_\_ b. Ganglia.
  - \_\_\_ c. Epipharynx.
  - \_\_\_ d. Mouth.
9. Insects undergoing complete metamorphosis include:  
  - \_\_\_ a. Spiders, mites and ticks.
  - \_\_\_ b. Cockroaches and grasshoppers.
  - \_\_\_ c. Flies, beetles and butterflies.
  - \_\_\_ d. Silverfish, fire brats and millipedes.
10. Mosquito pupae have no mouth parts:  
  - \_\_\_ a. True.
  - \_\_\_ b. False.

Chapter 3  
**MOSQUITO IDENTIFICATION AND SPECIES DESCRIPTIONS**

Chapter Questions

1. Mosquito larvae with no siphons are in the genus:  
  - \_\_\_ a. *Aedes*.
  - \_\_\_ b. *Anopheles*.
  - \_\_\_ c. *Culex*.
  - \_\_\_ d. *Psorophora*.
2. A control technician identifying a problem mosquito as *Aedes sierrensis* should consider inspecting and treating which sources:  
  - \_\_\_ a. Snow-melt pools and river overflows.
  - \_\_\_ b. Saltwater and freshwater marshes.
  - \_\_\_ c. Treeholes and man-made containers.
  - \_\_\_ d. Agricultural irrigation ponds.
3. The blood meal sources of most *Culex* mosquito species include:  
  - \_\_\_ a. Large and small mammals.
  - \_\_\_ b. Cattle and humans.
  - \_\_\_ c. Birds and small mammals.
  - \_\_\_ d. None of the above.
4. *Anopheles freeborni* is commonly known as the "Western malaria mosquito":  
  - \_\_\_ a. True.
  - \_\_\_ b. False.
5. A female mosquito with a blunt abdomen, short palpi, and R and M wing veins in line is in the genus:  
  - \_\_\_ a. *Culex*.
  - \_\_\_ b. *Culiseta*.
  - \_\_\_ c. *Anopheles*.
  - \_\_\_ d. *Aedes*.
6. The number of mosquito species distributed throughout California is approximately:  
  - \_\_\_ a. 60.
  - \_\_\_ b. 55.
  - \_\_\_ c. 25.
  - \_\_\_ d. 100.
7. Which species is not recognized as a malaria vector in California:  
  - \_\_\_ a. *Anopheles franciscanus*.
  - \_\_\_ b. *Anopheles freeborni*.
  - \_\_\_ c. *Anopheles hermsi*.
  - \_\_\_ d. *Anopheles punctipennis*.
8. Saltwater marsh breeding mosquitoes in California include:  
  - \_\_\_ a. *Ae. ventrovittis* and *Ae. tahoensis*.
  - \_\_\_ b. *Ae. melanimon* and *Ae. nigromaculis*.
  - \_\_\_ c. *Ae. dorsalis* and *Ae. squamiger*.
  - \_\_\_ d. *Ae. sierrensis*.
9. Female mosquitoes with pointed abdomens are in the genera:  
  - \_\_\_ a. *Anopheles* and *Coquillettidia*.
  - \_\_\_ b. *Aedes* and *Psorophora*.
  - \_\_\_ c. *Culex* and *Culiseta*.
  - \_\_\_ d. *Uranotaenia* and *Orthopodomyia*.
10. *Culex erythrothorax* larvae are usually associated with:  
  - \_\_\_ a. Organic pollutants.
  - \_\_\_ b. Swiftly moving water.
  - \_\_\_ c. Treeholes.
  - \_\_\_ d. Tule and Cattail plants.

Chapter 4  
**MOSQUITO BREEDING PLACES**

Chapter Questions

1. Water conditions generally conducive to mosquito development include:  
  
☐ a. Standing, clean water.  
☐ b. Swiftly moving water.  
☐ c. Standing, organically polluted water.  
☐ d. Water standing for very short times.
  
2. Categories of mosquito sources include:  
  
☐ a. Residential Sources.  
☐ b. Community or Industrial Sources.  
☐ c. Agricultural Sources.  
☐ d. All of the above.
  
3. Community or industrial mosquito sources include:  
  
☐ a. Sewage plants, channels and street gutters.  
☐ b. Lakes, streams and snow-melt pools.  
☐ c. Wading pools, bird baths and fish ponds.  
☐ d. Saltwater marshes and treeholes.
  
4. Lakes, streams, snow-melt pools, treeholes and marshes are all examples of residential mosquito sources:  
  
☐ a. True.  
☐ b. False.
  
5. Water-holding depressions, sites or containers in which immature mosquitoes develop are called:  
  
☐ a. Mosquito sources.  
☐ b. Mosquito breeding sites.  
☐ c. Mosquito breeding places.  
☐ d. All of the above.

Chapter 5  
**IMPORTANCE OF MOSQUITOES**

Chapter Questions

1. Transmission of human malaria involves female mosquitoes of the genus:  
  - \_\_\_ a. *Aedes*.
  - \_\_\_ b. *Anopheles*.
  - \_\_\_ c. *Culex*.
  - \_\_\_ d. *Coquillettidia*.
2. Diligent California vector control programs should be alert for the potential introduction of:  
  - \_\_\_ a. Human filariasis.
  - \_\_\_ b. Dengue fever.
  - \_\_\_ c. Japanese encephalitis.
  - \_\_\_ d. All of the above.
3. The clinical term describing an inflammation of the brain and spinal cord is called:  
  - \_\_\_ a. Encephalitis.
  - \_\_\_ b. Encephalomyelitis.
  - \_\_\_ c. Arbovirus.
  - \_\_\_ d. Influenza.
4. The primary vector of SLE and WEE in California is:  
  - \_\_\_ a. *Culex quinquefasciatus*.
  - \_\_\_ b. *Aedes dorsalis*.
  - \_\_\_ c. *Culex tarsalis*.
  - \_\_\_ d. *Culex stigmatosoma*.
5. Malaria parasites can be transmitted mechanically through contaminated blood or needles:  
  - \_\_\_ a. True.
  - \_\_\_ b. False.
6. In a typical disease transmission cycle, the disease causing organism is known as a:  
  - \_\_\_ a. Pathogen.
  - \_\_\_ b. Vector.
  - \_\_\_ c. Host.
  - \_\_\_ d. Reservoir.
7. Which mosquito species is recognized as the principal malaria vector in southern California:  
  - \_\_\_ a. *Anopheles franciscanus*.
  - \_\_\_ b. *Anopheles freeborni*.
  - \_\_\_ c. *Anopheles hermsi*.
  - \_\_\_ d. *Anopheles punctipennis*.
8. The causative agent of dog heartworm is *Dirofilaria immitis*:  
  - \_\_\_ a. True.
  - \_\_\_ b. False.
9. The low level maintenance or transmission cycle of an arboviral disease between the vector and reservoir host is known as the:  
  - \_\_\_ a. Epizootic cycle.
  - \_\_\_ b. Epidemic cycle.
  - \_\_\_ c. enzootic cycle.
  - \_\_\_ d. Disease cycle.
10. Which of the following is an arboviral disease:  
  - \_\_\_ a. Dog heartworm.
  - \_\_\_ b. Western equine encephalomyelitis.
  - \_\_\_ c. Malaria.
  - \_\_\_ d. All of the above.

