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Start and finish dates: \_\_\_\_\_  
*You will have 90 days from this date in order to complete this course*

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I have read and understood the disclaimer notice found on pages 2 and 4. Signature is required.

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**Please circle/check which certification you are applying the course CEU's.**

Structural Applicator \_\_\_\_\_ Agricultural Applicator \_\_\_\_\_ Adviser \_\_\_\_\_ Collections \_\_\_\_\_

Wastewater Treatment \_\_\_\_\_ O&M \_\_\_\_\_ Other \_\_\_\_\_

*Your certificate will be emailed to you in about two weeks.*

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## **Important Information about this Course (Disclaimer Notice)**

This CEU course has been prepared to educate pesticide applicators and operators in general safety awareness of dealing with the often complex and various pesticide treatment sprays, devices, methods, and applications. This course (manual) will cover general laws, regulations, required procedures and accepted policies relating to the use of pesticides and herbicides. It should be noted, however, that the regulation of pesticides and hazardous materials is an ongoing process and subject to change over time. For this reason, a list of resources is provided to assist in obtaining the most up-to-date information on various subjects. This manual is a not a guidance document for applicators or operators who are involved with pesticides. It is not designed to meet the requirements of the United States Environmental Protection Agency or your local State environmental protection agency or health department. This course manual will provide general pesticide safety awareness and should not be used as a basis for pesticide treatment method/device guidance. This document is not a detailed pesticide informational manual or a source or remedy for poison control.

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Confine chemicals to the property or plants being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked. Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. You should never burn pesticide containers.

Individuals who are responsible for pesticide storage, mixing and application should obtain and comply with the most recent federal, state, and local regulations relevant to these sites and are urged to consult with the EPA and other appropriate federal, state and local agencies.

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### **Rush Grading Service**

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I understand that it is my responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. I understand State laws and rules change on a frequent basis and I believe this course is currently accepted in my State for CEU or contact hour credit, if it is not, I will not hold Technical Learning College responsible. I also understand that this type of study program deals with dangerous conditions and that I will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable for any errors or omissions or advice contained in this CEU education training course or for any violation or injury caused by this CEU education training course material. I will call or contact TLC if I need help or assistance and double-check to ensure my registration page and assignment has been received and graded.

*You can obtain a printed version of the course manual from TLC for an additional \$69.95 plus shipping charges.*

## **AFFIDAVIT OF EXAM COMPLETION**

I affirm that I personally completed the entire text of the course. I also affirm that I completed the exam without assistance from any outside source. I understand that it is my responsibility to file or maintain my certificate of completion as required by the state or by the designation organization.

## **Grading Information**

In order to maintain the integrity of our courses we do not distribute test scores, percentages or questions missed. Our exams are based upon pass/fail criteria with the benchmark for successful completion set at 70%. Once you pass the exam, your record will reflect a successful completion and a certificate will be issued to you.

For security purposes, please fax or e-mail a copy of your driver's license and always call us to confirm we've received your assignment and to confirm your identity.

Thank you...

***Complete all topics before submitting the answers key.***

**Do not solely depend on TLC's Approval list for it may be outdated.**

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# Cockroach Control Answer Key

Name \_\_\_\_\_

Phone# \_\_\_\_\_

**You are responsible to ensure that this course is accepted for credit by your State. Did you check with your State agency to ensure this course is accepted for credit?**

***Method of Course acceptance confirmation. Please fill this section***

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***You are responsible to ensure that TLC receives the Assignment and Registration Key. Please call us to ensure that we received it.***

**Assignment for Last Names *If your last name...***

**A-G Assignment #1 pages 7-14**

**H-M Assignment #2 Pages 15-22**

**N-S Assignment #3 Pages 23-30**

**T-Z Assignment #4 Pages 31-38**

**Alterative Assignment #5 for repeat students Pages 39-46**

**Multiple Choice Exam. Pick only one answer per question.**

**Circle or Mark off or Bold the answer. Please circle the number of the assignment version 1 or 2 or 3 or 4 or 5**

## **Topic 1 - Cockroach Introduction**

15 final exam questions. (s) Means answer can be singular or plural.

1. A B C D

6. A B C D

11. A B C D

2. A B C D

7. A B C D

12. A B C D

3. A B C D

8. A B C D

13. A B C D

4. A B C D

9. A B C D

14. A B C D

5. A B C D

10. A B C D

15. A B C D

**Topic 2 - Common Cockroach Classifications and Sub-Families**

- |            |             |             |
|------------|-------------|-------------|
| 1. A B C D | 6. A B C D  | 11. A B C D |
| 2. A B C D | 7. A B C D  | 12. A B C D |
| 3. A B C D | 8. A B C D  | 13. A B C D |
| 4. A B C D | 9. A B C D  | 14. A B C D |
| 5. A B C D | 10. A B C D | 15. A B C D |

**Topic 3 - Cockroach Inspection and Treatment Section**

- |            |             |             |
|------------|-------------|-------------|
| 1. A B C D | 6. A B C D  | 11. A B C D |
| 2. A B C D | 7. A B C D  | 12. A B C D |
| 3. A B C D | 8. A B C D  | 13. A B C D |
| 4. A B C D | 9. A B C D  | 14. A B C D |
| 5. A B C D | 10. A B C D | 15. A B C D |

**Topic 4 – Advanced Cockroach Management Section**

- |            |             |             |
|------------|-------------|-------------|
| 1. A B C D | 6. A B C D  | 11. A B C D |
| 2. A B C D | 7. A B C D  | 12. A B C D |
| 3. A B C D | 8. A B C D  | 13. A B C D |
| 4. A B C D | 9. A B C D  | 14. A B C D |
| 5. A B C D | 10. A B C D | 15. A B C D |

**Complete all topics before submitting the answers key**

You are finished with your assignment. Please fax this answer key and your registration page along with the customer survey to TLC. Fax Number (928) 272-0747

**Amount of Time for Course Completion – How many hours you spent on course?**

**Must match State Hour Requirement \_\_\_\_\_ (Hours)**

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**Please Sign that you understand and will abide with TLC's Rules.**

## **Cockroach Control CEU Training Awareness Assignment #1 Last Names A to G Only**

You will have 90 days from the start of this course to have successfully passed this assignment with a score of 70 %. You may e mail the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course on the in the Search function on Adobe Acrobat PDF to help find the answers. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

We will require students to fax or e-mail a copy of their driver's license with the registration form.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

### **Topic 1 - Cockroach Introduction**

#### **Introduction**

1. There are approximately 4,000 roach species are known worldwide; most cockroaches inhabit the warm tropical regions of the globe.

A. True B. False

2. Cockroaches leave feces as well as emitting airborne pheromones for nesting. These chemical trails transmit bacteria on surfaces.

A. True B. False

3. Roaches can survive without food for up to a month.

A. True B. False

#### **Collective Decision-Making**

4. Sociable cockroaches often display \_\_\_\_\_when choosing food sources.

A. Collective decision-making C. Two pieces of information  
B. Pheromones D. None of the Above

#### **Cockroach Life Cycle**

5. All roaches have three stages in their life cycle -- egg, nymph (young) and adult. Some have live birth and others lay eggs.

A. True B. False

#### **Reproduction**

6. Cockroaches use pheromones to attract mates, and the males practice courtship rituals, such as posturing and \_\_\_\_\_.

A. Stridulation C. Form of breathing  
B. Three stages D. None of the Above

7. Female cockroaches are sometimes seen carrying egg cases on the end of their abdomens; the German cockroach holds about 300 to 400 long, thin eggs in a case called an ootheca.  
A. True B. False

### **Lungs and Breathing**

8. Cockroaches, like all insects, breathe through a system of tubes called?

- A. Tracheae C. Lungs  
B. Ootheca D. None of the Above

9. While cockroaches do not have this missing term and thus do not actively breathe in the vertebrate lung manner, in some very large species the body musculature may contract rhythmically to forcibly move air out and in the spiracles; this may be considered a form of breathing.

- A. Tracheae C. Lungs  
B. Ootheca D. None of the Above

### **Summary of Most Commonly Found Types of Cockroaches**

10. Which roach require warmth, moisture, and food, which is why they are most common in kitchens and bathrooms?

- A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above

11. Which roach is shiny black or dark brown, and the adult is about 1-inch long?

- A. Oriental Cockroach C. Brownbanded Cockroach  
B. German Cockroach D. None of the Above

12. Although the usual habitat for which cockroaches is outdoors, they often appear in homes, especially in wooded settings.

