Registration form

General Pest Control CEU Training $300.00

48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL $50.00

Rush service does not include overnight delivery or FedEx fees.

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

Print Name_____
I have read and understood the disclaimer notice found on pages 2-4. Signature is required.
You can electronically sign with XXX

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Home (_____)_____ Work (_____)_____

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License or
Operator ID #_____Exp. Date_____

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

Commercial Applicator____ Residential Applicator____ Industrial Applicator____

Pesticide Handler____ Agricultural Applicator____ Adviser____ Other _____

Your certificate will be mailed to you in about two weeks.

Technical Learning College
PO Box 420, Payson AZ 85547-0420
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Reaching the Heart is specially selected because they are non-denominational and they offer they services for no cost. If you need Christian counseling, please contact them for information.

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Reaching the Heart Ministries
203 N. Manzanita Dr. Suite A
Payson, AZ 85541
Website: http://www.reachingtheheart.org/donate.htm

Are you hurt, lonely, angry, abandoned, or feeling ignored are you unable to love or forgive? We want to offer you hope and freedom from past un-resolved deep seated problems. Reaching The Heart Ministries is a “Restoration” ministry. If you let us reach your heart and bring you to Jesus. He will care for your pain and heal your heart. Counseling appointments will be scheduled on a first come basis. Call today and get the help you need. It all starts with your phone call to schedule a consultation with Mike or Ellen.

Please call: 928-970-2439 (Mike - Director/Counselor) or
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Instruction for Donation Proof
Please make a donation of a minimum of $200 either two different ways, pay with your credit card to Reaching the Heart (PayPal) or write them a check.

Fax, e-mail or mail the PayPal receipt to TLC with the registration form. If you pay by check, please provide a copy of the check. Thank you.

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State Approval Listing Link, check to see if your State accepts or has pre-approved this course. Not all States are listed. Not all courses are listed. If the course is not accepted for CEU credit, we will give you the course free if you ask your State to accept it for credit.

State Approval Listing URL…
http://www.tlch2o.com/PDF/CEU%20State%20Approvals.pdf

You can obtain a printed version of the course manual from TLC for an additional $79.95 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…

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.

Technical Learning College or Technical Learning Consultants, Inc. makes no warranty, guarantee or representation as to the absolute correctness or appropriateness of the information in this manual and assumes no responsibility in connection with the implementation of this information. It cannot be assumed that this manual contains all measures and concepts required for specific conditions or circumstances. This document should be used for educational purposes only and is not considered a legal document. Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

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.

USE PESTICIDES WISELY: ALWAYS READ THE ENTIRE PESTICIDE LABEL CAREFULLY, FOLLOW ALL MIXING AND APPLICATION INSTRUCTIONS AND WEAR ALL RECOMMENDED PERSONAL PROTECTIVE GEAR AND CLOTHING. CONTACT YOUR STATE DEPARTMENT OF AGRICULTURE FOR ANY ADDITIONAL PESTICIDE USE REQUIREMENTS, RESTRICTIONS OR RECOMMENDATIONS.

NOTICE: MENTION OF PESTICIDE PRODUCTS IN THIS COURSE DOES NOT CONSTITUTE ENDORSEMENT OF ANY MATERIAL OR HERB OR HERBAL SUPPLEMENT. ALWAYS FOLLOW THE PRODUCT'S LABEL INSTRUCTIONS.

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General Pest Control Answer Key **Name**_____

Phone#_____

Multiple Choice. Pick only one answer per question.
Circle or Mark, X, Underline or Bold the answer. Please circle the number of the assignment version 1 or 2 or 3 or 4 or 5

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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

We will require a photocopy of your driver's license to verify your identity.

Always call us after faxing the paperwork to ensure that we've received it. If you need this course graded and your certificate sooner, add a $50.00 rush fee. This may not include postage charges. ***Thank you for your business.***

INSTRUCTIONS

1. We will require all students to fax or e-mail a copy of their driver's license with the registration form.
2. You will need to pick one of the following three assignments to complete. This selection process is based upon your last name.
3. 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 P, you are to complete assignment number 2 and if your last name begins with the letter Q-Z, you will pick assignment number 3.

Assignment #1 for all pest applicators whose last name begins with A-G you will find your assignment on pages 11-52.

Assignment #2 for applicators with the last name starting with the letter H-P, your assignment is found on pages 53-94.

Assignment #3 for all applicators with the last name starting with the letter Q-Z, your assignment is found on pages 95-135.

Rush Grading Service

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CUSTOMER SERVICE RESPONSE CARD

General Pest Control Training Course

NAME: _____

E-MAIL_____PHONE_____

PLEASE COMPLETE THIS FORM BY CIRCLING THE NUMBER OF THE APPROPRIATE ANSWER IN THE AREA BELOW.

1. Please rate the difficulty of your course.
Very Easy 0 1 2 3 4 5 Very Difficult

2. Please rate the difficulty of the testing process.
Very Easy 0 1 2 3 4 5 Very Difficult

3. Please rate the subject matter on the exam to your actual field or work.
Very Similar 0 1 2 3 4 5 Very Different

4. How did you hear about this Course? _____

5. What would you do to improve the Course?

_____

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How about the price of the course? Poor __ Fair __ Average__ Good__ Great__

How was your customer service? Poor __ Fair __ Average __ Good__ Great__

Any other concerns or comments.

_____

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General Pests CEU Training Awareness Assignment #1
For Students Names A-G

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, Dr. Rusty Randall or Dr. Bubba Jenkins (928) 468-0665.

Write your answers on the Answer Key found in the front of this assignment.
INSTRUCTIONS
1. We will require all students to fax or e-mail a copy of their driver's license with the registration form.

2. 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 P, you are to complete assignment number 2 and if your last name begins with the letter Q-Z, you will pick assignment number 3.

Multiple Choice, Please select one answer and mark it on the answer key. (s) means the answer is plural or singular.

Ant Section
1. All ants live in colonies, which consist of an _____ (queen), short-lived males, and workers (sterile females).
A. Egg-laying female
B. Fly to new locations
C. Depositing a chemical message
D. Trail pheromone
E. None of the Above

2. The ants you see foraging in your garden or kitchen are workers. Workers that find food communicate with other workers by depositing a _____ on the substrate as they crawl back to the nest.
A. Egg-laying female
B. Chemical message
C. Depositing a chemical message
D. Trail pheromone
E. None of the Above

3. Although we cannot smell it, _____this "chemical message" stick to the substrate for long periods of time and helps other ants find the food at the end of the trail.
A. Egg-laying female
B. Fly to new locations
C. Depositing a chemical message
D. Trail pheromone
E. None of the Above

4. In the spring, ants develop wings and chemical message and invade homes to forage for food _____or to establish a new nest.
A. Egg-laying female
B. Fly to new locations
C. Depositing a chemical message
D. Trail pheromone
E. None of the Above

5. Ants are a major annoyance to homeowners and are difficult to control. You should not _____ of good sanitation to eliminate food sources, although good sanitation may not control an ant infestation by itself.
A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Underestimate the importance
D. Thin-waisted
E. None of the Above

6. Although we do not like sharing our homes with ants, they are beneficial organisms in the balance of nature. In nature, ants _____ of dead and decaying plant and animal organic matter. They also aerate the soil with their nests.
A. Greatly reduce the amount
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. Thin-waisted
E. None of the Above

7. Many ant species have a _____ that aphids produce from feeding on plants. Large numbers of ants crawling on a plant may be a sign of serious aphid infestation.
A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. Thin-waisted
E. None of the Above

8. Ant infestations are _____ should be used depending on nest location and food preferences of the ants.
A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. Not easy to control and different strategies
E. None of the Above

9. Ants can be controlled with a _____, removing pheromone trails, caulking entry points, and eliminating active nests.
A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. Thin-waisted
E. None of the Above

10. Insecticide sprays and baits can be used to _____, but strategies designed to prevent further infestations should be used in conjunction with chemical treatment.
A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. None of the Above

Termites

11. Termites also _____ during the spring and look similar to flying ants. Examine them closely to make sure that you have the correct pest!

A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. Develop wings and swarm
E. None of the Above

12. Ants are _____ and have elbowed antennae.

A. Fondness for honeydew
B. Kill foraging ants and destroy nests
C. Combination of good sanitation
D. Thin-waisted
E. None of the Above

13. _____ have thicker waists and have antennae that resemble strings of tiny beads. You may need a magnifying glass to examine antennal features.

A. Ant(s)
B. Termite(s)
C. Insecticide(s)
D. Dilutions
E. None of the Above

14. As a group, _____have a wide food range, feeding on sweet foods, greasy materials, starchy substances, wood, and all kinds of plant and animal materials. Part of the reason that ants become a nuisance in our homes is that they often like the same kinds of food that we do.

A. Insecticide(s)
B. Dilutions
C. Ant(s)
D. Termite(s)
E. None of the Above

Ant Control

15. There are two categories of _____ that will be encountered with an ant problem. The best control strategy depends on the type of infestation.

A. Ant(s)
B. Termite(s)
C. Insecticide(s)
D. Dilutions
E. None of the Above

16. _____ that live outside will travel inside the home to search for food. Some species may ultimately reside in houses, discussed later in this section.