Chapter 6  
**MOSQUITO CONTROL IN CALIFORNIA**

Chapter Questions

1. Passage of the Mosquito Abatement Act, which allowed establishment of mosquito abatement districts in California, was in:  
  
\_\_\_ a. 1915.  
\_\_\_ b. 1909.  
\_\_\_ c. 1911.  
\_\_\_ d. 1945.
  
2. The earliest San Joaquin and Sacramento Valley mosquito abatement programs were aimed at:  
  
\_\_\_ a. *Anopheles* mosquitoes and malaria.  
\_\_\_ b. Salt marsh breeding *Aedes* mosquitoes.  
\_\_\_ c. *Culex* mosquitoes and sewage plants.  
\_\_\_ d. Treehole breeding *Aedes* mosquitoes.
  
3. The beginning of organized mosquito control in California is credited to:  
  
\_\_\_ a. W.B. Herms.  
\_\_\_ b. C.W. Woodworth.  
\_\_\_ c. L.O. Howard.  
\_\_\_ d. H.F. Gray.
  
4. The number of mosquito and/or vector control programs in California is approximately:  
  
\_\_\_ a. 40.  
\_\_\_ b. 100.  
\_\_\_ c. 65.  
\_\_\_ d. 25.
  
5. DDT, malathion and parathion were among the first insecticides used by California mosquito abatement programs during 1915-1925:  
  
\_\_\_ a. True.  
\_\_\_ b. False.

Chapter 7  
**BASIC CONCEPTS AND PRINCIPALS OF MOSQUITO CONTROL**

Chapter Questions

1. The active ingredient in commercially available insect repellents is Deet:  
  
☐ a. True.  
☐ b. False.
2. A method of reducing the risk of developing insecticide resistance in target mosquito populations is to:  
  
☐ a. Rotate use of different pesticide classes.  
☐ b. Apply larger pesticide dosages.  
☐ c. Apply smaller pesticide doses more often.  
☐ d. Treat the source more often.
3. Another term for Physical Control is:  
  
☐ a. Environmental manipulation.  
☐ b. Regulatory mechanisms.  
☐ c. Civic responsibilities.  
☐ d. Integrated management.
4. Biotic factors affecting mosquito populations include:  
  
☐ a. Predators.  
☐ b. Parasites.  
☐ c. Pathogens.  
☐ d. All of the above.
5. The scientifically planned control of mosquito populations through the timely use of a variety of control strategies and methods is called:  
  
☐ a. Biological mosquito control.  
☐ b. Chemical mosquito control.  
☐ c. Physical mosquito control.  
☐ d. Integrated mosquito control.
6. Biorational larvicides include:  
  
☐ a. Organophosphates and organochlorines.  
☐ b. Microbials and I.G.R.'s.  
☐ c. Pyrethrums and pyrethrins.  
☐ d. Botanicals and inorganics.
7. An essential element for successful adulticiding operations is the presence of:  
  
☐ a. Hot temperatures.  
☐ b. A slight wind of 12 mph or more.  
☐ c. A thermal inversion layer.  
☐ d. All of the above.
8. The term IPM stands for:  
  
☐ a. Integrated Pest Management.  
☐ b. Insect Population Monitoring.  
☐ c. Insecticides, Pesticides and Mosquitocides.  
☐ d. International Pesticide Machinery.
9. Natural regulatory mechanisms of mosquito populations include:  
  
☐ a. Biological and physical control.  
☐ b. Exclusionary methods and civic responsibilities.  
☐ c. Biological and physical limiting factors.  
☐ d. None of the above.
10. Most California vector control agencies rely on adulticiding for their primary method of mosquito control:  
  
☐ a. True.  
☐ b. False.

Chapter 8  
**BIOLOGICAL CONTROL OF MOSQUITOES**

Chapter Questions

1. *Romanomermis culicivorax* and *Laeginidium giganteum* are examples of mosquito:  
  
\_\_\_ a. Pathogens.  
\_\_\_ b. Parasites.  
\_\_\_ c. Predators.  
\_\_\_ d. Species.
2. The average female mosquitofish produces how many broods of live young throughout her life:  
  
\_\_\_ a. 3-4.  
\_\_\_ b. 6-8.  
\_\_\_ c. 10-12.  
\_\_\_ d. 15-18.
3. The general order of the biotic colonization of a new mosquito source is:  
  
\_\_\_ a. Competitors, mosquitoes and predators.  
\_\_\_ b. Predators, competitors and mosquitoes.  
\_\_\_ c. Mosquitoes, predators and competitors.  
\_\_\_ d. None of the above.
4. The most recent attempts at genetic control of mosquitoes in California have focused on:  
  
\_\_\_ a. Releases of sterile males.  
\_\_\_ b. Releases of altered-gene males.  
\_\_\_ c. Releases of surgically altered females.  
\_\_\_ d. All of the above.
5. Mosquitofish and guppies are both members of the family Poeciliidae:  
  
\_\_\_ a. True.  
\_\_\_ b. False.
6. The mosquitofish, *Gambusia affinis*, is native to California:  
  
\_\_\_ a. True.  
\_\_\_ b. False.
7. Conservation of natural enemies includes:  
  
\_\_\_ a. Removing weeds and debris from ditches.  
\_\_\_ b. Selectively applying insecticides only to areas needing control.  
\_\_\_ c. Ditching a salt marsh for greater tidal flow.  
\_\_\_ d. Stocking a rice field with *Gambusia*.
8. Mosquito pathogens and parasites show a greater host specificity than mosquito predators:  
  
\_\_\_ a. True.  
\_\_\_ b. False.
9. Predator and prey populations often experience an interactive cycling relationship before approaching a point of:  
  
\_\_\_ a. Equilibrium.  
\_\_\_ b. Extinction.  
\_\_\_ c. Explosion.  
\_\_\_ d. No return.
10. Some factors which prevent or hinder mosquitofish reproduction are:  
  
\_\_\_ a. Brackish and alkaline waters.  
\_\_\_ b. Organic pollutants and mosquito larvicide.  
\_\_\_ c. Water less than 65°F and less than 14 hrs of daylight.  
\_\_\_ d. Dense growths of aquatic weeds and the shade they produce.