- A. Oriental Cockroach C. Wood Cockroaches  
B. German Cockroach D. None of the Above

13. Which roach is the largest cockroach commonly found within dwellings, measuring about 1 1/2 inches long when fully grown?

- A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above

14. Which roach species is far less common than the German cockroach, but occasionally can be a problem in homes?

- A. Brownbanded Cockroach C. Oriental Cockroach  
B. American Cockroach D. None of the Above

15. Which roach is by far the most common cockroach infesting homes and buildings?

- A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above



## Topic 2 - Common Cockroach Classifications and Sub-Families

1. Giant cockroaches or blaberids (family Blaberidae) are the largest cockroach family. Commonly these live inside and people keep these pests as pets. 13 species in 20 genera in North America.

A. True B. False

2. The Blattellidae is a family of the order Blattaria (cockroaches). This family contains many of the smaller common household cockroaches, among others.

A. True B. False

3. The Blattidae is a family of the order Blattaria (cockroaches). It contains several of the least common household cockroaches.

A. True B. False

### Scientific Classification

4. Cockroaches make up the order Blattodea, which contains five families.

A. True B. False

5. Which cockroach, *Blatella germanica*, the Asian cockroach, *Blatella asahinai*, and the brownbanded cockroach, *Supella longipalpa*, are in the family Blatellidae?

A. Brownbanded Cockroach C. German Cockroach

B. American Cockroach D. None of the Above

6. Which males are 18-20 mm ( $\frac{3}{4}$ " ) long and have a delicate brown-on-tan pattern on the pronotum. The wings are a mottled tan and longer than the abdomen?

A. Brownbanded Cockroach C. Desert Cockroach

B. American Cockroach D. None of the Above

7. Which females are 12-14 mm ( $\frac{1}{2}$ " ) long and have a broadly oval, somewhat hump-backed appearance?

A. Brownbanded Cockroach C. German Cockroach

B. Desert Cockroach D. None of the Above

8. Which of the following are a live bearing species that grow to three inches or more?

A. Brownbanded Cockroach C. Death Head Roaches

B. Desert Cockroach D. None of the Above

9. The Field cockroach is very similar in appearance to which cockroach?

A. Brownbanded Cockroach C. German Cockroach

B. Desert Cockroach D. None of the Above

10. Which cockroach is about  $\frac{5}{8}$  inch long, overall light brown in color with wings that cover the abdomen? The thoracic shield just behind the head (pronotum) is marked with two prominent black stripes.

A. Field cockroach C. German Cockroach

B. Brownbanded cockroach D. None of the Above

11. Which cockroach is similar to the German cockroach in appearance, but it occurs primarily outdoors where it feeds on decaying plant materials. Compared to the German cockroach, it is more active during daylight hours and will be found around lights. They also are known to fly when disturbed.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

12. Which cockroach is about the same size as the German cockroach, but appear " banded" because the wings are marked with a pale brown band at the base and another about a third of the distance from the base.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

13. Which cockroach is common outdoors, and lives in warm damp shady areas near the ground or any area containing natural debris. It will often seek refuge indoors when a drop in temperature occurs, but is still quite tolerable of cooler weather?

- A. Oriental cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

#### **Outside Living**

14. Which cockroach is found outdoors, applications of insecticides to foundation plantings, wood piles, mulch, and other infested locations are recommended?

- A. Oriental cockroach
- B. Brownbanded cockroach
- C. Smokybrown cockroach
- D. None of the Above

#### **Chemical Control**

15. Perimeter insecticide sprays may aid in the reduction of cockroaches entering homes from the exterior.

- A. True
- B. False

### Topic 3 - Cockroach Inspection and Treatment Section

#### Sanitation Elimination of Food Resources

1. Which roach can remain alive for approximately 2 weeks with no food or water and for 42 days if only water is available?
- A. Oriental cockroach      C. German Cockroach  
B. Brownbanded cockroach   D. None of the Above

#### Elimination of Moisture Resources

2. The single most important factor in determining cockroach survival is availability of?
- A. Dark crevices      C. Food  
B. Water      D. None of the Above
3. German cockroaches live less than two weeks when there is no supply of \_\_\_\_\_ even if food is abundant.
- A. Dark crevices      C. Food  
B. Free water      D. None of the Above

#### Dark Locations – Similar to Rodents

4. In addition to food and water, cockroaches need \_\_\_\_\_ in which to rest and breed, and these harborages must be identified during the inspection. Once again, use your knowledge of the target pest to focus your efforts.
- A. Dark crevices      C. Daytime hiding places  
B. Water      D. None of the Above
5. German cockroaches prefer dark crevices close to?
- A. Dark crevices      C. Food  
B. Moisture      D. None of the Above
6. Cockroaches prefer bare wooden surfaces, cardboard or paper because these surfaces are easier to climb and because porous surfaces retain their?
- A. Aggregation pheromone      C. Food  
B. Water      D. None of the Above

#### IPM Methods for Cockroaches (Types of Pest Control)

7. IPM programs use current, comprehensive information on the life cycles of pests and their
- A. Pest management evaluations      C. Judicious use of pesticides  
B. Interaction with the environment      D. None of the Above
8. IPM takes advantage of all appropriate \_\_\_\_\_ including, but not limited to, the judicious use of pesticides.
- A. Entry and establishment      C. Pest management options  
B. Target of many insecticides      D. None of the Above
9. IPM is not a \_\_\_\_\_ but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow a four-tiered approach.
- A. Pest management evaluations      C. Single pest control method  
B. Interaction with the environment      D. None of the Above

## Summary

### Prevention

10. Entry and establishment of roach colonies can be prevented by \_\_\_\_\_ of incoming merchandise, such as food boxes, beverage cartons, appliances, furniture and clothing.

- A. Close inspection
- B. Target of many insecticides
- C. Pest management options
- D. None of the Above

### Sanitation

11. Good housekeeping is the \_\_\_\_\_ in preventing and controlling cockroach populations. Cockroaches cannot live without food, water and shelter. Do not allow food particles to remain on shelves or floors.

- A. Pest management evaluations
- B. Most important factor
- C. Judicious use of pesticides
- D. None of the Above

## Keys for Cockroach Control and/or Elimination

### Chemical Control

12. Cockroaches have been the target of many insecticides over the years but they have \_\_\_\_\_ to several of them.

- A. Entry and establishment
- B. Target of many insecticides
- C. Developed resistance
- D. None of the Above

13. Attempts to use pheromones as sex lures or to sterilize male cockroaches have thus far not proved practical on a large scale.

- A. True
- B. False

### Residual Sprays - Introduction

14. Residual sprays are generally easy and fast to apply.

- A. True
- B. False

15. These formulations are oil-based or water-based emulsions and water-based suspensions (wetable powders).

- A. True
- B. False

## Topic 4 –Advanced Cockroach Management Section

### Cockroach Management Strategies

1. Which of the following term represents a coarse spray of liquid insecticide in a wide band or strip?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
2. Which of the following term represents a placement of the insecticide into cracks, crevices, or seams? Applications must be made so no insecticide residue is found outside the crack, crevice, or seam.  
A. Inert ingredients              C. Bait Station Placement  
B. Crack and Crevice              D. None of the Above
3. Which of the following term represents a thin coat of dust formulation not more than one particle thick? Several inches (centimeters) wide. Usually around perimeter of a structure.  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
4. Which of the following term represents a careful placement of tamper-proof bait stations in areas inaccessible to children and pets and near existing cockroach infestations.  
A. Inert ingredients              C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
5. Which of the following term represents a coarse spray of liquid insecticide or application of a dust insecticide over a large area; should be evenly distributed?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
6. Which of the following term represents an application of a specialty aerosol using the application tube provided to place insecticides into voids, cavities, cracks and crevices or other small, tight areas?  
A. Inert ingredients              C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
7. Which of the following term represents an application of an insecticide to a small area, usually a gel bait?  
A. Dusting      C. Broadcast  
B. Spot              D. None of the Above
8. Which of the following term represents are product designed to preserve the active ingredients, make them easier to apply or improve their killing ability?  
A. Inert ingredients              C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
9. Information on inert ingredients is required to be put on a product's label because this information is considered public knowledge.  
A. True    B. False