A. Ant(s)
B. Termite(s)
C. Insecticide(s)
D. Dilutions
E. None of the Above

17. To prevent both of these scenarios, follow these procedures: First, _____ should be sealed to eliminate passages into the home. If you do not seal entry points, ants will probably find their way into your house at some later time.
A. Ant(s)
B. Termite(s)
C. Cracks and crevices
D. Dilutions
E. None of the Above

18. Second, scrub around entry points with a _____ (to remove the trail pheromone) and spray a residual insecticide around entry points.
A. Ant(s)
B. Termite(s)
C. Insecticide(s)
D. Dilutions
E. None of the Above

19. Bait treatments and _____ can be used to control ants in the outside nest. To be effective, baits must be placed in areas where ants frequent, be eaten, and be taken back to the nest.
A. Successfully drench
B. Bait treatments
C. Insecticide(s)
D. Dilutions
E. None of the Above

20. There are several different kinds of _____ available, and you may have to do a little trial-and-error to find the proper bait. Because the ants must get back to the nest for satisfactory control, this strategy may be incompatible with insecticide sprays, which may kill worker ants before they can get back to the nest with the bait.
A. Successfully drench
B. Baits
C. Insecticide(s)
D. Dilutions
E. None of the Above

21. The successful use of a bait may take several weeks or more. Insecticide dilutions can be used outside to _____ant nests. Be sure to follow label recommendations for correct procedures when applying the insecticide.
A. Successfully drench
B. Bait treatments
C. Insecticide(s)
D. Dilutions
E. None of the Above

22. There are some types of ants that actually _____ your home, instead of merely entering to forage for food and returning outdoors.
A. Successfully drench
B. Bait treatments
C. Establish a nest inside
D. Dilutions
E. None of the Above

23. Ants in this category may be present year round, although they will be more active in the _____.
A. Warmer months
B. Bait treatments
C. Establish a nest inside
D. Dilutions
E. None of the Above

24. Ant species that may live in United States homes include crazy ants, odorous house ants, pavement ants, pharaoh ants, thief ants, and_____.
A. Successfully drench
B. Bait treatments
C. Carpenter ants
D. Dilutions
E. None of the Above

25. All of these ants may infest food products. Spraying a _____to control foraging workers may provide only short-term control.
A. Residual insecticide
B. Bait treatments
C. Establish a nest inside
D. Dilutions
E. None of the Above

Carpenter Ants
26. Carpenter ants are usually larger than most other house- infesting ants. They vary in color from a dull black or reddish yellow color to a combination of black and dull red or reddish-orange. Worker ants range in size from 5/16 to 7/16 inches long. Carpenter ants tunnel into wood to form nest galleries. If they go unnoticed for several years, they may cause structural damage. Outdoors, the ants use dead trees or tree limbs, stumps, logs or _____as nesting sites.
A. Cracks and gaps
B. Areas under stones
C. Sweet baits
D. Interior walls
E. None of the Above

27. Once the carpenter ant nest has been located, control is relatively easy. Treatment options include use of a _____or residual contact insecticide applied as a dust or spray to the nest.
A. Bait
B. Trap
C. Sweet baits
D. Dust
E. None of the Above

28. Read and follow the product label for best results. It may be necessary to drill small holes in the wall voids, _____, and window and doorsills to reach the nest or major part of the colony. Nests can also be removed and infested wood replaced, if feasible.
A. Cracks and gaps
B. Areas under stones
C. Baseboards
D. Interior walls
E. None of the Above

29. Carpenter ants are most active in the evening hours, _____, both inside the house and outside. By following the ants, you may be able to tell where the nest is.
A. Foraging for all kinds of food
B. Push the sawdust
C. Insecticide dust
D. Trim all trees
E. None of the Above

30. Because carpenter ants keep the tunneled galleries very clean and _____and dead insect parts out small holes in the wood, a small, fresh pile of sawdust under the nest timber is the usual sign of an active carpenter ant nest.
A. Foraging for all kinds of food
B. Push the sawdust
C. Insecticide dust
D. Trim all trees
E. None of the Above

31. Once a nest is found, treatment is usually easy with either an _____or spray. Injection of insecticide into wall voids or the nest itself may be necessary to reinsure complete control.
A. Foraging for all kinds of food
B. Push the sawdust
C. Insecticide dust
D. Trim all trees
E. None of the Above

32. To prevent further carpenter ant infestations, _____and bushes so branches do not touch the house and correct moisture problems such as leaky roofs and plumbing.
A. Foraging for all kinds of food
B. Push the sawdust
C. Insecticide dust
D. Trim all trees
E. None of the Above

33. _____exposed wood construction before it becomes wet. Replace previously ant-infested wood, rotted or water-damaged wooden parts of the structure and eliminate wood/soil contacts. Remove dead stumps on the property and store firewood off the ground and away from the structure.
A. Paint and/or seal
B. Push the sawdust
C. Insecticide dust
D. Trim all trees
E. None of the Above

34. Unlike other home-inhabiting ants, carpenter ants cause structural damage to wood by _____inside wood structures. However, they rarely nest in sound wood, but consistently invade wood that has become wet and started to decay.
A. Foraging for all kinds of food
B. Push the sawdust
C. Insecticide dust
D. Tunneling and nesting
E. None of the Above

35. The best way to control carpenter ants that inhabit a dwelling is to find the nest and _____.
A. Destroy it
B. Continue to produce
C. Within the walls
D. Around leaky plumbing
E. None of the Above

36. Insecticide sprays inside the home will kill some of the worker ants, but unless the entire nest is treated, the queen will _____additional members of the colony.
A. Destroy it and move on
B. Continue to produce
C. Live within the walls
D. Live around leaky plumbing
E. None of the Above

37. Locating a nest can be difficult because nests may be in locations _____or roof rafters. At this point, some homeowners may prefer to work with a professional pest control company.
A. Destroy it
B. Continue to produce
C. Within the walls
D. Around leaky plumbing
E. None of the Above

38. The most likely places to find carpenter ant nests are where wood has been wet and weathered, such as rotting timbers about the foundation, window sills, porches, _____, and in rafters under a leaky roof.
A. Around leaky plumbing
B. Continue to produce
C. Within the walls
D. Perimeter of a home
E. None of the Above

Perimeter Insecticide Treatments
39. The most commonly used method for controlling carpenter ants is treating the _____with a dust or spray. There are several products available for this type of application, but Suspend SC, Talstar Concentrate and Cynoff WP are the best. When used in accordance with their labels they work well.
A. Nest
B. Perimeter of a home
C. Walls
D. Around leaky plumbing
E. None of the Above

40. These treatments do not keep ants from entering a home from overhead trees and power lines. Also, as a stand alone treatment, they rarely eliminate ants_____.
A. Inside voids and walls
B. Continue to produce
C. Within the walls
D. Around leaky plumbing
E. None of the Above

Pharaoh Ant Monomorium pharaonis

41. Pharaoh workers are very small (about 1/16-inch long), light yellow to reddish brown in color, with the abdomen (hind portion of body) somewhat darker._____. The petiole (narrow waist between the thorax and abdomen) has two nodes and the thorax has no spines. Eyes are well-developed. The antennal segments end in a distinct club with three progressively longer segments. This is in contrast to the thief ant's 2-segmented club.

A. There is no stinger
B. Pseudomonas
C. Sugar ant
D. Worker ants
E. None of the Above

Pest Status

42. Very common throughout the U.S. and the most commonly occurring indoor ant; in hospitals, it can be a carrier of more than a dozen pathogenic bacteria, including Staphylococcus, Salmonella, _____, and Clostridium; these ants do not sting and usually do not bite.

A. Momma Queen
B. Pseudomonas
C. Sugar ant
D. Worker ants
E. None of the Above

43. Life Cycle and Habits

Description: Also called the_____, odorous or piss ant, these are some of the smallest ants, the workers are about 1/12-16 inch long, with a light tan to reddish body. Over 200 species of ants are known to exist in the U.S. A number of other ant species are occasionally encountered in and around the home.

A. Piss ant
B. Ghost ant
C. Sugar ant
D. Worker ants
E. None of the Above

Winged stage

Life Cycle

44. Development of _____progresses from eggs (5-6 days), to several larval stages (22-24 days), pre-pupal stage (2 to 3 days), a pupae (9-12 days), and adult ants, thus taking from 38 to 45 days from egg to adult (4 days longer for sexual forms).

A. Worker ants
B. Pseudomonas
C. Sugar ant
D. Queen ants
E. None of the Above

45. Colonies consist of one to several hundred_____, sterile female worker ants, periodically produced winged male and female reproductive ants (sexuals), and brood (developmental stages).

A. Worker ants
B. Pseudomonas
C. Sugar ant
D. Queen ants
E. None of the Above

Female Pharaoh

46. A Female Pharaoh ant can lay _____in her lifetime.
A. 400 or more eggs
B. 10 to 12 eggs
C. 5 to 7 eggs
D. 38 to 45 eggs
E. None of the Above

47. Most lay _____per batch in the early days of egg production and only 4 to 7 eggs per batch later.
A. 400 or more eggs
B. 10 to 12 eggs
C. 5 to 7 eggs
D. 38 to 45 eggs
E. None of the Above

48. At 80°F and 80 percent relative humidity, eggs hatch in_____. The larval period is 18 to 19 days, prepupal period three days and pupal period nine days.
A. 400 or more days
B. 10 to 12 days
C. 5 to 7 days
D. 38 to 45 days
E. None of the Above

49. About four more days are required to produce sexual female and male forms. The entire life cycle takes about _____depending on temperature and relative humidity.
A. 38 to 45 days
B. 10 to 12 days
C. 5 to 7 days
D. 38 to 45 days
E. None of the Above

50. Periodically a queen, together with a few workers carrying _____(eggs, larvae, and pupae), leaves the nest and sets up a new colony elsewhere, quickly spreading an infestation.
A. Immatures
B. Fractionating males
C. Thimbles
D. Eggs
E. None of the Above

Common Pest Cockroaches

51. Common pest cockroaches include the American, German, Oriental, Madeira, and _____.
A. Asian
B. American
C. Madeira
D. Brown-banded
E. Oriental
F. None of the Above

52. The _____ cockroach began to cause concern in the United States when it appeared in large numbers in Florida in the late 1980s.
A. Asian
B. American
C. Madeira
D. German
E. Oriental
F. None of the Above

53. All but the _____ cockroach are introduced species to North America.
A. Asian D. German
B. American E. Oriental
C. Madeira F. None of the Above

Life Cycle
54. All roaches have _____in their life cycle -- egg, nymph (young) and adult.
A. Ootheca D. Internode
B. Imago E. Three stages
C. Pedipalps F. None of the Above

55. Females carry a bean-shaped egg capsule (_____) which is full of eggs. The newly emerged nymphs are identical to their parents except for their smaller size and lack of wings.
A. Ootheca D. Internode
B. Imago E. Three stages
C. Pedipalps F. None of the Above

56. The _____ grow into adults by periodically shedding their skins, and may appear white for a few hours until their new skin darkens.
A. Detritivore D. Dealates
B. Nymphs E. Instar
C. Malformation F. None of the Above

Live Everywhere
57. Cockroaches can be present in almost any_____. They move quickly and are especially active at night.
A. Home D. Place inhabited by humans
B. Inside household goods E. Area
C. Business F. None of the Above

58. Characteristically, most roaches _____or between surfaces that provide darkness and cover. Inside buildings, roaches move freely between rooms or adjoining apartments using wall spaces, plumbing and other utility installations.
A. Live in cracks and crevices D. Molt in cracks and crevices
B. Breed in cracks and crevices E. Hide in cracks and crevices
C. Die in cracks and crevices F. None of the Above

59. They _____in food and beverage boxes, grocery sacks, animal food and other household goods.
A. Cause allergens D. Reject pesticides
B. Love to eat E. Can be carried into structures
C. Are especially active at night F. None of the Above

60. Cockroaches can eat almost anything, but they are especially partial to starchy foods and meat products. They feed on such diverse items as cereals, pastries, chocolate, milk products, beverages, cooked potatoes, glue, _____, wall paper, animal food, fresh or dried blood, excrement, dead animals and leather products.
A. Allergens D. Vegetables
B. Book bindings E. Starchy foods and meat products
C. Bait Gel F. None of the Above

Damage

61. Disease Transmission. Cockroaches can carry _____that cause human diseases, including food poisoning, dysentery and diarrhea. However, roaches have not been associated with serious disease outbreaks in the United States.