Chapter 9  
**PHYSICAL CONTROL OF MOSQUITOES**

Chapter Questions

1. The primary mosquito problems of agricultural areas result from:  
  - ☐ a. Sources created by overflowing streams.
  - ☐ b. Sources associated with crop irrigation.
  - ☐ c. Ponding of rainfall.
  - ☐ d. Residential sources around farm buildings.
2. Sewage lagoons with minimal organic content, constant agitation, steep banks and no emergent vegetation probably will not breed mosquitoes.  
  - ☐ a. True.
  - ☐ b. False.
3. Physical control of mosquitoes in large lakes may be enhanced by:  
  - ☐ a. Creating numerous small islands.
  - ☐ b. Keeping shoreline depths shallow.
  - ☐ c. Removing emergent vegetation.
  - ☐ d. All of the above.
4. The objectives of good physical control practices for mosquito control are to:  
  - ☐ a. Prevent accumulation of water.
  - ☐ b. Prevent homeowner misuse of water.
  - ☐ c. Provide natural predators in salt marshes.
  - ☐ d. Use the least amount of insecticides.
5. The system of physical control most favored for mosquito control in coastal salt marshes where it can be used is:  
  - ☐ a. Drainage.
  - ☐ b. Filling.
  - ☐ c. Circulation of tidewater.
  - ☐ d. Impoundment of water.
6. Daily circulation of tidal water in salt marshes enhances the effectiveness of:  
  - ☐ a. Native salt water minnows.
  - ☐ b. Dragonfly larvae.
  - ☐ c. Water beetles.
  - ☐ d. Backswimmers.
7. Land-owners are legally responsible for the control of man-made and natural mosquito sources on their land.  
  - ☐ a. True.
  - ☐ b. False.
8. Good physical control practices for mosquito control around residential areas include:  
  - ☐ a. Overturning all water holding containers.
  - ☐ b. Cleaning gutters, bird baths and fountains.
  - ☐ c. Filling all treeholes with sand or cement.
  - ☐ d. All of the above.
9. A good agricultural practice contributing to physical control of mosquitoes in ricefields is:  
  - ☐ a. Circulation of tidewater.
  - ☐ b. Stocking with mosquitofish.
  - ☐ c. Good water-tight and weed-free levees.
  - ☐ d. Drainage to prevent standing water of more than 3 days in duration.
10. Most California mosquito control agencies actively participate in large scale physical control programs such as dredging, ditching, filling, draining and diking of mosquito sources:  
  - ☐ a. True.
  - ☐ b. False.

Chapter 10  
**CHEMICAL CONTROL OF MOSQUITOES**

Chapter Questions

1. Possible advantages of chemically controlling mosquitoes include:
  - ☐ a. The need for repeated dosages over time.
  - ☐ b. Rapid control of mosquito populations.
  - ☐ c. Development of insecticide resistance.
  - ☐ d. No adverse environmental hazards.
2. Insecticides ready to use as supplied by the manufacturer without further dilution or mixing include:
  - ☐ a. Granules.
  - ☐ b. Emulsions.
  - ☐ c. Solutions.
  - ☐ d. Wettable powders.
3. The movement of insecticides to non-target areas is known as:
  - ☐ a. Insecticide application.
  - ☐ b. Spraying.
  - ☐ c. Drift.
  - ☐ d. Overspray.
4. Although biochemical insecticides are relatively expensive, their high cost are offset by their safety in use and low dosage rates:
  - ☐ a. True.
  - ☐ b. False.
5. Examples of biorational insecticides include:
  - ☐ a. Diflubenzuron.
  - ☐ b. Methoprene.
  - ☐ c. *Bacillus thuringiensis* var. *israelensis*.
  - ☐ d. All of the above.
6. Petroleum oils not only kill mosquito larvae through suffocation, but also by:
  - ☐ a. Action of toxic hydrocarbons in the oils.
  - ☐ b. Wetting larval hairs causing drowning.
  - ☐ c. Clogging mouth brushes to block feeding.
  - ☐ d. Synaptic nerve toxins.
7. When comparing insecticides, the one with the lower LD<sub>50</sub> or LC<sub>50</sub> value generally will have the lower toxicity:
  - ☐ a. True.
  - ☐ b. False.
8. Insecticide resistance is defined as:
  - ☐ a. Ability to withstand desiccation.
  - ☐ b. Inability to undergo normal development.
  - ☐ c. Ability to withstand poisons lethal to earlier populations.
  - ☐ d. Ability to exhibit great variability.
9. Pyrethrums and pyrethrins are:
  - ☐ a. Non-selective and very costly to use.
  - ☐ b. Derived from botanical origins.
  - ☐ c. Quick acting and somewhat residual.
  - ☐ d. All of the above.
10. A fumigant sometimes used to control adult mosquitoes in enclosed areas is:
  - ☐ a. Fenthion.
  - ☐ b. Dichlorvos.
  - ☐ c. Propoxur.
  - ☐ d. Piperonyl butoxide.

Chapter 11  
**PUBLIC RELATIONS IN MOSQUITO CONTROL**

Chapter Questions

1. The ultimate goal of a mosquito control public relations program is:  
  
  - ☐ a. Creating public awareness of your work.
  - ☐ b. Providing information people want.
  - ☐ c. Changing people's behavior.
  - ☐ d. Changing people's attitudes and opinions.
  
2. Controlled media channels include:  
  
  - ☐ a. Fair exhibits.
  - ☐ b. Civic group presentations.
  - ☐ c. Class instruction.
  - ☐ d. All of the above.
  
3. Examples of mass media attempts at mosquito control public relations include:  
  
  - ☐ a. Service requests and telephone calls.
  - ☐ b. Television, radio, newspaper and exhibits.
  - ☐ c. Presentations, tours and school visits.
  - ☐ d. None of the above.
  
4. Uncontrolled media channels offer the sender little or no control over the message being received by the public:  
  
  - ☐ a. True.
  - ☐ b. False.
  
5. To the public, the actions and attitudes of the control technician directly reflect the actions and attitude of the District:  
  
  - ☐ a. True.
  - ☐ b. False.