10. Which of the following terms are chemically composed of esters of phosphoric acid?  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
11. Which of the following terms are powerful poisons and kill the pests by means of acetylcholinesterase blockage? This results in nervous and respiratory injuries leading to killing of insects?  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
12. Which of the following terms is a broad-spectrum pyrethroid insecticide? It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.  
 A. Pyrethrum                              C. Pheromones  
 B. Permethrin                              D. None of the Above
13. To mimic the insecticidal activity of the natural compound pyrethrum another class of pesticides, \_\_\_\_\_, has been developed.  
 A. Pyrethroid pesticides                  C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides          D. None of the Above
14. Which of the following terms have low human toxicity, but have long residual effectiveness? For best results they must be applied along with residual insecticides to eliminate existing adults or other non-susceptible stages.  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
15. Which of the following terms such as pheromones, are discovered in the same way as IGRs but tend to be even more specific?  
 A. Behavior-affecting chemicals      C. Pheromones  
 B. Permethrin                              D. None of the Above

## **Cockroach Control CEU Training Awareness Assignment #2**

### **Last Names H to M Only**

You will have 90 days from the start of this course to have successfully passed this assignment with a score of 70 %. You may e mail the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course on the in the Search function on Adobe Acrobat PDF to help find the answers. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

We will require students to fax or e-mail a copy of their driver's license with the registration form.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

#### **Topic 1 - Cockroach Introduction**

1. Cockroaches can eat almost anything, but they are especially partial to starchy foods and meat products.

A. True B. False

2. Roaches can survive without food for up to a year.

A. True B. False

3. Cockroaches appear to use just two pieces of information to decide where to go, namely how \_\_\_\_\_ it is and how many other cockroaches there are.

A. Dark C. Form of breathing  
B. Three stages D. None of the Above

#### **Cockroach Life Cycle**

4. All roaches have three stages in their life cycle -- egg, nymph (young) and adult. Some have live birth and others lay eggs.

A. True B. False

#### **Reproduction**

5. Cockroaches use \_\_\_\_\_ to attract mates, and the males practice courtship rituals, such as posturing and stridulation.

A. Posturing and stridulation C. Form of breathing  
B. Pheromones D. None of the Above

#### **Cockroach Bite**

6. The cockroach is a herbivore, that is, it eats everything vegetable.

A. True B. False

### **Sounds**

7. Some cockroach species make a hissing noise while other cockroaches make a chirping noise, similar to a bird or squirrel.

- A. True B. False

### **Lungs and Breathing**

8. Cockroaches, like all insects, breathe through a system of tubes called?

- A. Tracheae C. Lungs  
B. Ootheca D. None of the Above

9. While cockroaches do not have this missing term and thus do not actively breathe in the vertebrate lung manner, in some very large species the body musculature may contract rhythmically to forcibly move air out and in the spiracles; this may be considered a form of breathing.

- A. Tracheae C. Lungs  
B. Ootheca D. None of the Above

### **Summary of Most Commonly Found Types of Cockroaches**

10. Which roach require warmth, moisture, and food, which is why they are most common in kitchens and bathrooms?

- A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above

11. Which roach is shiny black or dark brown, and the adult is about 1-inch long?

- A. Oriental Cockroach C. Brownbanded Cockroach  
B. German Cockroach D. None of the Above

12. Which roach species is far less common than the German cockroach, but occasionally can be a problem in homes?

- A. Brownbanded Cockroach C. Oriental Cockroach  
B. American Cockroach D. None of the Above

13. Which roach is by far the most common cockroach infesting homes and buildings?

- A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above

14. Although the usual habitat for which cockroaches is outdoors, they often appear in homes, especially in wooded settings.

- A. Oriental Cockroach C. Wood Cockroaches  
B. German Cockroach D. None of the Above

15. Which roach is the largest cockroach commonly found within dwellings, measuring about 1 1/2 inches long when fully grown?

- A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above



## Topic 2 - Common Cockroach Classifications and Sub-Families

### Diet

1. The most important aspect of cockroach damage derives from the insects' habit of feeding and harboring in damp and unsanitary places such as sewers, garbage disposals, kitchens, bathrooms, and indoor storage indoors.  
A. True B. False

### Asian Cockroach (*Blattella asahinai*)

2. The Asian cockroach was identified as a newly introduced species to the United States in 1986 when a professional pest control operator collected these insects in Lakeland, Florida.  
A. True B. False

### Asian Cockroach Life Cycle

3. Female Asian cockroaches have a lifetime reproductive potential for producing approximately four egg capsules, each averaging 37 \_\_\_\_\_. Immatures take approximately 67 days to reach adulthood.  
A. Female(s) C. Male(s)  
B. Nymphs D. None of the Above
4. Which adult males are 1/2 to 5/8 inch long; the female is slightly shorter, though both have wings, only the male can fly?  
A. Brownbanded Cockroach C. German Cockroach  
B. Desert Cockroach D. None of the Above
5. Which cockroaches can conceal themselves in many places that are inaccessible to larger species?  
A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above
6. *Cryptocercus* is a genus of Dictyoptera (cockroaches and allies) in the family Polyphagidae, of which this genus is the only member. Species are known as wood roaches or?  
A. Brownbanded Cockroach C. Brown-hooded cockroaches  
B. American Cockroach D. None of the Above

### Chemical Control

7. Dusts such as boric acid, silica aerogel, and diatomaceous earth can be applied to voids and other harborages such as cracks and crevices.  
A. True B. False
8. Which males are 18-20 mm (¾") long and have a delicate brown-on-tan pattern on the pronotum. The wings are a mottled tan and longer than the abdomen?  
A. Brownbanded Cockroach C. Desert Cockroach  
B. American Cockroach D. None of the Above
9. Which females are 12-14 mm (½") long and have a broadly oval, somewhat hump-backed appearance?  
A. Brownbanded Cockroach C. German Cockroach  
B. Desert Cockroach D. None of the Above

10. Which of the following are a live bearing species that grow to three inches or more?  
A. Brownbanded Cockroach C. Death Head Roaches  
B. Desert Cockroach D. None of the Above
11. The Field cockroach is very similar in appearance to which cockroach?  
A. Brownbanded Cockroach C. German Cockroach  
B. Desert Cockroach D. None of the Above
12. Which cockroach is similar to the German cockroach in appearance, but it occurs primarily outdoors where it feeds on decaying plant materials. Compared to the German cockroach, it is more active during daylight hours and will be found around lights. They also are known to fly when disturbed.  
A. Field cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above
13. Which cockroach is about the same size as the German cockroach, but appear " banded" because the wings are marked with a pale brown band at the base and another about a third of the distance from the base.  
A. Field cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above
14. Which cockroach is common outdoors, and lives in warm damp shady areas near the ground or any area containing natural debris. It will often seek refuge indoors when a drop in temperature occurs, but is still quite tolerable of cooler weather?  
A. Oriental cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above
15. Which cockroach is about 5/8-inch-long, overall light brown in color with wings that cover the abdomen? The thoracic shield just behind the head (pronotum) is marked with two prominent black stripes.  
A. Field cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above

### Topic 3 - Cockroach Inspection and Treatment Section

1. German cockroaches live less than two weeks when there is no supply of \_\_\_\_\_ even if food is abundant.  
A. Dark crevices      C. Food  
B. Free water      D. None of the Above
2. Which roach can remain alive for approximately 2 weeks with no food or water and for 42 days if only water is available?  
A. Oriental cockroach      C. German Cockroach  
B. Brownbanded cockroach      D. None of the Above
3. The single most important factor in determining cockroach survival is availability of?  
A. Dark crevices      C. Food  
B. Water      D. None of the Above

#### Dark Locations – Similar to Rodents

4. In addition to food and water, cockroaches need \_\_\_\_\_ in which to rest and breed, and these harborages must be identified during the inspection. Once again, use your knowledge of the target pest to focus your efforts.  
A. Dark crevices      C. Daytime hiding places  
B. Water      D. None of the Above
5. German cockroaches prefer dark crevices close to?  
A. Dark crevices      C. Food  
B. Moisture      D. None of the Above
6. Cockroaches prefer bare wooden surfaces, cardboard or paper because these surfaces are easier to climb and because porous surfaces retain their?  
A. Aggregation pheromone      C. Food  
B. Water      D. None of the Above

#### IPM Methods for Cockroaches (Types of Pest Control)

7. IPM programs use current, comprehensive information on the \_\_\_\_\_ and their interaction with the environment.  
A. Pest management evaluations      C. Life cycles of pests  
B. Interaction with the environment      D. None of the Above
8. IPM takes advantage of all appropriate \_\_\_\_\_ including, but not limited to, the judicious use of pesticides.  
A. Entry and establishment      C. Pest management options  
B. Target of many insecticides      D. None of the Above
9. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow a \_\_\_\_\_.  
A. Four-tiered approach      C. Judicious use of pesticides  
B. Interaction with the environment      D. None of the Above

## Summary

### Prevention

10. Entry and establishment of roach colonies can be prevented by \_\_\_\_\_ of incoming merchandise, such as food boxes, beverage cartons, appliances, furniture and clothing.