A. Allergen(s) D. Germs
B. Organisms E. Pathogen(s)
C. Repulsive odor F. None of the Above

Allergy

62. Roaches can cause _____in some people. The response is caused by roach "allergen" that is ingested with contaminated food or inhaled when dried fecal particles and fragments of ground-up bodies of dead roaches are mixed with house dust.

A. Allergens D. Considerable psychological or emotional distress
B. Mutations E. Disease
C. Allergic reactions F. None of the Above

Anxiety

63. The _____of cockroaches can cause considerable psychological or emotional distress in some individuals.

A. Sight D. Considerable psychological or emotional distress
B. Odor E. Long lasting view
C. Smell F. None of the Above

64. Cockroaches usually do not bite, but their heavy leg spines_____.

A. Will poke D. Will cause considerable psychological or emotional distress
B. May scratch E. Are not a threat
C. Have sharp edges F. None of the Above

Scientific Classification

65. Cockroaches make up the order Blattodea, which contains_____.

A. Family Blattidae D. Five families
B. Madeira cockroach E. Gromphadorina portentosa
C. Cryptocercidae F. None of the Above

66. The American cockroach is_____, and the Oriental cockroach is Blatta orientalis, both in the family Blattidae.

A. Family Blattidae D. Blatella germanica
B. Madeira cockroach E. Gromphadorina portentosa
C. Periplaneta americana F. None of the Above

67. The German cockroach, Blatella germanica, the Asian cockroach, _____, and the brownbanded cockroach, Supella longipalpa, are in the family Blatellidae.

A. Family Blattidae D. Blatella germanica
B. Madeira cockroach E. Blatella asahinai
C. Cryptocercidae F. None of the Above

68. The Madeira cockroach is Leucophaea maderae, the Brazilian cockroach is Blaberus giganteus, and the Madagascar hissing cockroach is _____, all in the family Blaberidae.

A. Family Blattidae D. Blatella germanica
B. Madeira cockroach E. Gromphadorina portentosa
C. Cryptocercidae F. None of the Above

69. The remaining families are the Cryptocercidae and the_____.
A. Family Blattidae D. Blatella germanica
B. Madeira cockroach E. Polyphagidae
C. Cryptocercidae F. None of the Above

70. There are 55 species of _____in the United States, but only five of these are troublesome in the most States.
A. Family Blattidae D. Blatella germanica
B. Madeira cockroach E. Cockroaches
C. Cryptocercidae F. None of the Above

German Cockroach
71. The German cockroach is the most common and the most difficult to control. Both adults and nymphs are _____and have two longitudinal dark lines on their thorax (back).
A. General in appearance D. Have two longitudinal dark lines on their thorax (back)
B. Instars E. Black
C. Light brown F. None of the Above

72. Adults are 1/2 to 3/4 inch long, and both males and females have _____as long as the body.
A. Antennas D. Two longitudinal dark lines on their thorax (back)
B. Wings E. Legs
C. Eggs F. None of the Above

73. _____ are similar in general appearance, but lack wings and may be as small as 1/8 inch.
A. Instars D. Two longitudinal dark lines on their thorax (back)
B. Filiforms E. Nymph(s)
C. Immature stages F. None of the Above

74. The adult German cockroach is about 5/8 inch long, overall light brown in color with wings that cover the_____.
A. Internode D. Abdomen
B. Dealates E. Furculum
C. Proboscis F. None of the Above

75. The _____just behind the head (pronotum) is marked with two prominent black stripes.
A. Osmeterium D. Wings
B. Thoracic shield E. Poikilotherm
C. Scutellum F. None of the Above

76. Immature stages (nymphs) are smaller, _____ and have a pale stripe (on at least the second and third thoracic segments in first stage nymphs) running lengthwise down the middle of the darker brown body.
A. First stage nymphs D. Wingless
B. Adult(s) E. Nymph(s)
C. Immature stages F. None of the Above

77. The field cockroach, Blattella vaga Hebard, is similar to the _____ in appearance, but it occurs primarily outdoors where it feeds on decaying plant materials.
A. German cockroach D. Brownbanded cockroach
B. Field cockroach E. Nymphs
C. Banded F. None of the Above

78. Compared to the _____, it is more active during daylight hours and will be found around lights. They also are known to fly when disturbed.
A. German cockroach D. Brownbanded cockroach
B. Field cockroach E. Nymphs
C. Banded F. None of the Above

79. The _____, Supella longipalpa (Fabricius) 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. German cockroach D. Brownbanded cockroach
B. Field cockroach E. Nymphs
C. Banded F. None of the Above

80. _____ produce an egg capsule that is attached to the end of the abdomen for up to a month before being dropped a day or so before eggs hatch.
A. German cockroach D. Brownbanded cockroach
B. Field cockroach E. Nymphs
C. Banded F. None of the Above

81. Each 5/16 inch long, _____ contains 30 to 40 eggs (oothecae) which hatch in 2 to 4 days after being deposited.
A. New infestations D. Dactyls
B. Diapause E. Mesophyll
C. Scutellum F. None of the Above

82. _____from eggs are less than 1/8 inch long and wingless. They develop through 6 to 7 stages (instars) over 74 to 85 days (varying with temperature) before becoming adults. There may be four generations per year.
A. New infestations D. Femora
B. Dealates E. Nymphs hatching
C. Parthenogenesis F. None of the Above

83. This is mainly an indoor species, although they will also _____from structure to structure.
A. Start infestations D. Have a life expectancy of six months
B. Migrate outdoors E. Fly
C. Be active at night F. None of the Above

84. Occasionally, new infestations begin by bringing in cartons and other materials from infested structures that_____.
A. Start new infestations D. Harbor the roaches or their eggs
B. Cause allergic reactions E. Start in and around the landscape
C. Are mainly active at night F. None of the Above

85. Kitchens, bathrooms and other locations that provide food, moisture, warmth and shelter are_____.
A. Great new infestations D. Wet
B. Preferred habitats E. Dry
C. Mainly active at night F. None of the Above

86. German cockroaches are mainly active at night, when they _____for food and water.
A. Search D. Mesophyll
B. Frass E. Roset
C. Detritivore F. None of the Above

87. During the day, they remain concealed in _____unless they are over-crowded, with all developmental stages occurring together.
A. Brush
B. Cracks and crevices
C. Table tops
D. Groups
E. Masses on interior walls
F. None of the Above

88. They also can occur in attics, _____, crawl spaces, foundation cracks, garbage areas and around the landscape. May spread food contaminants.
A. Microwave ovens
B. Window sills
C. Muffler pipes
D. Coffee machines
E. Wall voids
F. None of the Above

89. Some people have allergic reactions to cockroaches or _____(e.g., feces, body extracts).
A. Infestations
B. Allergic reactions
C. Eggs
D. Cockroach residues
E. Droppings
F. None of the Above

90. One of the most common household cockroach pests in the U.S.; presence in homes is a nuisance and they may spread food contaminants. Some people have _____ to cockroaches or cockroach residues (e.g., feces, body extracts).
A. Infinity
B. Attraction
C. Allergic reactions
D. Desire
E. Move immediately from
F. None of the Above

91. The German cockroach has approximately six generations per year and _____is completed in 50 to 60 days.
A. Crepuscular
B. Will live
C. Internode
D. Dimorph
E. Each generation
F. None of the Above

92. The adult German cockroaches have a_____. This roach cannot fly but may glide very short distances if disturbed.
A. Instar
B. Internode
C. Malformation
D. Life expectancy of twelve months
E. Life expectancy of six months
F. None of the Above

93. German cockroaches can live in almost any room of a home or building. Because these roaches require water, they prefer a _____, such as around kitchen and bathroom sinks, appliances, furnaces, water heaters and furnace ducts.
A. Warm dry area
B. Dark cold area
C. Home
D. Warm moist environment
E. Source of water
F. None of the Above

94. A roach does not need head to breathe -- they _____through their bodies and can survive for a month without food. A headless cockroach will live for about a week until it dies of thirst.
A. Absorb oxygen
B. Will live
C. Estivate
D. Metamorphose
E. Overwinter
F. None of the Above

Brownbanded Cockroach

95. Both nymphs and adults of this species are _____and can be distinguished easily by the presence of two angled or transverse bands across the base of the wings and abdomen.

A. Black
B. Red
C. Light brown
D. Internode
E. Detritivore
F. None of the Above

96. Adult males are 1/2 to 5/8 inch long; the female is slightly shorter. Though both have wings, only the _____ can fly.

A. Male
B. Female
C. TV roaches
D. Nymphs and adults
E. Instars
F. None of the Above

97. The _____ carries each egg capsule for only a day or two before attaching it to a protected surface.

A. Adult males
B. Female
C. Ovipositor
D. Dealates
E. Phytotoxemia
F. None of the Above

98. The egg capsules are usually_____, and most of the eggs hatch within 50 days.

A. Diapause
B. Cursorial
C. Scutellum
D. Deposited in clusters or rows
E. Deposited in frass
F. None of the Above

99. Approximately 5 to 18 egg capsules are produced per female, each containing 19 eggs. About 3 to 9 months are required to complete the _____.

A. Diapause
B. Estivation
C. Metamorphosis
D. Defoliate, defoliation
E. Reproductive cycle
F. None of the Above

100. _____ prefer a dry, warm environment. They are generally found on ceilings, high on walls, and in light switches, closets and furniture. In some places they are known as "TV roaches" because of their frequent presence in living-room furniture and appliances.

A. Adult males
B. Female
C. TV roaches
D. Nymphs and adults
E. Reproductives
F. None of the Above

Spider Section

101. The Chelicerata includes spiders and scorpions, _____, horseshoe crabs, daddy-longlegs, and extinct "sea-scorpions", to name a few.

A. Wasps and Mites
B. Mites and ticks
C. Crabs and Cockroaches
D. All Arthropods
E. None of the Above

102. Chelicerata is the second most prominent order of terrestrial arthropods, after the uniramians. Most of its marine representatives are extinct, but were prominent in the _____and included some fearsome predators.