Chapter 12  
**MOSQUITO SURVEILLANCE AND SAMPLING METHODS**

Chapter Questions

1. In the California Plane-Coordinate Mapping System, the first section occurs in which corner of each township:  
  
☐ a. Northeast.  
☐ b. Northwest.  
☐ c. Southeast.  
☐ d. Southwest.
2. The best method of sampling mosquito larvae in a series of small groundwater pools is to average the number of larvae in 10 dips:  
  
☐ a. From the largest and smallest pools.  
☐ b. From a random course through each pool.  
☐ c. From the sunniest pools.  
☐ d. None of the above.
3. Mosquitoes that are positively phototactic:  
  
☐ a. Are repelled by lights.  
☐ b. Like to fly towards the sun.  
☐ c. Are highly attracted to lights.  
☐ d. Land on surfaces head upwards.
4. *Culex pipiens* and *Culex quinquefasciatus* are the principal targets of most mosquito surveillance programs in California:  
  
☐ a. True.  
☐ b. False.
5. Mosquitoes are attracted to dry ice-baited CDC traps by:  
  
☐ a. Whirling noise of the fan blades.  
☐ b. Carbon dioxide given off by the dry ice.  
☐ c. Other mosquitoes already collected.  
☐ d. All of the above.
6. Ovitrap are most effective for monitoring populations of which California mosquito:  
  
☐ a. *Aedes sierrensis*.  
☐ b. *Aedes vexans*.  
☐ c. *Anopheles freeborni*.  
☐ d. *Aedes melanimon*.
7. Well designed and implemented mosquito surveillance programs provide information on:  
  
☐ a. Seasonal and geographic changes in mosquito populations.  
☐ b. Evaluating control activities.  
☐ c. Least and greatest disease risk periods.  
☐ d. All of the above.
8. The best method for monitoring *Cx. quinquefasciatus* populations from urban neighborhoods in southern California is to use:  
  
☐ a. New Jersey light traps.  
☐ b. CDC-type CO<sub>2</sub>-baited traps.  
☐ c. Gravid traps.  
☐ d. Tent traps.
9. Non-selective methods of sampling adult mosquitoes are not widely used because:  
  
☐ a. They are often labor intensive.  
☐ b. They are often materials intensive.  
☐ c. They are often more difficult to use.  
☐ d. All of the above.
10. The most universally accepted method of sampling mosquito larvae is the one-pint dipper:  
  
☐ a. True.  
☐ b. False.

Chapter 13  
**RESPONSIBILITIES OF THE CONTROL TECHNICIAN**

Chapter Questions

1. The most important element of a technician's responsibilities is:  
  
  - ☐ a. Looking good for the public.
  - ☐ b. Following safe practices and procedures.
  - ☐ c. Controlling all breeding in their area.
  - ☐ d. Changing people's attitudes and opinions.
  
2. Certified vector control technicians are required to obtain a specified number of continuing education hours every two years through:  
  
  - ☐ a. Reading magazine articles and books.
  - ☐ b. Watching videos and movies.
  - ☐ c. Attending approved instruction seminars.
  - ☐ d. Passing their performance evaluations.
  
3. As the field agent of a mosquito abatement district, the certified technician should:  
  
  - ☐ a. Know when to call for help.
  - ☐ b. Know how to apply pesticides safely.
  - ☐ c. Know all District policies.
  - ☐ d. All of the above.
  
4. The most basic abilities needed by a technician are to be able to listen and follow directions:  
  
  - ☐ a. True.
  - ☐ b. False.
  
5. Upon passing a certification examination, California vector control technicians are awarded a license by the:  
  
  - ☐ a. State Department of Pesticide Regulations.
  - ☐ b. State Department of Agriculture.
  - ☐ c. State Department of Health Services.
  - ☐ d. State Department of Consumer Affairs.

Chapter 14  
**SAFE AND LEGAL OPERATION OF MOSQUITO CONTROL PROGRAMS**

Chapter Questions

1. Government organizations routinely performing mosquito control in California include:  
  
☐ a. Mosquito and vector control districts.  
☐ b. Pest abatement districts.  
☐ c. County or city health departments.  
☐ d. All of the above.
2. Most of the pesticide accidents reported in California occur among workers who are:  
  
☐ a. Mixing or loading pesticides.  
☐ b. Transporting pesticides.  
☐ c. Applying pesticides.  
☐ d. Cleaning pesticide equipment.
3. Unwanted movement of pesticides in the environment include all of the following except:  
  
☐ a. Drift in the air.  
☐ b. Leaching into the soil.  
☐ c. Runoff on the soil surface.  
☐ d. Transport by humans.
4. On the federal level, the comprehensive law regulating pesticide manufacturing, sales and use is the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA):  
  
☐ a. True.  
☐ b. False.
5. Employers are required to provide training to all employees applying pesticides in:  
  
☐ a. Categories I and II.  
☐ b. Category III.  
☐ c. Category IV.  
☐ d. All categories.
6. All information produced by a manufacturer concerning a particular pesticide is the:  
  
☐ a. Truth.  
☐ b. Label.  
☐ c. Labelling.  
☐ d. None of the above.
7. Regulatory agencies having control or affect over some aspect of the operations of California mosquito control districts include:  
  
☐ a. State Department of Health Services.  
☐ b. State Department of Pesticide Regulation.  
☐ c. State Highway Patrol.  
☐ d. All of the above.
8. The best method to avoid harming commercial beekeeping operations is to:  
  
☐ a. Use approved insecticides.  
☐ b. Spray during cool evenings and mornings.  
☐ c. Contact the local Agricultural Department.  
☐ d. None of the above.
9. Illnesses (e.g., headache or nausea) noticeable only by the person who has been poisoned are:  
  
☐ a. Symptoms.  
☐ b. Signs.  
☐ c. Reactions.  
☐ d. All of the above.
10. The federal Endangered Species Act (ESA) was passed in 1973:  
  
☐ a. True.  
☐ b. False.

## PRACTICE EXAMINATION #1

1. The ability of some female mosquitoes to develop and lay eggs without taking a blood meal is known as:

☐ a. Autogeny.  
☐ b. Self-propagation.  
☐ c. Metamorphosis.  
☐ d. Species differentiation.

2. The California Plane-Coordinate Mapping System divides each section into 36 townships:

☐ a. True.  
☐ b. False.

3. Biorational pesticides currently licensed for use in California include:

☐ a. Propoxur and carbaryl.  
☐ b. Fenthion and malathion.  
☐ c. *Bti* and methoprene.  
☐ d. DDT, chlordane and lindane.

4. The comprehensive federal law regulating pesticide manufacturing, sales and use is:

☐ a. FIFRA.  
☐ b. ESA.  
☐ c. OSHA.  
☐ d. Health and Safety Code.

5. Midge larvae differ from mosquito larvae by:

☐ a. Living on or in aquatic substrates.  
☐ b. Possessing prolegs on some segments.  
☐ c. Lacking an air siphon.  
☐ d. All of the above.

6. Eggs of *Anopheles* mosquitoes:

☐ a. Are laid singularly in or on soil.  
☐ b. Are laid in rafts on water surfaces.  
☐ c. Have "floats" along the sides.  
☐ d. Are able to undergo prolonged drying.

7. Ditching, diking, impounding or draining mosquito production sources are examples of:

☐ a. Cultural mosquito control.  
☐ b. Mechanical mosquito control.  
☐ c. Biological mosquito control.  
☐ d. Physical mosquito control.

8. Examples of mosquito-borne viruses in California include all of the following except:

☐ a. St. Louis encephalitis.  
☐ b. Western equine encephalomyelitis.  
☐ c. Dengue hemorrhagic fever.  
☐ d. California encephalitis.