- A. Close inspection
- B. Target of many insecticides
- C. Pest management options
- D. None of the Above

### Sanitation

11. \_\_\_\_\_ is the most important factor in preventing and controlling cockroach populations. Cockroaches cannot live without food, water and shelter. Do not allow food particles to remain on shelves or floors.

- A. Pest management evaluations
- B. Good housekeeping
- C. Judicious use of pesticides
- D. None of the Above

## Keys for Cockroach Control and/or Elimination

### Chemical Control

12. Cockroaches have been the target of many insecticides over the years but they have \_\_\_\_\_ to several of them.

- A. Entry and establishment
- B. Target of many insecticides
- C. Developed resistance
- D. None of the Above

13. Attempts to use sex lures to sterilize male cockroaches have proved practical on a large scale.

- A. True
- B. False

14. Once the roaches' cuticle is abraded, the roaches die of dehydration.

- A. True
- B. False

15. Boric acid powder, which is both abrasive and poisonous to cockroaches. The best way to prevent cockroaches from multiplying is to keep a clean house and block their access to water, which they need to survive.

- A. True
- B. False

## Topic 4 –Advanced Cockroach Management Section

### Cockroach Management Strategies

1. Which of the following term represents a placement of the insecticide into cracks, crevices, or seams? Applications must be made so no insecticide residue is found outside the crack, crevice, or seam.  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice                      D. None of the Above
2. Which of the following term represents a coarse spray of liquid insecticide or application of a dust insecticide over a large area; should be evenly distributed?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter                      D. None of the Above
3. Which of the following term represents a thin coat of dust formulation not more than one particle thick? Several inches (centimeters) wide. Usually around perimeter of a structure.  
A. Dusting                      C. Broadcast  
B. Band/Perimeter                      D. None of the Above
4. Which of the following term represents a careful placement of tamper-proof bait stations in areas inaccessible to children and pets and near existing cockroach infestations.  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol                      D. None of the Above
5. Which of the following term represents a coarse spray of liquid insecticide in a wide band or strip?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter                      D. None of the Above
6. Which of the following term represents an application of a specialty aerosol using the application tube provided to place insecticides into voids, cavities, cracks and crevices or other small, tight areas?  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol                      D. None of the Above
7. Which of the following term represents an application of an insecticide to a small area, usually a gel bait?  
A. Dusting                      C. Broadcast  
B. Spot                      D. None of the Above
8. Which of the following term represents are product designed to preserve the active ingredients, make them easier to apply or improve their killing ability?  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol                      D. None of the Above
9. Information on inert ingredients is required to be put on a product's label because this information is considered allowable.  
A. True    B. False

**Borates**

10. "Borate" is a generic term for compounds containing the elements boron and oxygen.

A. True B. False

11. Boron occurs naturally as calcium and sodium borate ores in several places in the world.

A. True B. False

**Fipronil**

12. Fipronil is a broad use insecticide that belongs to the phenylpyrazole chemical family. Fipronil is used to control ants, beetles, cockroaches, fleas, ticks, termites, mole crickets, thrips, rootworms, weevils, and other insects.

A. True B. False

13. Which of the following terms are chemically composed of esters of phosphoric acid?

- A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides      D. None of the Above

14. Which of the following terms are powerful poisons and kill the pests by means of acetylcholinesterase blockage? This results in nervous and respiratory injuries leading to killing of insects?

- A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides      D. None of the Above

15. Over-all population reduction with \_\_\_\_\_ usually takes several months.

- A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides      D. None of the Above

## **Cockroach Control CEU Training Awareness Assignment #3**

### **Last Names N to S Only**

You will have 90 days from the start of this course to have successfully passed this assignment with a score of 70 %. You may e mail the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course on the in the Search function on Adobe Acrobat PDF to help find the answers. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

We will require students to fax or e-mail a copy of their driver's license with the registration form.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

#### **Topic 1 - Cockroach Introduction**

##### **Introduction**

1. There are approximately 3,000 roach species are known worldwide; most cockroaches inhabit the warm tropical regions of the globe.

A. True B. False

2. About 75 species of cockroaches have attained worldwide distribution due to accidental transport in commerce and their affinity for human habitation and trash.

A. True B. False

3. A cockroach can live underwater for up to \_\_\_\_\_ minutes and can hold its breath for as long as \_\_\_\_\_ minutes.

A. 10 - 30 C. 30 - 60  
B. 30 - 40 D. None of the Above

##### **Collective Decision-Making**

4. Sociable cockroaches often display \_\_\_\_\_when choosing food sources.

A. Collective decision-making C. Two pieces of information  
B. Pheromones D. None of the Above

5. Cockroaches appear to use just two pieces of information to decide where to go, namely how \_\_\_\_\_ it is and how many other cockroaches there are.

A. Dark C. Form of breathing  
B. Three stages D. None of the Above

##### **Cockroach Life Cycle**

6. All roaches have five stages in their life cycle -- egg, nymph, young, teen and adult. Some have live birth and others lay eggs.

A. True B. False

## Reproduction

7. Cockroaches use pheromones to attract mates, and the males practice courtship rituals, such as?

- A. Posturing and stridulation
- B. Three stages
- C. Form of breathing
- D. None of the Above

8. Female cockroaches are sometimes seen carrying egg cases on the end of their abdomens; the German cockroach holds about 30 to 40 long, thin eggs in a case called an ootheca.

- A. True
- B. False

## Lungs and Breathing

9. Cockroaches, like all insects, breathe through a system of tubes called?

- A. Tracheae
- B. Ootheca
- C. Lungs
- D. None of the Above

10. While cockroaches do not have this missing term and thus do not actively breathe in the vertebrate lung manner, in some very large species the body musculature may contract rhythmically to forcibly move air out and in the spiracles; this may be considered a form of breathing.

- A. Tracheae
- B. Ootheca
- C. Lungs
- D. None of the Above

## Summary of Most Commonly Found Types of Cockroaches

11. Which roach require warmth, moisture, and food, which is why they are most common in kitchens and bathrooms?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. German Cockroach
- D. None of the Above

12. Which roach is shiny black or dark brown, and the adult is about 1-inch long?

- A. Oriental Cockroach
- B. German Cockroach
- C. Brownbanded Cockroach
- D. None of the Above

13. Although the usual habitat for which cockroaches is outdoors, they often appear in homes, especially in wooded settings.