A. Metaphidippus Era
B. Prehistoric time
C. Paleozoic Era
D. Devonian Period
E. None of the Above

103. Chelicerata are now distinguished from the other _____by the possession of (at least) six pairs of appendages. These normally include four pairs of walking legs, a pair of chelicerae and a pair of pedipalps.
A. Metaphidippus
B. Mites and ticks
C. Crabs
D. Arthropod groups
E. None of the Above

104. Chelicerata have no mandibles and no antennae and the body is divided into two, not three, sections, as in the Uniramia. They are, however, normally _____, have a through gut, have uniramous appendages, a non-calcareous exoskeleton, and are gonochoristic.
A. Bilaterally symmetrical
B. Completely relying
C. They spin a thread
D. They form a Y-shaped structure and
E. None of the Above

105. No chelicerates possess jaws for _____, but suck up their food in liquid or semi-liquid form.
A. Communication
B. Inject digestive juices
C. Biting and chewing
D. Breathing
E. None of the Above

106. Most species go in for external digestion to some extent, meaning they secrete digestive juices onto the food item as it is held close to the mouth or _____into their prey's body, and suck up the half-digested soup that results.
A. Palps
B. Inject digestive juices
C. Biting and chewing
D. Communication
E. None of the Above

107. The inclusion of the class Pycnogonida in the Chelicerata is _____but not scientifically proven; the fossil record for pycnogonids is very scant and they differ in many ways from the other chelicerates.
A. Control insect populations
B. Feed on detritus
C. Biting and chewing
D. Generally accepted
E. None of the Above

108. The Chelicerata contain more than 80,000 species known to science, most of which are Arachnids divided almost evenly between the _____.
A. Spiders and the mites
B. Crabs and wasps
C. Mites and crabs
D. Spiders and crabs
E. None of the Above

109. Chelicerates occupy a variety of roles in the ecology of marine and terrestrial systems. While many spiders build webs, others do not, but instead _____as it passes by. This is also the tactic used by scorpions, another group of chelicerate predators.
A. Control insect populations
B. Feed on detritus
C. Feed on the blood
D. Ambush prey
E. None of the Above

110. The predatory habits of these critters help to _____in many parts of the world.
A. Control insect populations
B. Feed on the blood
C. Ambush insects
D. Feed on detritus
E. None of the Above

111. Some arachnid chelicerates are _____, such as ticks and mites.
A. Pest population controllers
B. Detritus feeders
C. Blood feeders
D. Parasites
E. None of the Above

112. Chelicerates live upon the bodies of other animals and _____, skin, or hair. Some of these carry diseases, which they pass on to the host when they feed.
A. Control insect populations
B. Feed on the blood
C. Ambush insects
D. Feed on detritus
E. None of the Above

113. Other chelicerates are tiny organisms that _____, the bits of decaying matter that accumulate on and below the ground. The first terrestrial chelicerates are believed to have been detritus feeders.
A. Control insect populations
B. Feed on the blood
C. Ambush prey
D. Feed on detritus
E. None of the Above

114. Parental care is not common among the chelicerates, but some scorpions will carry their young on their backs for a time. In most cases, however, no such care is provided, and the young must fend for themselves from the time they _____.
A. Survive
B. Molt
C. Hatch
D. Mate
E. None of the Above

115. Survival is then dependant on the fact that large numbers of eggs are produced at a time, and it is likely that at least a few will _____.
A. Survive
B. Molt
C. Hatch
D. Mate
E. None of the Above

116. Those ancient spiders were relatively large, and their bodies were segmented. In contrast, almost all spiders _____have an unsegmented abdomen.
A. Who survive
B. With 8 legs
C. Hatch
D. Living today
E. None of the Above

117. Only members of the suborder Mesothelae still exhibit a segmented abdomen, and these spiders are generally considered the most _____ types of spiders.
A. Advanced
B. Primitive
C. Dangerous
D. Violent
E. None of the Above

118. Spiders are mostly terrestrial, of the class Arachnida, order Araneae, with four pairs of legs and a two-part body consisting of a(n) _____, or prosoma, and an unsegmented abdomen, or opisthosoma.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Set of Book lungs
E. None of the Above

119. The _____ is covered by a shield, or carapace, and bears eight simple eyes.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

120. On the underside of the spider's head (the cephalic part of the cephalothorax) are two pairs of appendages, the anterior pair called chelicerae, and the second pair _____, with which the spider captures and paralyzes its prey, injecting into it venom produced in the poison glands.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

121. The spider then liquefies the tissues of the prey with a digestive fluid and sucks this broth into its stomach, where it may be stored in a(n) _____.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

122. Breathing is by means of tracheae (air tubes) or _____, or both.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

123. Arachnid _____ are similar to the gill books of horseshoe crabs, but are internal and adapted to a terrestrial habitat.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

124. Three pairs of _____toward the tip of the abdomen produce protein-containing fluids that harden as they are drawn out to form silk threads.
A. Digestive glands
B. Legs
C. Pedipalps
D. Spinnerets
E. None of the Above

125. Several kinds of silk glands and _____ produce different kinds of silk used variously for constructing cocoons or egg sacs, spinning webs, and binding prey; other light strands are spun out for ballooning, or floating, the spiders, especially young ones, long distances on air currents.
A. Digestive glands
B. Cephalothoraxs
C. Pedipalps
D. Spinnerets
E. None of the Above

Cephalothorax Structures
126. The cephalothorax contains a number of structures and appendages: one pair of biting mouthparts known as chelicerae; a pair of _____; one pair of short, leglike appendages called pedipalps or palps; and four pairs of legs.
A. Chelicerae
B. Palps
C. Fangs
D. Poison glands
E. None of the Above

127. The spider's eight eyes are also located on the _____.
A. Chelicerae
B. Cephalothorax
C. Palps
D. Top of the poison glands
E. None of the Above

Mouthparts

128. When a spider catches prey, it uses a pair of jointed appendages known as the _____, located in front of the mouth opening. Chelicerae resemble tiny pocketknives.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

129. Each _____ has a sharp fang that swings out of its resting position to stab into the victim. Near the tip of the fang is a duct opening that comes from a poison gland.
A. Chelicera
B. Cephalothorax
C. Palp
D. Poison glands
E. None of the Above

130. The _____ acts like a hypodermic needle—it ejects venom from the poison gland and delivers it into the prey.
A. Chelicerae
B. Cephalothorax
C. Fang
D. Poison glands
E. None of the Above

131. Spiders also use _____ as multipurpose tools. They have been called the "hands" of the spider.
A. Chelicerae
B. Cephalothorax
C. Palps
D. Poison glands
E. None of the Above

132. Spiders can use their _____ to perform tasks such as digging burrows in the soil and transporting small prey.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

Poison Glands

133. Most spiders have a pair of poison glands that lie within the _____.
A. Chelicerae
B. Cephalothorax
C. Fang area
D. Palps
E. None of the Above

134. Each bulblike poison gland produces and stores toxin. A muscle spirals around the gland. When this muscle contracts, it squeezes poison from the gland through a duct into the _____ of the chelicerae, which then pass the poison into the prey.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

Palps and Legs
135. Behind the chelicerae is a pair of palps, _____that are used in feeding and as feelers.
A. That contain body fluids
B. That transfer sperm
C. Sensitive to touch
D. Segmented limbs
E. None of the Above

136. Male spiders also use palps to _____to females during mating. Adjacent to the palps are four pairs of long, hairy legs.
A. Transfer body fluid
B. Transfer sperm
C. Used to touch
D. Have seven jointed segments
E. None of the Above

137. Unlike human hair, each spider hair found on the legs acts as a sensory organ, _____ and vibration.
A. Contains body fluid
B. Used to transfer sperm
C. Sensitive to touch
D. Has seven jointed segments
E. None of the Above

138. Each leg is made up of _____, called the coxa, trochanter, femur, patella, tibia, metatarsus, and tarsus.
A. Tiny receptacles
B. Reproductive organs, heart and silk glands
C. Two sperm-producing testes
D. Seven jointed segments
E. None of the Above

139. More than 30 muscles control the movement of each leg. In addition, some joints of the leg move by the hydraulic action of _____.
A. Body fluid
B. Hydraulic action
C. The palps
D. Seven jointed segments
E. None of the Above

140. The tips of the legs have two or three small claws that are used for _____the spider's silk thread.
A. Molting
B. Transferring sperm
C. Climbing or grasping
D. Moving the seven jointed segments
E. None of the Above

141. Many ground spiders have specialized adhesive hairs _____, known as claw tufts or scopulae.
A. Used to attack prey
B. Beneath their claws
C. Used for climbing or grasping
D. Used to spin webs
E. None of the Above

142. These claw tufts enable the spiders to _____on smooth, vertical surfaces—even upside down on glass.
A. Climb upside down
B. Transfer sperm
C. Sensitivity touch
D. Walk sure-footedly
E. None of the Above

Sensory Organs
143. Most spiders are active at night, and as a result, they use their other senses more than they use their _____, which is not well developed. In addition to the thousands of hairs found on the palps and legs that are highly sensitive to touch and vibrations, spiders also have hairs on their feet that they use to taste things.
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Spigots
D. Silk glands
E. None of the Above

144. Most spiders have four pairs of _____ (eyes with a single lens) that are located on the front of the cephalothorax.
A. Compound palps
B. Simple eyes or Eyes
C. Spigots
D. Palps
E. None of the Above

145. The _____ are usually grouped into two or three rows that form specific patterns in different spider families. This eye arrangement is often used to identify and classify a spider.
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Spigots
D. Silk
E. None of the Above

146. Unlike spiders that are active at night, spiders that are active during the day, such as jumping spiders and lynx spiders, typically have _____at close range.
A. Good vision
B. Simple eyes or Eyes
C. Poor vision
D. Average vision
E. None of the Above

147. Their vision easily rivals the _____ of many insects, which have compound eyes (eyes with multiple lenses).
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Advance
D. Best
E. None of the Above

Spider's Abdomen
148. The spider's abdomen is soft and saclike. On the underside of the tip of the abdomen are three pairs of _____.
A. Palps
B. Shortened limbs
C. Spigots
D. Spinnerets
E. None of the Above

149. Each spinneret is studded with many fine, hair-like tubes called spigots, which produce a variety of silk threads. The _____ lead to several large silk glands inside the abdomen.
A. Palps
B. Shortened limbs
C. Spigot
D. Chelicerae
E. None of the Above

150. _____ is formed as a liquid inside these abdominal glands.
A. Digestive system fluids
B. Sperm
C. Larva
D. Silk
E. None of the Above

Tick Section
151. Most hard ticks undergo a 2-year life cycle in which they begin as _____.
A. 5-legged larvae
B. 8-legged larvae
C. 3-legged larvae
D. 6-legged larvae
E. None of the above

152. These ticks generally feed for_____.
A. Many days
B. Weeks
C. Months
D. Years
E. None of the above

153. The larvae hatch from eggs in the_____.
A. Winter
B. Spring
C. Summer
D. Fall
E. None of the above

154. If the larvae do not find a host for a blood meal, they _____.
A. Wait for a host
B. Attach to the ground
C. Live for a few days
D. Die
E. None of the above