9. A mosquito species which can be found breeding in coastal salt marshes as well as inland saline marshes is:

☐ a. *Aedes dorsalis*.  
☐ b. *Aedes melanimon*.  
☐ c. *Aedes squamiger*.  
☐ d. *Aedes sierrensis*.

10. Examples of predators of the aquatic stages of mosquitoes include:

☐ a. Adult dragonflies.  
☐ b. Dragonfly naiads/nymphs.  
☐ c. Mayfly nymphs.  
☐ d. Birds and bats.

**PRACTICE EXAMINATION #1**  
(continued)

11. The most widely used biological mosquito control agent in California is:
- \_\_\_ a. *Tilapia zilli*.
  - \_\_\_ b. *Lagenidium giganteum*.
  - \_\_\_ c. *Bacillus thuringiensis* var. *israelensis*.
  - \_\_\_ d. *Gambusia affinis*.
12. Examples of insecticides which could be used against late fourth instar larvae and pupae include:
- \_\_\_ a. Ingestants.
  - \_\_\_ b. Systemics.
  - \_\_\_ c. Contacts.
  - \_\_\_ d. Sterilants.
13. An insect growth regulator used in California is:
- \_\_\_ a. Malathion.
  - \_\_\_ b. Methoprene.
  - \_\_\_ c. *Lagenidium giganteum*.
  - \_\_\_ d. Golden Bear Oil.
14. Mechanical agitation is needed in equipment used for applying:
- \_\_\_ a. Soluble powders.
  - \_\_\_ b. Fumigants.
  - \_\_\_ c. Granules.
  - \_\_\_ d. Wettable powders.
15. The most important vector of encephalitis virus in California is:
- \_\_\_ a. *Culex tarsalis*.
  - \_\_\_ b. *Aedes melanimon*.
  - \_\_\_ c. *Anopheles freeborni*.
  - \_\_\_ d. *Culex quinquefasciatus*.
16. A mosquito control technician investigating complaints homeowners being bitten during the middle of the day might expect to find mosquitoes of the genus:
- \_\_\_ a. *Aedes*.
  - \_\_\_ b. *Anopheles*.
  - \_\_\_ c. *Culex*.
  - \_\_\_ d. *Culiseta*.
17. Employers are required to provide emergency medical supervision to all employees using pesticides in:
- \_\_\_ a. Categories I and II.
  - \_\_\_ b. Category III.
  - \_\_\_ c. Category IV.
  - \_\_\_ d. All categories.
18. U.L.V. non-thermal aerosol generators generally do all of the following except:
- \_\_\_ a. Produce 5-30 micron sized droplets.
  - \_\_\_ b. Apply insecticides at a rate of ounces/acre.
  - \_\_\_ c. Use hot coils to breakdown the insecticide.
  - \_\_\_ d. Rely on fairly precise weather conditions.
19. Adult mosquitoes can be separated from adult midges by all of the following except:
- \_\_\_ a. The presence of scales on the wing veins.
  - \_\_\_ b. The presence of two wings.
  - \_\_\_ c. A proboscis longer than the head.
  - \_\_\_ d. Wings as long as the abdomen.
20. A synergist often added to pyrethroids is:
- \_\_\_ a. Propoxur.
  - \_\_\_ b. Methoprene.
  - \_\_\_ c. Golden Bear Oil.
  - \_\_\_ d. Piperonyl butoxide.



## PRACTICE EXAMINATION #1

(continued)

21. To take a blood meal, female mosquitoes insert into the host six stylets, which are parts of:
- \_\_\_ a. The stinger.
  - \_\_\_ b. The proboscis.
  - \_\_\_ c. The ovipositor.
  - \_\_\_ d. The malpighian tubules.
22. Passage of the Mosquito Abatement Act was in:
- \_\_\_ a. 1904.
  - \_\_\_ b. 1911.
  - \_\_\_ c. 1915.
  - \_\_\_ d. 1945.
23. *Aedes* mosquitoes overwinter as:
- \_\_\_ a. Adult males.
  - \_\_\_ b. Adult females.
  - \_\_\_ c. Fourth instar larvae.
  - \_\_\_ d. Eggs laid on the soil or vegetation.
24. One limitation to the use of chemical control on mosquitoes is:
- \_\_\_ a. The need for repeated applications.
  - \_\_\_ b. It is environmentally safe.
  - \_\_\_ c. It is rapid and effective.
  - \_\_\_ d. It is relatively inexpensive.
25. The use of chemical, physical or biological control methods along with augmenting natural controls to control mosquitoes is called:
- \_\_\_ a. Comprehensive mosquito control.
  - \_\_\_ b. Coordinated mosquito control.
  - \_\_\_ c. Integrated mosquito management.
  - \_\_\_ d. All of the above.
26. An organophosphate used as a fumigant to control mosquitoes in enclosed areas is:
- \_\_\_ a. Propoxur.
  - \_\_\_ b. Fenthion.
  - \_\_\_ c. Dichlorvos.
  - \_\_\_ d. Carbaryl.
27. Television public service announcements, newspaper articles and radio spots are:
- \_\_\_ a. Uncontrolled media channels.
  - \_\_\_ b. Controlled media channels.
  - \_\_\_ c. Group contacts.
  - \_\_\_ d. Person-to-person contacts.
28. *Aedes squamiger*, *Ae. taeniorhynchus* and *Ae. dorsalis* breed in salt marshes:
- \_\_\_ a. True.
  - \_\_\_ b. False.
29. Golden Bear Larviciding Oil generally is applied at a rate of:
- \_\_\_ a. 1-3 gallons/acre.
  - \_\_\_ b. 5-10 gallons/acre.
  - \_\_\_ c. 10-20 gallons/acre.
  - \_\_\_ d. 20-30 gallons/acre.
30. Factors affecting the control effectiveness of mosquitofish are:
- \_\_\_ a. Brackish and alkaline waters.
  - \_\_\_ b. Water <65°F and <14 hrs of daylight.
  - \_\_\_ c. Dense aquatic weeds and predators.
  - \_\_\_ d. Organic pollutants and larvicides.

**PRACTICE EXAMINATION #1**  
(continued)

31. Insects which have four distinct life stages undergo what type of development:

- ☐ a. Gradual development.
- ☐ b. Incomplete metamorphosis.
- ☐ c. Arthropod development.
- ☐ d. Complete metamorphosis.

32. The abatement of mosquitoes in natural sources:

- ☐ a. Is the legal responsibility of the landowner.
- ☐ b. Is the responsibility of the mosquito abatement district.
- ☐ c. Has not been assigned as responsibility.
- ☐ d. Is forbidden.

33. A trap collection of mostly male mosquitoes of a single species can be interpreted as all of the following except:

- ☐ a. The source is close to the trap.
- ☐ b. The males have emerged from a close source and females are soon to follow.
- ☐ c. The trap did not operate properly.
- ☐ d. The trap may attract males of that species more than females of that species.