- A. Oriental Cockroach
- B. German Cockroach
- C. Wood Cockroaches
- D. None of the Above

14. Which roach species is far less common than the German cockroach, but occasionally can be a problem in homes?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. Oriental Cockroach
- D. None of the Above

15. Which roach is by far the most common cockroach infesting homes and buildings?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. German Cockroach
- D. None of the Above



## Topic 2 - Common Cockroach Classifications and Sub-Families

### Asian Cockroach Life Cycle

1. Female Asian cockroaches have a lifetime reproductive potential for producing approximately four egg capsules, each averaging 37 \_\_\_\_\_. Immatures take approximately 67 days to reach adulthood.  
A. Female(s)                      C. Male(s)  
B. Nymphs                          D. None of the Above
2. Which adult males are 1/2 to 5/8 inch long; the female is slightly shorter, though both have wings, only the male can fly?  
A. Brownbanded Cockroach    C. German Cockroach  
B. Desert Cockroach              D. None of the Above
3. Which cockroaches can conceal themselves in many places that are inaccessible to larger species?  
A. Brownbanded Cockroach    C. German Cockroach  
B. American Cockroach         D. None of the Above
4. Cryptocercus is a genus of Dictyoptera (cockroaches and allies) in the family Polyphagidae, of which this genus is the only member. Species are known as wood roaches or?  
A. Brownbanded Cockroach    C. Brown-hooded cockroaches  
B. American Cockroach         D. None of the Above

### Chemical Control

5. Dusts such as boric acid, silica aerogel, and diatomaceous earth cannot be applied to voids and other harborages such as cracks and crevices.  
A. True    B. False
6. Which males are 18-20 mm (¾") long and have a delicate brown-on-tan pattern on the pronotum. The wings are a mottled tan and longer than the abdomen?  
A. Brownbanded Cockroach    C. Desert Cockroach  
B. American Cockroach         D. None of the Above
7. Which females are 12-14 mm (½") long and have a broadly oval, somewhat hump-backed appearance?  
A. Brownbanded Cockroach    C. German Cockroach  
B. Desert Cockroach              D. None of the Above
8. Which of the following are a live bearing species that grow to three inches or more?  
A. Brownbanded Cockroach    C. Death Head Roaches  
B. Desert Cockroach              D. None of the Above
9. The Field cockroach is very similar in appearance to which cockroach?  
A. Brownbanded Cockroach    C. German Cockroach  
B. Desert Cockroach              D. None of the Above

10. Which cockroach is about 5/8-inch-long, overall light brown in color with wings that cover the abdomen? The thoracic shield just behind the head (pronotum) is marked with two prominent black stripes.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

11. Which cockroach is similar to the German cockroach in appearance, but it occurs primarily outdoors where it feeds on decaying plant materials. Compared to the German cockroach, it is more active during daylight hours and will be found around lights. They also are known to fly when disturbed.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

12. Which cockroach is about the same size as the German cockroach, but appear " banded" because the wings are marked with a pale brown band at the base and another about a third of the distance from the base.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

13. Which cockroach is common outdoors, and lives in warm damp shady areas near the ground or any area containing natural debris. It will often seek refuge indoors when a drop in temperature occurs, but is still quite tolerable of cooler weather?

- A. Oriental cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

### **Outside Living**

14. Which cockroach is found outdoors, applications of insecticides to foundation plantings, wood piles, mulch, and other infested locations are recommended?

- A. Oriental cockroach
- B. Brownbanded cockroach
- C. Smokybrown cockroach
- D. None of the Above

### **Chemical Control**

15. Perimeter insecticide sprays do not aid in the reduction of cockroaches entering homes from the exterior.

- A. True
- B. False

## Topic 3 - Cockroach Inspection and Treatment Section

### Sanitation Elimination of Food Resources

1. Which roach can remain alive for approximately 2 weeks with no food or water and for 42 days if only water is available?
- A. Oriental cockroach      C. German Cockroach  
B. Brownbanded cockroach   D. None of the Above

### Elimination of Moisture Resources

2. The single most important factor in determining cockroach survival is availability of?
- A. Dark crevices      C. Food  
B. Water      D. None of the Above
3. German cockroaches live less than two weeks when there is no supply of \_\_\_\_\_ even if food is abundant.
- A. Dark crevices      C. Food  
B. Free water      D. None of the Above

### Dark Locations – Similar to Rodents

4. In addition to food and water, cockroaches need \_\_\_\_\_ in which to rest and breed, and these harborages must be identified during the inspection. Once again, use your knowledge of the target pest to focus your efforts.
- A. Dark crevices      C. Daytime hiding places  
B. Water      D. None of the Above
5. German cockroaches prefer dark crevices close to?
- A. Dark crevices      C. Food  
B. Moisture      D. None of the Above
6. Cockroaches prefer bare wooden surfaces, cardboard or paper because these surfaces are easier to climb and because porous surfaces retain their?
- A. Aggregation pheromone   C. Food  
B. Water      D. None of the Above

### IPM Methods for Cockroaches (Types of Pest Control)

7. IPM programs use current, comprehensive information on the life cycles of pests and their?
- A. Pest management evaluations      C. Judicious use of pesticides  
B. Interaction with the environment   D. None of the Above
8. IPM takes advantage of all appropriate \_\_\_\_\_ including, but not limited to, the judicious use of pesticides.
- A. Entry and establishment      C. Pest management options  
B. Target of many insecticides      D. None of the Above

### Summary- Prevention

9. \_\_\_\_\_ of roach colonies can be prevented by close inspection of incoming merchandise, such as food boxes, beverage cartons, appliances, furniture and clothing.
- A. Entry and establishment      C. Pest management options  
B. Target of many insecticides      D. None of the Above

**Sanitation**

10. Good housekeeping is the most important factor in preventing and controlling cockroach populations. Cockroaches cannot live without food, water and shelter. Do not allow food particles to remain on shelves or floors.

A. True B. False

**Keys for Cockroach Control and/or Elimination****Chemical Control**

11. Cockroaches have been the target of many insecticides over the years but they have developed resistance to several of them.

A. Entry and establishment                      C. Pest management options  
B. Target of many insecticides                D. None of the Above

12. Attempts to use pheromones as sex lures or to sterilize male cockroaches have thus far not proved practical on a large scale.

A. True B. False

13. Once the roaches' cuticle is abraded, the roaches die of dehydration.

A. True B. False

14. Boric acid powder, which is both abrasive and poisonous to cockroaches. The best way to prevent cockroaches from multiplying is to keep a clean house and block their access to water, which they need to survive.

A. True B. False

15. Residual sprays are generally easy and fast to apply.

A. True B. False

## Topic 4 –Advanced Cockroach Management Section

### Cockroach Management Strategies

1. Which of the following term represents a coarse spray of liquid insecticide or application of a dust insecticide over a large area; should be evenly distributed?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
2. Which of the following term represents an application of a specialty aerosol using the application tube provided to place insecticides into voids, cavities, cracks and crevices or other small, tight areas?  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
3. Which of the following term represents a thin coat of dust formulation not more than one particle thick? Several inches (centimeters) wide. Usually around perimeter of a structure.  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
4. Which of the following term represents a careful placement of tamper-proof bait stations in areas inaccessible to children and pets and near existing cockroach infestations.  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
5. Which of the following term represents a coarse spray of liquid insecticide in a wide band or strip?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
6. Which of the following term represents a placement of the insecticide into cracks, crevices, or seams? Applications must be made so no insecticide residue is found outside the crack, crevice, or seam.  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice      D. None of the Above
7. Which of the following term represents an application of an insecticide to a small area, usually a gel bait?  
A. Dusting      C. Broadcast  
B. Spot      D. None of the Above
8. Which of the following term represents are product designed to preserve the active ingredients, make them easier to apply or improve their killing ability?  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above

#### **Borates**

9. "Borate" is a generic term for compounds containing the elements boron and oxygen.  
A. True    B. False

10. Boron occurs naturally as calcium and sodium borate ores in several places in the world.  
A. True B. False

**Fipronil**

11. Fipronil is a broad use insecticide that belongs to the phenylpyrazole chemical family. Fipronil is used to control ants, beetles, cockroaches, fleas, ticks, termites, mole crickets, thrips, rootworms, weevils, and other insects.  
A. True B. False

12. Which of the following terms are chemically composed of esters of phosphoric acid?  
A. Natural compound pyrethrum C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides D. None of the Above

13. Which of the following terms are powerful poisons and kill the pests by means of acetylcholinesterase blockage? This results in nervous and respiratory injuries leading to killing of insects?  
A. Natural compound pyrethrum C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides D. None of the Above

14. Which of the following terms have low human toxicity, but have long residual effectiveness? For best results they must be applied along with residual insecticides to eliminate existing adults or other non-susceptible stages.  
A. Natural compound pyrethrum C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides D. None of the Above

15. Which of the following terms such as pheromones, are discovered in the same way as IGRs but tend to be even more specific?  
A. Behavior-affecting chemicals C. Pheromones  
B. Permethrin D. None of the Above

## Cockroach Control CEU Training Awareness Assignment #4 Last Names T to Z Only

You will have 90 days from the start of this course to have successfully passed this assignment with a score of 70 %. You may e mail the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course on the in the Search function on Adobe Acrobat PDF to help find the answers. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

We will require students to fax or e-mail a copy of their driver's license with the registration form.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

### Topic 1 - Cockroach Introduction

#### Introduction

1. There are approximately 11,000 roach species are known worldwide; most cockroaches inhabit the regions of the globe.

A. True B. False

2. About 50 species of cockroaches have attained worldwide distribution due to accidental transport in commerce and their affinity for human habitation and trash.