155. Larvae that successfully feed then fall off the host live in the soil and decaying vegetation over the_____.
A. Winter
B. Spring
C. Fall
D. Summer

156. In_____, most often in May and June, the larvae molt into 8-legged nymphs.
A. Winter
B. Spring
C. Fall
D. Summer
E. None of the above

157. These _____ are quite small and seek their blood meal from a small vertebrate.
A. Nymphs
B. Dealates
C. Diapause
D. Peromyscus leucopus
E. None of the above

158. The _____ adult tick is somewhat larger and seeks a larger host for its required blood meal.
A. 5-legged
B. 8-legged
C. 3-legged
D. 6-legged
E. None of the above

159. The _____is the preferred host for adult ticks.
A. White-tailed deer
B. White-tailed rabbit
C. Bear
D. Fish
E. None of the above

160. In the United States, only ticks of the genus ornithodoros transmit_____, namely, relapsing fever.
A. Tick borne
B. Vector-borne
C. Human disease
D. Peromyscus leucopus
E. None of the above

161. The biology of soft ticks differs from that of hard ticks in that meals last for only short periods (<1 hour), and disease can be transmitted in less than _____.
A. 1 minute
B. 1 Day
C. 1 Week
D. 1 hour
E. None of the above

162. This tick species occurs from central Texas east to the Atlantic coast and north to Iowa and New York; it has also been reported in northern_____.
A. Atlantic coast
B. Arizona
C. Mexico
D. California
E. None of the above

163. The _____ is found in wooded areas;
A. Nymph
B. Seed tick
C. Lone Star tick
D. Brown dog tick
E. None of the above

164. Each female produces _____eggs, which are deposited under leaf and soil litter in middle to late spring.
A. 100-300
B. 1000-3000
C. 300-800
D. 3,000-8,000
E. None of the above

165. Incubation may take 30 days or longer, depending on_____.
A. Light
B. Temperature
C. Humidity
D. Weather
E. None of the above

166. The newly hatched six-legged immatures, also known as larvae or Seed ticks feed for _____ on a host.
A. 7-16 days
B. 3 to 7 days
C. 9-27 days
D. 4-15 months
E. None of the above

167. After full engorgement the larvae drop from the host into vegetation and shed their skins _____ later.
A. 7-16 days
B. 3 to 7 days
C. 9-27 days
D. 4-15 months
E. None of the above

168. The eight-legged immatures that emerge are called_____.
A. Immatures
B. Nymphs
C. Lone Star ticks
D. Seed ticks
E. None of the above

169. These attach to a second host and feed for up to _____.
A. 38 days
B. 3 to 7 days
C. 9-27 days
D. 13-46 days
E. None of the above

170. The nymphs then detach and rest for_____before they shed their skins to become adults.
A. 38 days
B. 3 to 7 days
C. 9-27 days
D. 13-46 days
E. None of the above

171. Adults attach to a third host, feed for_____, and detach.
A. 38 days
B. 3 to 7 days
C. 6-24 days
D. 13-46 days
E. None of the above

172. Oviposition occurs _____after the last blood meal.
A. 38 days
B. 7-16 days
C. 6-24 days
D. 13-46 days
E. None of the above

173. Larvae may survive for _____.
A. 3-6 months
B. 4-15 months
C. 2-9 months
D. 13-46 days
E. None of the above

174. Nymphs and adults survive for _____each.
A. 3-6 months
B. 4-15 months
C. 2-9 months
D. None of the above

175. The life cycle may take up to _____to complete.
A. 6 years
B. 4-15 months
C. 2-9 months
D. 2 years
E. None of the above

176. Lone Star tick nymphs can move very quickly and may cover a person's legs or arms in less than_____.
A. 13-46 days
B. 5 minutes
C. 4-15 months
D. 10 minutes
E. None of the above

177. Earlier in the _____, female ticks deposit masses of several thousand eggs on the ground.
A. Summer
B. Spring
C. Winter
D. Fall
E. None of the above

178. Anyone unfortunate enough to pass through such a site can easily pick up _____.
A. Dozens of larvae
B. Human Diseases
C. Flea Dirt
D. Seed ticks
E. None of the above

179. These tiny, 6-legged creatures, also called “seed ticks ", are most active between _____.
A. September and October
B. July and October
C. October and November
D. July and August
E. None of the above

180. Adults and nymphs are active from_____.
A. Early spring through midsummer
B. Late summer to early fall
C. Early Spring to late Fall
D. Late fall in early winter
E. None of the above

181. Larvae are active mainly from_____.
A. Early spring through midsummer
B. Late summer to early fall
C. Early Spring to late Fall
D. Late fall in early winter
E. None of the above

182. Low _____and high daytime temperatures restrict the occurrence and activity of these ticks.
A. Evening temperatures
B. Dew points
C. Humidities
D. Morning temperatures
E. None of the above

183. All three life stages of A. americanum aggressively bite people in the southern U.S. Research indicates that live spirochetes are observed in only _____ of A. americanum.
A. 1-3%
B. 2-4%
C. 4-5%
D. 6-9%
E. None of the above

184. The American dog tick is found throughout _____except in parts of the Rocky Mountain region.
A. Asia
B. The United States
C. England
D. Africa
E. None of the above

185. Its habitat includes _____.
A. Wooded areas
B. Abandoned fields
C. Medium height grasses
D. Sunny or open areas around woods
E. ALL of the above

186. The female lays 4,000-6,500 ellipsoidal eggs over a _____ period and then dies.
A. 14-32 day
B. 12-14 day
C. 32-40 day
D. 5-13 day
E. None of the above

187. The eggs usually hatch in _____.
A. 42-60 days
B. 14-32 days
C. 36-57 days
D. 12-36 days
E. None of the above

188. Larvae usually engorge for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

189. Nymphs for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

190. Adult females for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

191. Unfed larvae can live up to _____.
A. 15 months
B. 30 months
C. 20 months
D. None of the above

192. Nymphs can live up to_____.
A. 15 months
B. 30 months
C. 20 months
D. 40 months
E. None of the above

193. Adults can live up to_____ or longer.
A. 15 months
B. 30 months
C. 20 months
D. 40 months
E. None of the above

194. Adults are active from _____.
A. Mid-April to early September
B. June to early September
C. March through July
D. Mid summer to late fall
E. None of the above

195. Nymphs are active from _____.
A. Mid-April to early September
B. June to early September
C. March through July
D. Mid summer to late fall
E. None of the above

196. Larvae are active from _____.
A. Mid-April to early September
B. June to early September
C. Late March through July
D. Mid summer to late fall
E. None of the above

197. High light intensity and _____ stimulate questing behavior.
A. Low relative humidity
B. High relative humidity
C. Low temps
D. High temps
E. None of the above

198. The American dog tick is found throughout _____.
A. Eastern United States
B. Canada
C. Mexico
D. New England
E. None of the above

199. This tick is not known to spread _____, although it can transmit the causal agent of Rocky Mountain spotted fever.
A. Lyme disease
B. Borrelia lonestari
C. Human diseases
D. Seed ticks
E. None of the above

200. Adults become active about mid-April to _____and remain a nuisance until August.
A. Late May
B. Late August
C. Early August
D. Early May
E. None of the above

Common Kinds of Pesticides and their Function

201. Kill nematodes (microscopic, worm-like organisms that feed on plant roots).
A. Fumigants
B. Insecticides
C. Nematicides
D. Microbial pesticides
E. Molluscicides
F. None of the Above

202. Kill eggs of insects and mites.
A. Ovicides
B. Microbial pesticides
C. Pheromones
D. Molluscicides
E. Rodenticides
F. None of the Above

203. Kill microorganisms.
A. Biocides
B. Antimicrobials
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

204. Kill or inactivate disease-producing microorganisms on inanimate objects.
A. Disinfectants and sanitizers
B. Antimicrobials
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

205. Kill fungi (including blights, mildews, molds, and rusts).
A. Disinfectants and sanitizers
B. Fungicides
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

206. Produce gas or vapor intended to destroy pests in buildings or soil.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

207. Control algae in lakes, canals, swimming pools, water tanks, and other sites.
A. Disinfectants and sanitizers D. Miticides
B. Antimicrobials E. Algaecides
C. Fumigants F. None of the Above

208. Kill or repel organisms that attach to underwater surfaces, such as boat bottoms.
A. Disinfectants and sanitizers D. Miticides
B. Antifouling agents E. Rodenticides
C. Fumigants F. None of the Above

209. Kill microorganisms (such as bacteria and viruses).
A. Disinfectants and sanitizers D. Miticides
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

210. Attract pests (for example, to lure an insect or rodent to a trap).
(However, food is not considered a pesticide when used as an attractant.)
A. Disinfectants and sanitizers D. Attractants
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

211. Kill weeds and other plants that grow where they are not wanted.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Herbicides
C. Nematicides F. None of the Above

212. Kill insects and other arthropods.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

213. Kill mites that feed on plants and animals.
A. Ovicides D. Molluscicides
B. Miticides E. Rodenticides
C. Pheromones F. None of the Above

214. Microorganisms that kill, inhibit, or out compete pests, including insects or other microorganisms.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

215. Kill snails and slugs.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

216. Biochemicals used to disrupt the mating behavior of insects.
A. Ovicides D. Molluscicides
B. Microbial pesticides E. Rodenticides
C. Pheromones F. None of the Above

217. Repel pests, including insects (such as mosquitoes) and birds.
A. Fumigants D. Repellents
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

218. Control mice and other rodents.
A. Ovicides D. Molluscicides
B. Microbial pesticides E. Rodenticides
C. Pheromones F. None of the Above

The term pesticide also includes these substances:
219. Cause leaves or other foliage to drop from a plant, usually to facilitate harvest.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

220. Promote drying of living tissues, such as unwanted plant tops.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

221. Disrupt the molting, maturity from pupal stage to adult or other life processes of insects.
A. Desiccants D. Insect growth regulators
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

222. Substances (excluding fertilizers or other plant nutrients) that alter the expected growth, flowering, or reproduction rate of plants.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

The U.S. definition of pesticides is quite broad, but it does have some exclusions:
223. _____used to control diseases of humans or animals (such as livestock and pets) are not considered pesticides; such drugs are regulated by the Food and Drug Administration.
A. Antimicrobials D. Drugs
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

224. Fertilizers, nutrients, and other substances used to promote plant survival and health are not considered plant growth regulators and thus are not _____.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Pesticides
C. Biopesticides F. None of the Above

225. Products which contain certain_____, such as garlic and mint oil, have been exempted from Federal registration requirements, although State regulatory requirements may still apply.
A. Antimicrobials D. Conventional pesticides
B. Low-risk ingredients E. Biochemical pesticides
C. Biopesticides F. None of the Above

Antimicrobial Pesticides

226. Antimicrobials are especially important because many are_____. They help to control microorganisms (viruses, bacteria, and other microorganisms) that can cause human disease.