34. The principal method of mosquito control used by California mosquito abatement agencies is:

- ☐ a. Adulticiding.
- ☐ b. Larviciding.
- ☐ c. Public relations.
- ☐ d. Biological control.

35. Mosquito larvae:

- ☐ a. Crawl onto land to pupate.
- ☐ b. Scrape food off substrates with antennae.
- ☐ c. Tumble through water head over tail.
- ☐ d. Avoid detection by diving to the bottom.

36. The term which best describes a long-term continuing look or examination into situations or conditions expected to change over time is:

- ☐ a. Surveillance.
- ☐ b. Study.
- ☐ c. Polling.
- ☐ d. None of the above.

37. A mosquito larva with a single hair tuft at the basal end of the air siphon is in the genus:

- ☐ a. *Culiseta*.
- ☐ b. *Aedes*.
- ☐ c. *Anopheles*.
- ☐ d. *Culex*.

38. The build up of insecticide in the fatty tissues of vertebrates is known as:

- ☐ a. Lipid augmentation.
- ☐ b. Bioaccumulation.
- ☐ c. Physiological resistance.
- ☐ d. Pesticide tolerance.

39. The major vectors of malaria in California are:

- ☐ a. *An. freeborni* and *An. hermsi*.
- ☐ b. *Cx. tarsalis* and *Cx. quinquefasciatus*.
- ☐ c. *An. occidentalis* and *An. franciscanus*.
- ☐ d. *Cs. inornata* and *Cs. incidens*.

40. An example of a mosquito parasite is:

- ☐ a. Predaceous diving beetle larva.
- ☐ b. *Romanomermis culicivorax*.
- ☐ c. *Bacillus thuringiensis* var. *israelensis*.
- ☐ d. *Gambusia affinis*.

**PRACTICE EXAMINATION #1**  
(continued)

41. Oviposition buckets can use all of the following as attractants except:

- ☐ a. Infusions of a hay-yeast mixture.
- ☐ b. Infusions of decaying leaves.
- ☐ c. Infusions of processed steer manure.
- ☐ d. Carbon dioxide.

42. Fresh and salt water marshes, lakes, streams, snow-melt pools, treeholes and rain pools are considered:

- ☐ a. Residential mosquito sources.
- ☐ b. Industrial mosquito sources.
- ☐ c. Agricultural mosquito sources.
- ☐ d. Natural mosquito sources.

43. Which statement about St. Louis encephalitis is not true:

- ☐ a. It is a zoonoses of birds and mosquitoes.
- ☐ b. It involves inflammation of brain tissues.
- ☐ c. It has a secondary cycle involving *Ae. melanimon* and wild rabbits.
- ☐ d. It is vectored by *Culex* mosquitoes.

44. Mosquitoes, midges, crane flies and black flies belong to the order:

- ☐ a. Diptera.
- ☐ b. Orthoptera.
- ☐ c. Trichoptera.
- ☐ d. Flyoptera.

45. Female mosquitofish:

- ☐ a. Are native to California.
- ☐ b. Average 1.0-1.5 inches in size.
- ☐ c. Produce 3-4 broods of live young.
- ☐ d. All of the above.

46. A female mosquito with long palpi and a blunt abdomen is in the genus:

- ☐ a. *Aedes*.
- ☐ b. *Psorophora*.
- ☐ c. *Anopheles*.
- ☐ d. *Culex*.

47. Physical mosquito control practices around the farm may include:

- ☐ a. Creating circulation ditches into marshes.
- ☐ b. Mending torn window screens.
- ☐ c. Replacing bottom drain roadside catch basins with side drain basins.
- ☐ d. Good water-tight and weed-free levees.

48. When comparing two insecticides, the one with the higher LD<sub>50</sub> or LC<sub>50</sub> value will generally have the lower toxicity:

- ☐ a. True.
- ☐ b. False.

49. Symptoms of pesticide poisoning may include:

- ☐ a. Nausea and headache.
- ☐ b. Sweating and vomiting.
- ☐ c. Flushed or pale skin color.
- ☐ d. Disorientation and staggering.

50. Mosquito larvae take air into their bodies through their:

- ☐ a. Siphon.
- ☐ b. Gills.
- ☐ c. Anal papillae.
- ☐ d. Mouth.

**STOP !!!**  
**END OF PRACTICE EXAMINATION #1**

## PRACTICE EXAMINATION #2

1. New Jersey light traps sample adult mosquitoes through the attractancy of:
  - \_\_\_ a. Carbon dioxide.
  - \_\_\_ b. A 25W light bulb.
  - \_\_\_ c. The whirling fan blades.
  - \_\_\_ d. The coloration pattern of the trap.
2. DDT and most other organochlorine insecticides were outlawed because of their tendency to:
  - \_\_\_ a. Bioaccumulate.
  - \_\_\_ b. Accidentally poison humans.
  - \_\_\_ c. Kill insects quickly.
  - \_\_\_ d. Breakdown in the environment quickly.
3. Female *Culex* mosquitoes generally blood feed at:
  - \_\_\_ a. Dawn and dusk.
  - \_\_\_ b. Day.
  - \_\_\_ c. Night.
  - \_\_\_ d. No preferred time.
4. An increased sensitivity of the body to a foreign substance, such as an antigen, is called:
  - \_\_\_ a. Hypersensitivity.
  - \_\_\_ b. Irritation.
  - \_\_\_ c. Autosensitivity.
  - \_\_\_ d. Desensitivity.
5. Sewage disposal ponds, roadside ditches, curb catch basins, underground storm channels and rainwater retention or detention basins are examples of:
  - \_\_\_ a. Residential mosquito sources.
  - \_\_\_ b. Industrial or community mosquito sources.
  - \_\_\_ c. Agricultural mosquito sources.
  - \_\_\_ d. Natural mosquito sources.
6. Fossil records show that mosquitoes and humans evolved on earth at approximately the same period:
  - \_\_\_ a. True.
  - \_\_\_ b. False.
7. The very first attempts at organized mosquito control in California were aimed at:
  - \_\_\_ a. Rice field *Anopheles* in the Central Valley.
  - \_\_\_ b. Snow-melt *Aedes* in the Sierras.
  - \_\_\_ c. Salt marsh *Aedes* in San Francisco Bay.
  - \_\_\_ d. Urban *Culex* in the Los Angeles basin.
8. The first thing a pesticide applicator should do each time they handle a pesticide is:
  - \_\_\_ a. Extinguish all smoking materials.
  - \_\_\_ b. Read the label.
  - \_\_\_ c. Know the application rate.
  - \_\_\_ d. Inform a supervisor.
9. "Ideal" biological control agents for mosquitoes would:
  - \_\_\_ a. Feed "preferentially" on mosquitoes.
  - \_\_\_ b. Be efficient hunters of mosquitoes.
  - \_\_\_ c. Reproduce quickly when prey increases.
  - \_\_\_ d. All of the above.
10. Which statement about western equine encephalomyelitis is false:
  - \_\_\_ a. It is a zoonoses of birds and mosquitoes.
  - \_\_\_ b. The virus overwinters in *Culex* eggs.
  - \_\_\_ c. The dead end hosts are humans and horses.
  - \_\_\_ d. It is vectored mainly by *Culex* mosquitoes.