A. True B. False

3. Cockroaches leave chemical trails in their feces as well as emitting bacteria for swarming and mating. These chemical trails transmit airborne pheromones on surfaces.

A. True B. False

4. Cockroaches cannot eat anything, including to starchy foods and meat products.

A. True B. False

5. Roaches can survive without food for up to 3 months.

A. True B. False

6. A cockroach can live underwater for up to \_\_\_\_\_ minutes and can hold its breath for as long as \_\_\_\_\_ minutes.

A. 10 - 30 C. 30 - 60  
B. 30 - 40 D. None of the Above

#### Collective Decision-Making

7. Sociable cockroaches often display \_\_\_\_\_ when choosing food sources.

A. Collective decision-making C. Two pieces of information  
B. Pheromones D. None of the Above

8. Cockroaches appear to use just two pieces of information to decide where to go, namely how \_\_\_\_\_ it is and how many other cockroaches there are.

- A. Dark
- B. Three stages
- C. Form of breathing
- D. None of the Above

9. While cockroaches do not have this missing term and thus do not actively breathe in the vertebrate lung manner, in some very large species the body musculature may contract rhythmically to forcibly move air out and in the spiracles; this may be considered a form of breathing.

- A. Tracheae
- B. Ootheca
- C. Lungs
- D. None of the Above

### **Summary of Most Commonly Found Types of Cockroaches**

10. Which roach require warmth, moisture, and food, which is why they are most common in kitchens and bathrooms?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. German Cockroach
- D. None of the Above

11. Which roach is shiny black or dark brown, and the adult is about 1-inch long?

- A. Oriental Cockroach
- B. German Cockroach
- C. Brownbanded Cockroach
- D. None of the Above

12. Although the usual habitat for which cockroaches is outdoors, they often appear in homes, especially in wooded settings.

- A. Oriental Cockroach
- B. German Cockroach
- C. Wood Cockroaches
- D. None of the Above

13. Which roach is the largest cockroach commonly found within dwellings, measuring about 1 1/2 inches long when fully grown?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. German Cockroach
- D. None of the Above

14. Which roach species is far less common than the German cockroach, but occasionally can be a problem in homes?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. Oriental Cockroach
- D. None of the Above

15. Which roach is by far the most common cockroach infesting homes and buildings?

- A. Brownbanded Cockroach
- B. American Cockroach
- C. German Cockroach
- D. None of the Above



## Topic 2 - Common Cockroach Classifications and Sub-Families

1. Which cockroach are also known as a "water bug" or "palmetto bug"?  
A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above
2. American cockroaches have three developmental stages: egg, nymph, and adult.  
A. True B. False

### Asian Cockroach Life Cycle

3. Female Asian cockroaches have a lifetime reproductive potential for producing approximately four egg capsules, each averaging 37 \_\_\_\_\_. Immatures take approximately 67 days to reach adulthood.  
A. Female(s) C. Male(s)  
B. Nymphs D. None of the Above
4. Which adult males are 1/2 to 5/8 inch long; the female is slightly shorter, though both have wings, only the male can fly?  
A. Brownbanded Cockroach C. German Cockroach  
B. Desert Cockroach D. None of the Above
5. Which cockroaches can conceal themselves in many places that are inaccessible to larger species?  
A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above
6. Cryptocercus is a genus of Dictyoptera (cockroaches and allies) in the family Polyphagidae, of which this genus is the only member. Species are known as wood roaches or?  
A. Brownbanded Cockroach C. Brown-hooded cockroaches  
B. American Cockroach D. None of the Above

### Chemical Control

7. Dusts such as boric acid, silica aerogel, and diatomaceous earth can be applied to voids and other harborages such as cracks and crevices.  
A. True B. False
8. Which males are 18-20 mm (¾") long and have a delicate brown-on-tan pattern on the pronotum. The wings are a mottled tan and longer than the abdomen?  
A. Brownbanded Cockroach C. Desert Cockroach  
B. American Cockroach D. None of the Above
9. Which females are 12-14 mm (½") long and have a broadly oval, somewhat hump-backed appearance?  
A. Brownbanded Cockroach C. German Cockroach  
B. Desert Cockroach D. None of the Above
10. Which of the following are a live bearing species that grow to three inches or more?  
A. Brownbanded Cockroach C. Death Head Roaches  
B. Desert Cockroach D. None of the Above

11. Which cockroach is similar to the German cockroach in appearance, but it occurs primarily outdoors where it feeds on decaying plant materials. Compared to the German cockroach, it is more active during daylight hours and will be found around lights. They also are known to fly when disturbed.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

12. Which cockroach is about the same size as the German cockroach, but appear " banded" because the wings are marked with a pale brown band at the base and another about a third of the distance from the base.

- A. Field cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

13. Which cockroach is common outdoors, and lives in warm damp shady areas near the ground or any area containing natural debris. It will often seek refuge indoors when a drop in temperature occurs, but is still quite tolerable of cooler weather?

- A. Oriental cockroach
- B. Brownbanded cockroach
- C. German Cockroach
- D. None of the Above

#### **Outside Living**

14. Which cockroach is found outdoors, applications of insecticides to foundation plantings, wood piles, mulch, and other infested locations are recommended?

- A. Oriental cockroach
- B. Brownbanded cockroach
- C. Smokybrown cockroach
- D. None of the Above

#### **Chemical Control**

15. Perimeter insecticide sprays may aid in the reduction of cockroaches entering homes from the exterior.

- A. True
- B. False

### Topic 3 - Cockroach Inspection and Treatment Section

#### Sanitation Elimination of Food Resources

1. Which roach can remain alive for approximately 2 weeks with no food or water and for 42 days if only water is available?
- A. Oriental cockroach      C. German Cockroach  
B. Brownbanded cockroach   D. None of the Above

#### Dark Locations – Similar to Rodents

2. In addition to food and water, cockroaches need \_\_\_\_\_ in which to rest and breed, and these harborages must be identified during the inspection. Once again, use your knowledge of the target pest to focus your efforts.
- A. Dark crevices      C. Daytime hiding places  
B. Water      D. None of the Above
3. German cockroaches prefer dark crevices close to?
- A. Dark crevices      C. Food  
B. Moisture      D. None of the Above
4. Cockroaches prefer bare wooden surfaces, cardboard or paper because these surfaces are easier to climb and because porous surfaces retain their?
- A. Aggregation pheromone   C. Food  
B. Water      D. None of the Above

#### IPM Methods for Cockroaches (Types of Pest Control)

5. IPM programs use current, comprehensive information on the life cycles of pests and their \_\_\_\_\_.
- A. Pest management evaluations      C. Judicious use of pesticides  
B. Interaction with the environment   D. None of the Above
6. IPM takes advantage of all \_\_\_\_\_ including, but not limited to, the judicious use of pesticides.
- A. Appropriate pest management options      C. Pest management options  
B. Target of many insecticides      D. None of the Above
7. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the \_\_\_\_\_ follow a four-tiered approach.
- A. Pest management evaluations      C. Potential for pest infestation  
B. Interaction with the environment   D. None of the Above
8. \_\_\_\_\_ of roach colonies can be prevented by close inspection of incoming merchandise, such as food boxes, beverage cartons, appliances, furniture and clothing.
- A. Entry and establishment      C. Pest management options  
B. Target of many insecticides      D. None of the Above

### **Sanitation**

9. Good housekeeping is the most important factor in preventing and controlling cockroach populations. Cockroaches cannot live without\_\_\_\_\_. Do not allow food particles to remain on shelves or floors.

- A. Food, water and shelter
- B. Interaction with the environment
- C. Judicious use of pesticides
- D. None of the Above

### **Keys for Cockroach Control and/or Elimination**

#### **Chemical Control**

10. Cockroaches have been the \_\_\_\_\_over the years but they have developed resistance to several of them.

- A. Entry and establishment
- B. Target of many insecticides
- C. Pest management options
- D. None of the Above

11. Attempts to use pheromones as sex lures or to sterilize male cockroaches have thus far not proved practical on a large scale.