A. Public health pesticides
B. Biological control agents
C. Biopesticides
D. Conventional pesticides
E. Biochemical pesticides
F. None of the Above

227. Antimicrobial _____are used as disinfectants in medical settings, where they are present in products used in cleaning cabinets, floors, walls, toilets, and other surfaces.

A. Public health pesticides
B. Biological control agents
C. Biopesticides
D. Conventional pesticides
E. Biochemical pesticides
F. None of the Above

228. Proper use of these _____is an important part of infection control activities employed by hospitals and other medical establishments.

A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Conventional pesticides
E. Disinfectants
F. None of the Above

Biopesticides

229. Biopesticides are certain types of pesticides derived from such natural materials as animals, plants, _____, and certain minerals.

A. Antimicrobials
B. Biological control agents
C. Bacteria
D. Conventional pesticides,
E. Biochemical pesticides
F. None of the Above

230. Canola oil and baking soda have pesticidal applications and are considered _____.

A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Conventional pesticides
E. Biochemical pesticides
F. None of the Above

Biopesticides fall into three major classes:

231. _____ consist of a microorganism (e.g., a bacterium, fungus, virus or protozoan) as the active ingredient.

A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Microbial pesticides
E. Biochemical pesticides
F. None of the Above

232. _____ can control many different kinds of pests, although each separate active ingredient is relatively specific for its target pest[s].

A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Microbial pesticides
E. Biochemical pesticides
F. None of the Above

233. The most widely used microbial pesticides are subspecies and strains of Bacillus thuringiensis, or Bt. Each strain of this _____ produces a different mix of proteins, and specifically kills one or a few related species of insect larvae.

A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Bacterium
E. Biochemical pesticides
F. None of the Above

234. While some Bt's control moth larvae found on plants, other Bt's are specific for larvae of flies and mosquitoes. The target insect species are determined by whether the particular Bt produces a protein that can bind to a _____, thereby causing the insect larvae to starve.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

235. Plant-Incorporated-Protectants (PIPs) are _____that plants produce from genetic material that has been added to the plant.
A. Pesticidal substances D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

236. _____are naturally occurring substances that control pests by non-toxic mechanisms.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biochemical pesticides F. None of the Above

237. _____, by contrast, are generally synthetic materials that directly kill or inactivate the pest.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

238. _____include substances, such as insect sex pheromones that interfere with mating as well as various scented plant extracts that attract insect pests to traps.
A. Biochemical pesticides D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

What are the advantages of using biopesticides?
239. Biopesticides are usually inherently less toxic than _____.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

240. Biopesticides generally affect only the target pest and closely related organisms, in contrast to broad spectrum, _____ that may affect organisms as different as birds, insects, and mammals.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

241. _____often are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

242. When used as a component of Integrated Pest Management (IPM) programs, _____ can greatly decrease the use of conventional pesticides, while crop yields remain high. To use biopesticides effectively, however, users need to know a great deal about managing pests.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

What is Malathion?

243. Malathion is an organophosphate (OP) insecticide that has been registered for use in the United States since 1956. It is used in agriculture, residential gardens, public recreation areas, and in_____.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Public health pest control programs
E. High-dose poisoning
F. None of the Above

244. When applied in accordance with the rate of application and safety precautions specified on the label, _____can be used to kill mosquitoes without posing unreasonable risks to human health or the environment.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Malathion
D. Active ingredient
E. High-dose poisoning
F. None of the Above

How is Malathion Used in Mosquito Control?

245. The _____goes through four distinct stages during its life cycle: egg, larva, pupa, and adult.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Mosquito
D. Active ingredient
E. Malathion
F. None of the Above

246 _____ is an adulticide, used to kill adult mosquitoes. In mosquito control programs conducted by state or local authorities.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. Malathion
F. None of the Above

247. Malathion is applied by truck-mounted or_____.

A. Ultra-low volume or (ULV)
B. Aircraft-mounted sprayers
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

248. Malathion is applied as an _____ spray.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

249. ULV _____ dispense very fine aerosol droplets that stay aloft and kill mosquitoes on contact.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

250. _____ applications involve small quantities of pesticide active ingredient in relation to the size of the area treated.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

251. For mosquito control, Malathion is applied at a maximum rate of 0.23 pounds (or about 2.5 fluid ounces) of _____ per acre, which minimizes exposure and risks to people and the environment.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

Does Malathion Pose Risks to Human Health?

252. Malathion can be used for public health _____without posing unreasonable risks to the general population when applied according to the label.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. Mosquito control programs
C. Maximum rate F. None of the Above

253. The EPA has estimated the exposure and risks to both adults and children posed by ULV aerial and _____of Malathion.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Ground applications E. High-dose poisoning
C. Maximum rate F. None of the Above

254. Because of the very small amount of _____ released per acre of ground, the estimates found that for all scenarios considered, exposures were hundreds or even thousands of times below an amount that might pose a health concern.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

255. These estimates assumed several spraying events over a period of weeks, and also assumed that a toddler would ingest some soil and grass in addition to_____.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Skin and inhalation exposure E. High-dose poisoning
C. Maximum rate F. None of the Above

256. At high doses, Malathion, like other _____, can over stimulate the nervous system causing nausea, dizziness, or confusion.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphates or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

257. Severe high-dose poisoning with any _____ can cause convulsions, respiratory paralysis, and death.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

Does Malathion Pose Risks to Wildlife or the Environment?

258. _____used in mosquito control programs does not pose unreasonable risks to wildlife or the environment.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. Malathion
C. Maximum rate F. None of the Above

259. Malathion degrades rapidly in the_____, especially in moist soil, and it displays low toxicity to birds and mammals.
A. Ultra-low volume or (ULV) D. Environment
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

260. Malathion is _____to insects, including beneficial insects such as honeybees. For that reason, the EPA has established specific precautions on the label to reduce such risks.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Highly toxic E. High-dose poisoning
C. Maximum rate F. None of the Above

Larvicides For Mosquito Control

261. The _____ evaluates and registers (licenses) pesticides to ensure that they can be used safely.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

262. These pesticides include products used in the _____ that states and communities have established.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

263. To evaluate any pesticide, the EPA assesses a wide variety of tests to determine whether a pesticide has the potential to cause adverse effects on humans, wildlife, fish and plants, including endangered species and_____.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Non-target organisms F. None of the Above

264. Officials responsible for mosquito control programs make decisions to use pesticides based on an evaluation of the risks to the general public from diseases transmitted by mosquitoes or on an evaluation of the _____that communities can tolerate from a mosquito infestation.
A. Prevention programs D. Mosquito control programs
B. Nuisance level E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

265. Based on _____, mosquito control officials select specific pesticides and other control measures that best suit local conditions in order to achieve effective control of mosquitoes with the least impact on human health and the environment.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

266. It is especially important to conduct effective mosquito prevention programs by eliminating _____or applying pesticides to control the early life stages of the mosquito.
A. Prevention programs D. Mosquito control programs
B. Breeding habitats E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

267. Prevention programs, such as elimination of any standing water that could serve as a breeding site, help reduce the _____and the need to apply other pesticides for adult mosquito control.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Adult mosquito population F. None of the Above

268. Since no pesticide can be considered 100 percent safe, _____and the general public should always exercise care and follow specified safety precautions during use to reduce risks.
A. Pesticide applicators D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

What are Larvicides?

269. Larvicides kill mosquito larvae. Larvicides include_____, such as the microbial larvicides Bacillus sphaericus and Bacillus thuringiensis israelensis.

A. IPM D. Mosquito larvae
B. Control program E. Biological insecticides
C. Bacillus sphaericus F. None of the Above

270. Since mosquitoes must have water to breed, source reduction can be as simple as turning over trapped water in a container to _____and management of marsh water levels.

A. IPM D. Mosquito larvae
B. Control program E. Undertaking large-scale engineering
C. Bacillus sphaericus F. None of the Above

271. Larviciding involves _____to breeding habitats to kill mosquito larvae. Larviciding can reduce overall pesticide usage in a control program.

A. IPM D. Mosquito larvae
B. Control program E. Temephos
C. Applying pesticides F. None of the Above

272. Killing mosquito larvae before they emerge as adults can reduce or eliminate the need for ground or aerial application of pesticides to_____.

A. IPM D. Mosquito larvae
B. Control program E. Kill adult mosquitoes
C. Bacillus sphaericus F. None of the Above

What are Microbial Larvicides?

273. Microbial larvicides are _____that are registered as pesticides for control of mosquito larvae in outdoor areas such as irrigation ditches, flood water, standing ponds, woodland pools, pastures, tidal water, fresh or saltwater marshes, and storm water retention areas.

A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacteria F. None of the Above

274. Duration of effectiveness depends primarily on the_____, the environmental conditions, the formulation of the product, and water quality.

A. IPM D. Mosquito species
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

275. Microbial larvicides may be used along with other mosquito control measures in an IPM program. The microbial larvicides used for mosquito control are _____ and Bacillus sphaericus (B. sphaericus).

A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

276. _____ is a naturally occurring soil bacterium registered for control of mosquito larvae.

A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

277. Bti was first registered by the EPA as an insecticide in 1983. Mosquito larvae eat the _____ product that is made up of the dormant spore form of the bacterium and an associated pure toxin.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

278. The _____disrupts the gut in the mosquito by binding to receptor cells present in insects, but not in mammals.
A. Toxin D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

279. There are 26 Bti products registered for use in the United States. Aquabac, Teknar, Vectobac, and _____are examples of common trade names for the mosquito control products.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

280. _____ is a naturally occurring bacterium that is found throughout the world. B. sphaericus was initially registered by the EPA in 1991 for use against various kinds of mosquito larvae.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

281. Mosquito larvae ingest the bacteria, and as with _____, the toxin disrupts the gut in the mosquito by binding to receptor cells present in insects but not in mammals.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

282. VectoLex CG and WDG are registered _____products and are effective for approximately one to four weeks after application.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. B. sphaericus F. None of the Above

Do Microbial Larvicides Pose Risks to Human Health?
283. The microbial pesticides have undergone extensive testing prior to registration. They are essentially nontoxic to humans, so there are no concerns for human health effects with _____ or B. sphaericus when they are used according to label directions.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

Do Microbial Larvicides Pose Risks to Wildlife or the Environment?
284. Extensive testing shows that _____do not pose risks to wildlife, non-target species, or the environment, when used according to label directions.
A. IPM D. Mosquito larvae
B. Altosid E. Microbial larvicides
C. Methoprene F. None of the Above

What is Methoprene?

285. Methoprene is a compound first registered by the EPA in 1975 that mimics the action of an insect growth-regulating hormone and prevents the normal maturation of_____.