**PRACTICE EXAMINATION #2**  
(continued)

11. Female black flies differ from female mosquitoes by all of the following except:

- \_\_\_ a. Having slashing-lapping mouth parts.
- \_\_\_ b. Utilizing blood meals for egg production.
- \_\_\_ c. Possessing short antennae.
- \_\_\_ d. Having two, large, clear wings.

12. A mosquito larva with multiple hair tufts on a long siphon is in the genus:

- \_\_\_ a. *Anopheles*.
- \_\_\_ b. *Aedes*.
- \_\_\_ c. *Culex*.
- \_\_\_ d. *Psorophora*.

13. In a salt marsh where open circulation of tidewater is impractical, one acceptable physical mosquito control method is:

- \_\_\_ a. Creating pond areas for predator survival.
- \_\_\_ b. Filling in the marsh with landfill.
- \_\_\_ c. Regular treatment with altosid.
- \_\_\_ d. Permanently draining the marsh.

14. Sometimes electronic "bug zappers" actually increase the number of mosquitoes attracted to a backyard site without actually killing them:

- \_\_\_ a. True.
- \_\_\_ b. False.

15. Crane flies belong to the family:

- \_\_\_ a. Culicidae.
- \_\_\_ b. Tipulidae.
- \_\_\_ c. Simuliidae.
- \_\_\_ d. Chironomidae.

16. Male mosquitofish can be distinguished from female mosquitofish by:

- \_\_\_ a. Body coloration.
- \_\_\_ b. Shape and size of anal fin.
- \_\_\_ c. Number of fins.
- \_\_\_ d. Mouth parts.

17. Service requests, telephone calls and letters offer control technicians opportunities for:

- \_\_\_ a. Job advancements.
- \_\_\_ b. Group contacts.
- \_\_\_ c. Person-to-person contacts.
- \_\_\_ d. Mass media activities.

18. The causative agent of malaria is a:

- \_\_\_ a. Rickettsia.
- \_\_\_ b. Protozoan.
- \_\_\_ c. Bacteria.
- \_\_\_ d. Virus.

19. The ability of an insect to avoid lethal contact with a pesticide through protective habits or behavior is known as:

- \_\_\_ a. Behavioristic resistance.
- \_\_\_ b. Avoidance resistance.
- \_\_\_ c. Physiological resistance.
- \_\_\_ d. Superior genetics.

20. Mosquito eggs which are deposited onto soil or debris and are capable of remaining dormant for long periods are of the genus:

- \_\_\_ a. *Culiseta*.
- \_\_\_ b. *Culex*.
- \_\_\_ c. *Aedes*.
- \_\_\_ d. *Anopheles*.

**PRACTICE EXAMINATION #2**  
(continued)

21. In the California Plane-Coordinate Mapping System, each section equals:

- ☐ a. 1/36 of a township.
- ☐ b. 27,878,400 square feet.
- ☐ c. 640 acres.
- ☐ d. All of the above.

22. The most widely distributed mosquito in California is:

- ☐ a. *Psorophora columbiae*.
- ☐ b. *Anopheles hermsi*.
- ☐ c. *Culex tarsalis*.
- ☐ d. *Aedes vexans*.

23. Pesticide applicators should always apply pesticides:

- ☐ a. In a manner to minimize non-target drift.
- ☐ b. In manner to minimize applicator hazard.
- ☐ c. As a last resort.
- ☐ d. All of the above.

24. Organisms with hardened exoskeletons; paired, jointed appendages; and metamorphic development are:

- ☐ a. Mammals.
- ☐ b. Invertebrates.
- ☐ c. Arthropods.
- ☐ d. Nematodes.

25. California certified vector control technicians are required to obtain a minimum number of continuing education units:

- ☐ a. Every year.
- ☐ b. Every two years.
- ☐ c. Every three years.
- ☐ d. Every five years.

26. All of the following information must be on a pesticide label except:

- ☐ a. Trade and common name of the product.
- ☐ b. Establishment and registration numbers.
- ☐ c. Manufacturer's telephone number.
- ☐ d. Ingredient statement.

27. The mosquito species with larval and pupal respiratory structures specifically modified to extract air from the stems of aquatic plants is:

- ☐ a. *Psorophora signipennis*.
- ☐ b. *Orthopodomyia signifera*.
- ☐ c. *Coquillettidia perturbans*.
- ☐ d. *Uranotaenia anhydor*.

28. Open areas of large bodies of water, such as lakes, rarely produce mosquitoes because:

- ☐ a. Wind action deters oviposition and reduces larval survival.
- ☐ b. Human boating activities occur there.
- ☐ c. It is too far from shoreline for spraying.
- ☐ d. None of the above.

29. The transmission cycle of malaria differs from the transmission cycle of arboviruses:

- ☐ a. Because it is not a zoonotic disease.
- ☐ b. Because there is a required sexual development cycle within the mosquito.
- ☐ c. Because it is vectored by *Anopheles*.
- ☐ d. All of the above.

30. Both male and female mosquitoes require periodic blood meals to survive:

- ☐ a. True.
- ☐ b. False.

## PRACTICE EXAMINATION #2

(continued)

31. Organizations performing mosquito control in California include all of the following except:

- ☐ a. Mosquito and vector control districts.
- ☐ b. County service areas.
- ☐ c. Landscape maintenance contractors.
- ☐ d. City or county health departments.

32. The most important component of any physical mosquito control program is:

- ☐ a. Maintaining predator populations.
- ☐ b. Good water management.
- ☐ c. As large a ditcher as possible.
- ☐ d. Obtaining the necessary permits.

33. The California Department of Health Services created the Bureau of Vector Control to aid and oversee mosquito control programs in:

- ☐ a. 1911.
- ☐ b. 1915.
- ☐ c. 1947.
- ☐ d. 1968.

34. Substrate or sod samples are an effective, but labor intensive, method of monitoring potential larval populations of the mosquito genus:

- ☐ a. *Aedes*.
- ☐ b. *Anopheles*.
- ☐ c. *Culex*.
- ☐ d. *Culiseta*.

35. The respiratory spiracles of adult mosquitoes are located:

- ☐ a. At the tip of the siphon.
- ☐ b. On the sides of the thorax.
- ☐ c. At the mouth.
- ☐ d. At the trumpets.

36. Aestivation is:

- ☐ a. Laying eggs without taking a blood meal.
- ☐ b. Dormancy through the summer.
- ☐ c. Dormancy through the winter.
- ☐ d. Laying dormant in the soil for many years.