- A. True
- B. False

12. Once the roaches' cuticle is abraded, the roaches die of dehydration.

- A. True
- B. False

13. Boric acid powder, which is both abrasive and poisonous to cockroaches. The best way to prevent cockroaches from multiplying is to keep a clean house and block their access to water, which they need to survive.

- A. True
- B. False

#### **Residual Sprays - Introduction**

14. These formulations are oil-based or water-based emulsions and water-based suspensions (wetttable powders).

- A. True
- B. False

15. Residual sprays are generally easy and fast to apply.

- A. True
- B. False

## Topic 4 –Advanced Cockroach Management Section

### Cockroach Management Strategies

1. Which of the following term represents a thin coat of dust formulation not more than one particle thick? Several inches (centimeters) wide. Usually around perimeter of a structure.

- A. Dusting
- B. Band/Perimeter
- C. Broadcast
- D. None of the Above

2. Which of the following term represents a careful placement of tamper-proof bait stations in areas inaccessible to children and pets and near existing cockroach infestations.

- A. Inert ingredients
- B. Crack and Crevice Aerosol
- C. Bait Station Placement
- D. None of the Above

3. Which of the following term represents a coarse spray of liquid insecticide in a wide band or strip?

- A. Dusting
- B. Band/Perimeter
- C. Broadcast
- D. None of the Above

4. Which of the following term represents a placement of the insecticide into cracks, crevices, or seams? Applications must be made so no insecticide residue is found outside the crack, crevice, or seam.

- A. Inert ingredients
- B. Crack and Crevice
- C. Bait Station Placement
- D. None of the Above

5. Which of the following term represents are product designed to preserve the active ingredients, make them easier to apply or improve their killing ability?

- A. Inert ingredients
- B. Crack and Crevice Aerosol
- C. Bait Station Placement
- D. None of the Above

6. Information on inert ingredients is not required to be put on a product's label because this information is considered proprietary. These ingredients typically comprise between 80 - 90% of a pesticide, and in some cases are more toxic than the active ingredients.

- A. True
- B. False

#### **Borates**

7. "Borate" is a generic term for compounds containing the elements boron and oxygen.

- A. True
- B. False

8. Boron never occurs alone naturally but as calcium and sodium borate ores in several places in the world.

- A. True
- B. False

#### **Fipronil**

9. Fipronil is a broad use insecticide that belongs to the phenylpyrazole chemical family. Fipronil is used to control ants, beetles, cockroaches, fleas, ticks, termites, mole crickets, thrips, rootworms, weevils, and other insects.

- A. True
- B. False

10. Which of the following terms are chemically composed of esters of phosphoric acid?  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
11. Which of the following terms are powerful poisons and kill the pests by means of acetylcholinesterase blockage? This results in nervous and respiratory injuries leading to killing of insects?  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
12. Which of the following terms is a broad-spectrum pyrethroid insecticide? It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.  
 A. Pyrethrum      C. Pheromones  
 B. Permethrin      D. None of the Above
13. Which of the following terms have low human toxicity, but have long residual effectiveness? For best results they must be applied along with residual insecticides to eliminate existing adults or other non-susceptible stages.  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
14. Over-all population reduction with \_\_\_\_\_ usually takes several months.  
 A. Natural compound pyrethrum      C. Insect growth regulators (IGRs)  
 B. Organophosphate pesticides      D. None of the Above
15. Which of the following terms such as pheromones, are discovered in the same way as IGRs but tend to be even more specific?  
 A. Behavior-affecting chemicals      C. Pheromones  
 B. Permethrin      D. None of the Above

## **Cockroach Control CEU Training Awareness Assignment #5 Repeat Student**

You will have 90 days from the start of this course to have successfully passed this assignment with a score of 70 %. You may e mail the answers to TLC, info@tlch2o.com or fax the answers to TLC, (928) 272-0747. This assignment is available to you in a Word Format on TLC's Website. You can find online assistance for this course on the in the Search function on Adobe Acrobat PDF to help find the answers. Once you have paid the course fee, you will be provided complete course support from Student Services (928) 468-0665.

We will require students to fax or e-mail a copy of their driver's license with the registration form.

You will need to pick one of the following three assignments to complete. This selection process is based upon your last name. If your last name begins with an A to G, you will pick assignment number 1, if your last name begins with the letter H to M, you are to complete assignment number 2 and if your last name begins with the letter N-S, you will pick assignment number 3 and if your last name starts with T to Z you need to complete assignment #4. If you are a repeat student, please take the alterative version # 5 assignment.

### **Topic 1 - Cockroach Introduction**

#### **Introduction**

1. Cockroaches can eat almost anything, but they are especially partial to plant materials.  
A. True B. False
2. Roaches can survive without food for up to a week.  
A. True B. False
3. A cockroach can live underwater for up to \_\_\_\_\_ minutes and can hold its breath for as long as \_\_\_\_\_ minutes.  
A. 10 - 30 C. 30 - 60  
B. 30 - 40 D. None of the Above
4. There are approximately 1,000 roach species are known worldwide; most cockroaches inhabit the warm tropical regions of the globe.  
A. True B. False
5. About 5 species of cockroaches have attained worldwide distribution due to accidental transport in commerce and their affinity for human habitation and trash.  
A. True B. False
6. Cockroaches leave chemical trails in their feces as well as emitting airborne pheromones for swarming and mating. These chemical trails transmit bacteria on surfaces.  
A. True B. False

#### **Collective Decision-Making**

7. Sociable cockroaches often display \_\_\_\_\_ when choosing food sources.  
A. Collective decision-making C. Two pieces of information  
B. Pheromones D. None of the Above

8. Cockroaches appear to use just two pieces of information to decide where to go, namely how \_\_\_\_\_ it is and how many other cockroaches there are.
- A. Dark
  - B. Three stages
  - C. Form of breathing
  - D. None of the Above

### **Cockroach Life Cycle**

9. All roaches have three stages in their life cycle -- egg, nymph (young) and adult. Some have live birth and others lay eggs.
- A. True
  - B. False

### **Reproduction**

10. Cockroaches use \_\_\_\_\_ to attract mates, and the males practice courtship rituals, such as posturing and stridulation.
- A. Posturing and stridulation
  - B. Three stages
  - C. Pheromones
  - D. None of the Above

### **Sounds**

11. Some cockroach species make a barking noise while other cockroaches make a hum noise, similar to a machine.
- A. True
  - B. False

### **Lungs and Breathing**

12. Cockroaches, like all insects, breathe through a system of tubes called?
- A. Tracheae
  - B. Ootheca
  - C. Lungs
  - D. None of the Above
13. Which roach is shiny black or dark brown, and the adult is about 1-inch long?
- A. Oriental Cockroach
  - B. German Cockroach
  - C. Brownbanded Cockroach
  - D. None of the Above
14. Which roach is the largest cockroach commonly found within dwellings, measuring about 1 1/2 inches long when fully grown?
- A. Brownbanded Cockroach
  - B. American Cockroach
  - C. German Cockroach
  - D. None of the Above
15. Which roach is by far the most common cockroach infesting homes and buildings?
- A. Brownbanded Cockroach
  - B. American Cockroach
  - C. German Cockroach
  - D. None of the Above



## Topic 2 - Common Cockroach Classifications and Sub-Families

1. Scientific classification: Cockroaches make up the order Blattodea, which contains five families. The American cockroach is *Periplaneta americana*, and the Oriental cockroach is *Blatta orientalis*, both in the family Blattidae.

A. True B. False

### Scientific Classification

2. Which cockroach, *Blattella germanica*, the Asian cockroach, *Blattella asahinai*, and the brownbanded cockroach, *Supella longipalpa*, are in the family Blattellidae?

A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above

3. Which cockroach is *Periplaneta Americana*?

A. Brownbanded Cockroach C. American cockroach  
B. American Cockroach D. None of the Above

4. Which cockroach is *Blatta orientalis*?

A. Oriental cockroach C. American cockroach  
B. American Cockroach D. None of the Above

5. American cockroaches have three developmental stages: egg, nymph, and adult.

A. True B. False

6. Which cockroach are also known as a "water bug" or "palmetto bug"?

A. Brownbanded Cockroach C. German Cockroach  
B. American Cockroach D. None of the Above

7. Which cockroach is similar to the German cockroach in appearance, but it occurs primarily outdoors where it feeds on decaying plant materials. Compared to the German cockroach, it is more active during daylight hours and will be found around lights. They also are known to fly when disturbed.