A. IPM
B. Altosid
C. Methoprene
D. Insect larvae
E. Nontoxic
F. None of the Above

286. It is applied to water to kill _____, and it may be used along with other mosquito control measures in an IPM program.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

287. _____ is the name of the methoprene product used in mosquito control and is applied as briquettes (similar in form to charcoal briquettes), pellets, sand granules, and liquids. The liquid and pelletized formulations can be applied by helicopter and fixed-wing aircraft.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

Does Methoprene Pose Risks to Human Health?

288. _____, used for mosquito control according to its label directions, does not pose unreasonable risks to human health.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

289. In addition to posing _____to mammals, there is little opportunity for human exposure, since the material is applied directly to ditches, ponds, marshes, or flooded areas that are not drinking water sources.

A. Low toxicity
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

Does Methoprene Pose Risks to Wildlife or the Environment?

290. Methoprene used in _____does not pose unreasonable risks to wildlife or the environment.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Mosquito control programs
F. None of the Above

291. Toxicity of methoprene to birds and fish is low, and it is _____ to bees.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

292. _____ breaks down quickly in water and soil and will not leach into ground water.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

293. _____ mosquito control products present minimal acute and chronic risk to freshwater fish, freshwater invertebrates, and estuarine species.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

What is Temephos?

294. Temephos is an organophosphate (OP) pesticide registered by the EPA in 1965 to control mosquito larvae, and it is the only organophosphate with_____. It is an important resistance management tool for mosquito control programs; its use helps prevent mosquitoes from developing resistance to the bacterial larvicides.

A. IPM
B. Larvicidal use
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

295. Temephos is used in areas of standing water, shallow ponds, swamps, marshes, and intertidal zones. It may be used along with other mosquito control measures in an _____ program.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

296. _____is the trade name of the temephos product used for mosquito control.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

297. _____ is applied most commonly by helicopter but can be applied by backpack sprayers, fixed-wing aircraft, and right-of-way sprayers in either liquid or granular form.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

Does Temephos Pose Risks to Human Health?

298. _____, applied according to the label for mosquito control, does not pose unreasonable risks to human health.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

299. It is applied to water, and the amount of _____ is very small in relation to the area covered, less than 1 ounce of active ingredient per acre for the liquid and 8 ounces per acre for the granular formulations.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

300. _____breaks down within a few days in water, and post-application exposure is minimal.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

You are finished, please submit the answer and registration page…

General Pests CEU Training Awareness Assignment #2
For Students Names H-P

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.

Write your answers on the Answer Key found in the front of this assignment.

INSTRUCTIONS

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

2. 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 P, you are to complete assignment number 2 and if your last name begins with the letter Q-Z, you will pick assignment number 3.

Multiple Choice, Please select one answer and mark it on the answer key. (s) Means the answer is plural or singular.

Ant Section

1. This behavior pattern is known as "satelliting," " _____" or "budding" where part of the colony migrates to a new location rather than by single females dispersing after a reproductive swarm.
A. Immaturing
B. Fractionating
C. Thimble
D. Overcrowding
E. None of the Above

2. Budding may occur due to_____, seasonal changes in the building's central heating and cooling system, or application of a repellent pesticide.
A. Immatures
B. Thimble
C. Fractionating
D. Overcrowding
E. None of the Above

3. Nests are often so small they can be contained in a_____, located between sheets of paper, in clothing or laundry, furniture, foods, etc.
A. Immatures
B. Fractionating
C. Thimble
D. Overcrowding
E. None of the Above

4. They prefer dark, warm areas near hot water pipes and _____, in bathrooms, kitchens, intensive care units, operating rooms, etc.
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

5. They are "trail-making" ants and often are found foraging in drains, toilets, _____, bedpans, and other unsanitary sites, as well as in sealed packs of sterile dressing, intravenous drip systems, on surgical wounds, food, and medical equipment.
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

Habitat, Food Source(s), Damage
6. Mouthparts are for chewing. Pharaoh ants are_____, feeding on sweets (jelly, particularly mint apple jelly, sugar, honey, etc.), cakes and breads, and greasy or fatty foods (pies, butter, liver, and bacon).
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

7. Nests can be found outdoors and almost anywhere indoors (light sockets, potted plants, wall voids, attics, in any cracks and_____) particularly close to sources of warmth and water.
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

Pharaoh Ant Control Measures
8. Pharaoh ants are usually much harder to control than other ants because of their _____.
A. Ability to disperse
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

9. There may be dozens or _____in a single building and when a few colonies are missed during control, populations will quickly rebound. About 90 percent of the colony remains hidden in the nest, so even if 10 percent of the colony is killed by a residual pesticide, the remaining reservoir of ants is enormous.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

10. Conventional contact pesticide applications, especially repellent products such as pyrethrins, may spread infestations to new areas with _____blossoming within the structure.
A. Multiple colonies
B. Hundreds of colonies
C. Ability to disperse
D. Long term
E. None of the Above

11. These ants will avoid certain pesticides. Control is difficult and often _____ (months to years), depending on the building size, wall voids, etc., especially in hospitals and food plants. Complete cooperation from the property manager and residents is essential for a successful control program.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

Inspection
12. Carefully examine the building inside and outside from the roof to the basement, finding the ant distribution, population size, and food sources. Locate ant trails, following them to _____.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

13. A single stream of ants moving in one direction may indicate_____, not foraging. Mark the established feeding trail with a sticker and date. Trails with many ants coming and going indicate a large colony.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Colony movement
E. None of the Above

14. _____ (dilute honey or peanut butter on three-by-five cards) helps to identify "hot spots," but with experience, one will already know where such places are located.
A. Ability to disperse
B. Pre-baiting
C. Multiple colonies
D. Long term
E. None of the Above

15. In the winter, these ants tend to concentrate near and_____, whereas in the spring and summer, they move to the outside walls and distribute themselves throughout the building. Carefully check areas with moisture, such as pipes, faucets, air conditioners, refrigerators, drains, leaking roofs, etc.
A. Ability to disperse
B. Pre-baiting
C. Multiple colonies
D. Around heat
E. None of the Above

Prevention

16. When insecticides are prohibited around high-tech equipment and in health areas, use sticky tapes, double-faced adhesive tapes, and _____(glue side out) wrapped around objects as barriers.

A. Masking tape
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

17. Use a ring_____, non-hardening glues, sticky dust mats, or glue boards under equipment legs.

A. Masking tape.
B. Petroleum jelly
C. Multiple colonies
D. Long term
E. None of the Above

18. Seal cracks and voids with _____after applying low residual repellent insecticides such as chlorpyrifos (Dursban) or Diazinon.

A. Masking tape.
B. Petroleum jelly
C. Caulking compound
D. Long term
E. None of the Above

Insecticides

19. In areas of active colonies, treat walls and ceiling voids through cracks and crevices with _____and make bait placements.

A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

20. Keep the ants in the area long enough to get the _____to the main colony where the workers, larvae and queens are poisoned. (A delayed-action stomach poison is recommended.)

A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

21. Repellent insecticides, such as_____, will move the colonies, spreading them further throughout the building.

A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

22. Research has shown that it is best to use bait placement only where _____ are found. This ensures feeding, since some ants have not been able to find the bait even when only one inch away from the bait stations.
A. Active ant trails
B. Slow-acting toxicants
C. Pyrethrins
D. Non-repellent boric acid dust
E. None of the Above

23. Intersect the ant trail with bait on a cotton swab taken from the station to ensure instant feeding. _____may change during the season due to changing needs of the developing colonies. An effective bait is a 99 percent boric acid formulation mixed at a 5 percent concentration by weight in mint apple jelly (about two level tablespoons of powdered boric acid per 10 ounces of mint apple jelly). Another bait is 2 percent boric acid and 98 percent light corn syrup.
A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

Methoprene
24. A commercial bait called _____(Pharorid) is marketed for use by pest control operators in a bait that consists of liver, honey, and sponge cake. It is often difficult to use the bait ants prefer; as ants feed on one compound, another compound placed less than 1/4-inch away will be ignored until the ants spill over into the second bait.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

Boric Acid
25. Boric acid and methoprene baits work slowly, sometimes taking 15 to 40 weeks or more before ant eradication. A bait containing _____(same as in Maxforce roach bait stations) gives quicker results, 2 to 35 days, according to certain pest control operators.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

26. Bait stations may include jumbo size plastic drinking straw sections, medicine (pill) dispensing cups, plastic vial caps and/or drafting (masking) tape. Placement can be made on the rear lip of kitchen counters, at plumbing pipe-wall junctions, on window sills, behind wall electrical outlets, above door frames, etc., in less accessible areas of pets or young children. There may be increased or new ant feeding activity during the early part of the_____. No other pesticides, heavy-duty cleaners, or paints should be used during the baiting periods to discourage ant feeding.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

Bendiocarb

27. Applications of _____(Ficam), which is odorless, can give fast eradication of Pharaoh ants if treatments are thorough. Ficam 76 percent WP and 91 percent dust are labeled for licensed commercial and pest control operators.

A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

28. The bait products most recommended for Pharaoh ant control include: (boric acid plus mint apple jelly (Drax), hydramethylnon (Maxforce), methoprene (Pharorid), bendiocarb (Ficam), propoxur (Baygon) and _____(Pro-Control)).

A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

29. After bait stations are placed, one will see ants trailing to and from these bait stations. Do not spray or disturb the ants or_____. Ants must be allowed to carry the bait back into their nest where the active ingredient in the bait will eliminate the colony.

A. Methoprene
B. Bait stations
C. Bendiocarb
D. Sulfluramid
E. None of the Above

30. Usually, Pharaoh ant control is best achieved by a licensed pest control operator or applicator who is trained, experienced, and has the proper equipment--an Applicator like yourself. Before using an_____, always read the label, follow directions and safety precautions.

A. Methoprene
B. Bait stations
C. Bendiocarb
D. Insecticide
E. None of the Above

Red Imported Fire Ants RIFA Solenopsis invicta

31. Red imported fire ants (RIFA) are medium sized ants that build mounds of soft soil rarely larger than_____. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day. Harvester ants are much larger and make large bare areas with a single entrance hole to the colony. Leaf cutter ants are also much larger and do not have a distinctive built-up mound, but do have many entrance holes over a very large area. Other small to medium-sized ants that build small mounds will actually run away from disturbances and aren't fire ants.