37. Pairs of adult mosquito species which appear very similar to one another include all of the following except:

- ☐ a. *Cx. pipiens* and *Cx. quinquefasciatus*.
- ☐ b. *An. freeborni* and *An. hermsi*.
- ☐ c. *Cx. tarsalis* and *Cx. stigmatosoma*.
- ☐ d. *Ae. vexans* and *Ae. melanimon*.

38. Unprotected pesticide applicators are subject to pesticide poisoning by:

- ☐ a. Dermal exposure.
- ☐ b. Ingestion exposure.
- ☐ c. Inhalation exposure.
- ☐ d. All of the above.

39. The mode of action of both organophosphate and carbamate insecticides is as a:

- ☐ a. Synaptic nerve toxin.
- ☐ b. Axionic nerve toxin.
- ☐ c. Cell body nerve toxin.
- ☐ d. Growth regulator.

40. An example of a mosquito pathogen is:

- ☐ a. *Lagenidium giganteum*.
- ☐ b. *Romanomeris culicovorax*.
- ☐ c. *Bacillus sphaericus*.
- ☐ d. *Dugesia dorotocephala*.

**PRACTICE EXAMINATION #2**  
(continued)

41. *Psorophora* mosquitoes overwinter as:
- ☐ a. Adult females.
  - ☐ b. Adult males.
  - ☐ c. Fourth instar larvae.
  - ☐ d. Eggs.
42. A California salt marsh-breeding mosquito usually with only one generation per year is:
- ☐ a. *Aedes taeniorhynchus*.
  - ☐ b. *Aedes dorsalis*.
  - ☐ c. *Aedes squamiger*.
  - ☐ d. *Culex tarsalis*.
43. Tent traps, emergence traps, egress traps and truck traps are:
- ☐ a. Non-selective samplers.
  - ☐ b. Routinely used samplers.
  - ☐ c. Selective samplers.
  - ☐ d. None of the above.
44. The maximum amount of pesticide residue established by law that may safely remain on or in a food without injury to the consumer is:
- ☐ a. Pesticide left over.
  - ☐ b. Pesticide tolerance.
  - ☐ c. Pesticide overspray.
  - ☐ d. None of the above.
45. Examples of chemical attractants for adult mosquitoes include:
- ☐ a. A 25W light bulb.
  - ☐ b. N,N-diethyl-meta-toluamide.
  - ☐ c. Carbon dioxide.
  - ☐ d. Methoprene.
46. The public health importance of mosquitoes is:
- ☐ a. Due to the discomfort they can cause.
  - ☐ b. Due to the diseases they can vector.
  - ☐ c. Due to the economic losses they can cause.
  - ☐ d. All of the above.
47. Most United States mosquito control programs rely principally on adulticiding for mosquito control:
- ☐ a. True.
  - ☐ b. False.
48. Female *Anopheles* mosquitoes:
- ☐ a. Take a typical head-down stance at rest.
  - ☐ b. Have long palpi and blunt abdomens.
  - ☐ c. Sometimes vector malaria.
  - ☐ d. All of the above.
49. Mosquitofish and guppies belong to the family Poeciliidae:
- ☐ a. True.
  - ☐ b. False.
50. Employers are required to provide direct medical supervision, including periodic blood tests, to all employees applying:
- ☐ a. Pesticides in all categories.
  - ☐ b. Pesticides in categories I and II.
  - ☐ c. Pesticides in category III.
  - ☐ d. Organophosphate and carbamate pesticides in categories I and II for more than 6 days in 30 days.

**STOP !!**  
**END OF PRACTICE EXAMINATION #2**



# ANSWER KEY

## Chapter Questions

Chapt. 1	Chapt. 2	Chapt. 3	Chapt. 4	Chapt. 5	Chapt. 6	Chapt. 7
1. c	1. c	1. b	1. c	1. b	1. a	1. a
2. a	2. b	2. c	2. d	2. d	2. a	2. a
3. d	3. c	3. c	3. a	3. b	3. b	3. a
4. b	4. b	4. a	4. b	4. c	4. c	4. d
5. b	5. a	5. b	5. d	5. a	5. b	5. d
6. d	6. a	6. b		6. a		6. b
7. b	7. d	7. a		7. c		7. c
8. a	8. a	8. c		8. a		8. a
9. a	9. c	9. b		9. c		9. c
10. <del>b</del> d	10. a	10. d		10. b		10. b

Chapt. 8	Chapt. 9	Chapt. 10	Chapt. 11	Chapt. 12	Chapt. 13	Chapt. 14
1. b	1. b	1. b	1. c	1. a	1. b	1. d
2. a	2. a	2. a	2. d	2. b	2. c	2. a
3. c	3. c	3. c	3. b	3. c	3. d	3. d
4. a	4. a	4. a	4. a	4. b	4. a	4. a
5. a	5. c	5. d	5. a	5. b	5. c	5. d
6. b	6. a	6. a		6. a		6. c
7. b	7. b	7. b		7. d		7. d
8. a	8. d	8. c		8. c		8. b
9. a	9. c	9. d		9. d		9. a
10. c	10. b	10. b		10. a		10. a

## ANSWER KEY

### Practice Examination Questions

#### PRACTICE EXAMINATION #1

- |       |       |
|-------|-------|
| 1. a  | 26. c |
| 2. b  | 27. a |
| 3. c  | 28. a |
| 4. a  | 29. a |
| 5. d  | 30. c |
| 6. c  | 31. d |
| 7. d  | 32. b |
| 8. c  | 33. c |
| 9. a  | 34. b |
| 10. b | 35. d |
| 11. d | 36. a |
| 12. c | 37. a |
| 13. b | 38. b |
| 14. d | 39. a |
| 15. a | 40. b |
| 16. a | 41. d |
| 17. d | 42. d |
| 18. c | 43. c |
| 19. b | 44. a |
| 20. d | 45. c |
| 21. b | 46. c |
| 22. c | 47. d |
| 23. d | 48. a |
| 24. a | 49. a |
| 25. d | 50. a |

#### PRACTICE EXAMINATION #2

- |       |       |
|-------|-------|
| 1. b  | 26. c |
| 2. a  | 27. c |
| 3. c  | 28. a |
| 4. a  | 29. d |
| 5. b  | 30. b |
| 6. b  | 31. c |
| 7. c  | 32. b |
| 8. b  | 33. c |
| 9. d  | 34. a |
| 10. b | 35. b |
| 11. b | 36. b |
| 12. c | 37. d |
| 13. a | 38. d |
| 14. a | 39. a |
| 15. b | 40. c |
| 16. b | 41. d |
| 17. c | 42. c |
| 18. b | 43. c |
| 19. a | 44. b |
| 20. c | 45. c |
| 21. d | 46. d |
| 22. c | 47. b |
| 23. d | 48. d |
| 24. c | 49. a |
| 25. b | 50. d |