A. Field cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above

8. Which cockroach is about the same size as the German cockroach, but appear "banded" because the wings are marked with a pale brown band at the base and another about a third of the distance from the base.

A. Field cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above

9. Which cockroach is common outdoors, and lives in warm damp shady areas near the ground or any area containing natural debris. It will often seek refuge indoors when a drop in temperature occurs, but is still quite tolerable of cooler weather?

A. Oriental cockroach C. German Cockroach  
B. Brownbanded cockroach D. None of the Above

10. Which females are 12-14 mm ( $\frac{1}{2}$ " ) long and have a broadly oval, somewhat hump-backed appearance?

- A. Brownbanded Cockroach
- C. German Cockroach
- B. Desert Cockroach
- D. None of the Above

11. Which of the following are a live bearing species that grow to three inches or more?

- A. Brownbanded Cockroach
- C. Death Head Roaches
- B. Desert Cockroach
- D. None of the Above

12. The Field cockroach is very similar in appearance to which cockroach?

- A. Brownbanded Cockroach
- C. German Cockroach
- B. Desert Cockroach
- D. None of the Above

13. Which cockroach is about 5/8-inch-long, overall light brown in color with wings that cover the abdomen? The thoracic shield just behind the head (pronotum) is marked with two prominent black stripes.

- A. Field cockroach
- C. German Cockroach
- B. Brownbanded cockroach
- D. None of the Above

#### **Outside Living**

14. Which cockroach is found outdoors, applications of insecticides to foundation plantings, wood piles, mulch, and other infested locations are recommended?

- A. Oriental cockroach
- C. Smokybrown cockroach
- B. Brownbanded cockroach
- D. None of the Above

#### **Chemical Control**

15. Perimeter insecticide sprays may aid in the reduction of cockroaches entering homes from the exterior.

- A. True
- B. False

### Topic 3 - Cockroach Inspection and Treatment Section

#### Elimination of Moisture Resources

1. The single most important factor in determining cockroach survival is availability of?
- A. Dark crevices
  - B. Water
  - C. Food
  - D. None of the Above

#### Dark Locations – Similar to Rodents

2. In addition to food and water, cockroaches need \_\_\_\_\_ in which to rest and breed, and these harborages must be identified during the inspection. Once again, use your knowledge of the target pest to focus your efforts.

- A. Dark crevices
- B. Water
- C. Daytime hiding places
- D. None of the Above

3. German cockroaches prefer dark crevices close to?

- A. Dark crevices
- B. Moisture
- C. Food
- D. None of the Above

4. Cockroaches prefer bare wooden surfaces, cardboard or paper because these surfaces are easier to climb and because porous surfaces retain their?

- A. Aggregation pheromone
- B. Water
- C. Food
- D. None of the Above

5. IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. In practicing IPM, growers who are aware of the potential for pest infestation follow a \_\_\_\_\_.

- A. Four-tiered approach
- B. Interaction with the environment
- C. Judicious use of pesticides
- D. None of the Above

6. IPM programs use \_\_\_\_\_ on the life cycles of pests and their interaction with the environment.

- A. Pest management evaluations
- B. Interaction with the environment
- C. Current, comprehensive information
- D. None of the Above

7. IPM takes advantage of \_\_\_\_\_ including, but not limited to, the judicious use of pesticides.

- A. Entry and establishment
- B. Target of many insecticides
- C. All appropriate pest management options
- D. None of the Above

8. \_\_\_\_\_ of roach colonies can be prevented by close inspection of incoming merchandise, such as food boxes, beverage cartons, appliances, furniture and clothing.

- A. Entry and establishment
- B. Target of many insecticides
- C. Pest management options
- D. None of the Above

### **Sanitation**

9. \_\_\_\_\_ is the most important factor in preventing and controlling cockroach populations. Cockroaches cannot live without food, water and shelter. Do not allow food particles to remain on shelves or floors.

- A. Pest management evaluations      C. Judicious use of pesticides  
B. Good housekeeping                      D. None of the Above

### **Keys for Cockroach Control and/or Elimination**

#### **Chemical Control**

10. Cockroaches have been the target of \_\_\_\_\_ over the years but they have developed resistance to several of them.

- A. Many insecticides                      C. Pest management options  
B. Target of many insecticides          D. None of the Above

11. Attempts to use pheromones as sex lures or to sterilize female cockroaches have thus far not proved practical on a large scale.

- A. True    B. False

12. Once the roaches' cuticle is abraded, the roaches die of dehydration.

- A. True    B. False

13. Boric acid powder, which is both abrasive and poisonous to cockroaches. The best way to prevent cockroaches from multiplying is to keep a clean house and block their access to water, which they need to survive.

- A. True    B. False

#### **Residual Sprays - Introduction**

14. These formulations are oil-based or water-based emulsions and water-based suspensions (wetttable powders).

- A. True    B. False

15. Residual sprays are difficult to apply.

- A. True    B. False

## Topic 4 –Advanced Cockroach Management Section

### Cockroach Management Strategies

1. Which of the following term represents a thin coat of dust formulation not more than one particle thick? Several inches (centimeters) wide. Usually around perimeter of a structure.  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
2. Which of the following term represents a coarse spray of liquid insecticide or application of a dust insecticide over a large area; should be evenly distributed?  
A. Dusting                      C. Broadcast  
B. Band/Perimeter      D. None of the Above
3. Which of the following term represents an application of a specialty aerosol using the application tube provided to place insecticides into voids, cavities, cracks and crevices or other small, tight areas?  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
4. Which of the following term represents an application of an insecticide to a small area, usually a gel bait?  
A. Dusting      C. Broadcast  
B. Spot      D. None of the Above
5. Which of the following term represents are product designed to preserve the active ingredients, make them easier to apply or improve their killing ability?  
A. Inert ingredients                      C. Bait Station Placement  
B. Crack and Crevice Aerosol      D. None of the Above
6. Information on inert ingredients is not required to be put on a product's label because this information is considered proprietary. These ingredients typically comprise between 80 - 90% of a pesticide, and in some cases are more toxic than the active ingredients.  
A. True    B. False
7. Fipronil is a broad use insecticide that belongs to the phenylpyrazole chemical family. Fipronil is used to control ants, beetles, cockroaches, fleas, ticks, termites, mole crickets, thrips, rootworms, weevils, and other insects.  
A. True    B. False
8. Which of the following terms is a broad-spectrum pyrethroid insecticide? It is available in dusts, emulsifiable concentrates, smokes, ULV concentrates, and wettable-powder formulations.  
A. Pyrethrum                      C. Pheromones  
B. Permethrin                      D. None of the Above
9. To mimic the insecticidal activity of the natural compound pyrethrum another class of pesticides, \_\_\_\_\_, has been developed.  
A. Pyrethroid pesticides                      C. Insect growth regulators (IGRs)  
B. Organophosphate pesticides      D. None of the Above

10. Which of the following terms mimic natural hormones found in insects? When applied to cockroaches during their early developmental stages, they cause nymphs to molt into sterile adults.

- A. Synthetic compounds
- B. Permethrin
- C. Pheromones
- D. None of the Above

11. Which of the following terms are chemically composed of esters of phosphoric acid?

- A. Natural compound pyrethrum
- B. Organophosphate pesticides
- C. Insect growth regulators (IGRs)
- D. None of the Above

12. Which of the following terms are powerful poisons and kill the pests by means of acetylcholinesterase blockage? This results in nervous and respiratory injuries leading to killing of insects?

- A. Natural compound pyrethrum
- B. Organophosphate pesticides
- C. Insect growth regulators (IGRs)
- D. None of the Above

13. Which of the following terms have low human toxicity, but have long residual effectiveness? For best results they must be applied along with residual insecticides to eliminate existing adults or other non-susceptible stages.

- A. Natural compound pyrethrum
- B. Organophosphate pesticides
- C. Insect growth regulators (IGRs)
- D. None of the Above

14. Over-all population reduction with \_\_\_\_\_ usually takes several months.

- A. Natural compound pyrethrum
- B. Organophosphate pesticides
- C. Insect growth regulators (IGRs)
- D. None of the Above

15. Which of the following terms such as pheromones, are discovered in the same way as IGRs but tend to be even more specific?

- A. Behavior-affecting chemicals
- B. Permethrin
- C. Pheromones
- D. None of the Above