A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

32. Some confusion comes from the fact that red imported fire ants come in a variety of sizes (_____) with the largest workers 2 or 3 times larger than the smallest. Native fire ants are less common in imported fire ant infested areas. Solenopsis geminata is the most common native fire ant species encountered. To the unaided eye, they are almost identical to red imported fire ants. However, geminata will have a few larger workers with large, square-shaped heads. These ants specialize in collecting and milling seeds.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

Queens
33. Single queen (monogyne form): only one queen per colony or mound; slightly larger workers; members of colonies are territorial; mound densities usually_____; fewer ants per acre.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

34. Multiple queen (polygyne form): dozens of queens per colony; smaller average worker ants; colonies are interconnected; mound densities 100 to_____; more ants per acre.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

Difference between Fire Ants and Termites
35. Although most ants are recognizable, some forms of winged ants are often confused with termites, especially during the termite swarming season. The front pair of wings on ants is _____, while the four wings of termites are approximately the same size.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

36. Ants have "elbowed" antennae and a "_____," being narrow between the thorax and hind abdominal segments. Termites have the thorax and abdomen broadly connected and their antennae are straight and hair-like.
A. Thin waist
B. 1/16 to almost 1/4 inch long
C. Hair-like
D. Abdomen
E. None of the Above

History

37. Where are Fire Ants From?

Fire ants are from South America. They entered the U.S. through_____, probably in soil used for ships' ballast. They were accidentally introduced around the 1930s and have been spreading ever since.

A. Texas
B. Mobile, Alabama
C. 1,000+ per acre
D. Pacific Coast
E. None of the Above

We Didn't Used to Have Fire Ants When I Was a Child. Why Do We Have Them Now?

38. Red imported fire ants are very aggressive, efficient competitors. Since the 1950s, the ant has been spreading northward, westward, and southward from_____. Their northward spread depends on temperature.

A. Texas
B. Mobile, Alabama
C. 1,000+ per acre
D. Pacific Coast
E. None of the Above

39. Cold winters tend to push them back. Western spread is largely dependent on _____. They will mostly be found in urban areas, creek bottoms, irrigated land, etc. The entire Pacific Coast is fertile ground for infestation. The bad news is that they are probably here to stay. The good news is that with relatively little cost and effort, you can prevent most of the problems they cause using currently available methods.

A. Texas
B. Water
C. Temperature
D. Pacific Coast
E. None of the Above

Medical Importance

Why Do Fire Ants Appear to Sting at the Same Time?

40. Fire ants are sensitive to_____or movement and tend to sting when the object they are on moves.

A. Texas
B. Water
C. Temperature
D. Vibration
E. None of the Above

Is Their Sting Lethal?

41. Only to a very small portion of the population who experience severe allergic reactions. Fire ants inflict a fiery sting, which causes a _____or pustule to form at the site of each sting after several hours. The blisters become itchy while healing and are prone to infection if broken.

A. Small blister
B. Swelling and pain
C. Temperature
D. Pacific Coast
E. None of the Above

If You are Stung by a Fire Ant:
42. Apply a cold compress to relieve the_____. Gently wash the affected area with soap and water and leave the blister intact. People who are allergic to insect stings should seek medical attention immediately. On rare occasions, fire ant stings can cause severe acute allergic reaction (anaphylaxis).
A. Small blister
B. Thickening of the tongue
C. Temperature
D. Swelling and pain
E. None of the Above

What Should I do if I Get Stung?
43. There really isn't much you can do, except watch the area for excessive swelling, itching, or redness, or other symptoms like shortness of breath, _____, sweating, etc., that could indicate a systemic allergic reaction.
A. Texas
B. Water
C. Temperature
D. Thickening of the tongue
E. None of the Above

Are They as Lethal as Killer Bees?
44. They both attack en masse and both can cause fatal allergic reactions, but that's where similarities end. _____can overwhelm and kill even healthy, non-allergic people, but encounters are rather rare.
A. Africanized bees
B. Water
C. Temperature
D. Thickening of the tongue
E. None of the Above

45. _____can't overwhelm a healthy, mobile person and even hundreds of stings are rarely fatal. However, fire ant mounds are extremely common. So the chance of being killed by bees is higher if you come across them, but the chance of being killed by fire ants is higher only if you are highly allergic or cannot quickly get away from them. The chances of either are very small.
A. Africanized bees
B. Water
C. Fire ants
D. Thickening of the tongue
E. None of the Above

Impact of Red Imported Fire Ants
46. There are things being done, but it's not an easy problem to solve. First, imported fire ant control using today's methods provides only _____and costs money on a per- area basis.
A. Temporary suppression
B. Water
C. Temperature
D. Thickening of the tongue
E. None of the Above

47. Research is being supported to document the impact of the imported fire ant on wildlife and evaluate ant _____. While some wildlife species are undoubtedly declining due to fire ants, they are also declining due to land use practices and weather extremes, for instance. There is great hope that the biological control agents currently under investigation will spread into wildlife areas and permanently reduce imported fire ant populations there.
A. Periodic treatments
B. Water
C. Temperature
D. Management approaches
E. None of the Above

Are the Ants Killing my Trees?
48. The ants are mainly using the trees as a nesting place. Ants in mounds occurring at the base of the trunk are probably not causing any damage to well-established trees and may actually be helpful by preying on other insects that are feeding on parts of the tree and _____ by tunneling in the soil.
A. Periodic treatments
B. Water
C. Reducing compaction
D. Thickening of the tongue
E. None of the Above

Why Do Fire Ants Get into Laundry?
49. When it floods they move in into any good dark place but in_____, they tend to move to moist areas.
A. Reducing compaction
B. Water
C. Periodic treatments
D. Drought conditions
E. None of the Above

Fire Ant Management Approaches
50. Can Fire Ants be Eradicated Completely?
Red imported fire ants cannot be eradicated completely with methods available today. They can be eliminated temporarily from small areas, with proper_____.
A. Reducing compaction
B. Water
C. Periodic treatments
D. Control methods
E. None of the Above

Cockroach Section
Brownbanded Cockroach
51. Both nymphs and adults of this species are _____and can be distinguished easily by the presence of two angled or transverse bands across the base of the wings and abdomen.
A. Black
B. Red
C. Light brown
D. Internode
E. Detritivore
F. None of the Above

52. Adult males are 1/2 to 5/8 inch long; the female is slightly shorter. Though both have wings, only the _____ can fly.
A. Male
B. Female
C. TV roaches
D. Nymphs and adults
E. Instars
F. None of the Above

53. The _____ carries each egg capsule for only a day or two before attaching it to a protected surface.
A. Adult males D. Dealates
B. Female E. Phytotoxemia
C. Ovipositor F. None of the Above

54. The egg capsules are usually_____, and most of the eggs hatch within 50 days.
A. Diapause D. Deposited in clusters or rows
B. Cursorial E. Deposited in frass
C. Scutellum F. None of the Above

55. Approximately 5 to 18 egg capsules are produced per female, each containing 19 eggs. About 3 to 9 months are required to complete the _____.
A. Diapause D. Defoliate, defoliation
B. Estivation E. Reproductive cycle
C. Metamorphosis F. None of the Above

56. _____ prefer a dry, warm environment. They are generally found on ceilings, high on walls, and in light switches, closets and furniture. In some places they are known as "TV roaches" because of their frequent presence in living-room furniture and appliances.
A. Adult males D. Nymphs and adults
B. Female E. Reproductives
C. TV roaches F. None of the Above

57. The wings of _____ cover their abdomens, while the females' wings are shorter. The yellow bands across the back are more pronounced on nymphs than on adults.
A. Adult males D. Nymphs and adults
B. Female E. Dealates
C. Ovipositor F. None of the Above

58. These cockroaches are quite active, and the adults, especially the males, fly rapidly when disturbed. Both _____may jump to escape danger.
A. Adult males D. Adults and nymphs
B. Female E. Reproductives
C. Dealates F. None of the Above

59. The _____carries her egg capsule for only a day or two before gluing it to a protected surface underneath or inside furniture, in a closet or on the ceiling in a darkened room. They can also be found in televisions and other appliances.
A. Adult female D. Nymphs and adults
B. Detritivores E. Dealates
C. Pedipalps F. None of the Above

60. Brownbanded cockroaches are more apt to be found in homes, apartments, hotels, motels, nursing homes and hospitals than in restaurants, grocery stores and other commercial establishments. They prefer starchy foods and appear to have lower water requirements than _____.
A. American Cockroaches D. Nymphs and adults
B. German cockroaches E. Other cockroaches
C. TV roaches F. None of the Above

61. They can occupy drier locations within a building. _____ frequently are found on ceilings in dark or dimly lit rooms, behind picture frames, in light switches, in upper walls of cabinets and closets, or on undersides of furniture and inside upholstered furniture. Because brownbanded cockroaches are found in so many locations they may be more difficult to control.
A. American Cockroaches D. Nymphs and adults
B. German cockroaches E. Other cockroaches
C. TV roaches F. None of the Above

American Cockroach (Periplaneta americana)
62. The American cockroach is the largest of the common species, growing to a length of 1 1/2 to 2 inches. It is reddish-brown with a light yellow band around the edge of the _____.
A. Petiole D. Exoskeleton
B. Proboscis E. Crepuscular
C. Head shield F. None of the Above

63. Adults of both sexes have_____, but seldom fly. They are, however, capable of gliding flights.
A. Pedipalps D. Well-developed wings
B. Forbs E. Pronotums
C. Imagoes F. None of the Above

64. _____ are smaller than adults, grayish-brown in color and less fully winged.
A. Instars D. Nymphs and adults
B. Female E. Nymphal cockroaches
C. Imagoes F. None of the Above

65. The adult female usually drops her egg capsule within a day after it is formed. She often places the capsule near a food or water source or in a location where it can be covered with _____.
A. Frass D. Miscellaneous debris
B. Endosperm E. Poikilotherm
C. Capsule F. None of the Above

66. Occasionally, she glues the capsule to some surface with secretions from her mouth. The capsule may be _____in moist wood, in cracks in bark or in whorls of plants.
A. Ovipositor D. Overwinter
B. Diapause E. Deposited outdoors
C. Capsule F. None of the Above

American Cockroach
67. _____of this species are 1 1/2 to 2 inches long. They are the largest of all the cockroaches common in the World.
A. Adult males D. Adults
B. Female E. Nymphal cockroaches
C. Instars F. None of the Above

68. Both _____ are shiny, reddish brown with a pale brown or yellow band around the edge of the head and back. The wings of both the male and female extend slightly beyond the body.
A. Adult males D. Nymphs and adults
B. Female E. Male and female
C. Instars F. None of the Above

69. The female produces 15 to 90 egg capsules, each containing 14 to 16 eggs. Egg capsules are deposited near a _____ where the majority of eggs hatch within 60 days.
A. Dactyl D. Endosperm
B. Internode E. Scutellum
C. Capsule F. None of the Above

70. The _____ is completed in 12 to 18 months.
A. Overwinter D. Defoliate, defoliation
B. Dealate E. Reproductive cycle
C. Overwinter F. None of the Above

71. The _____ can survive 2 to 3 months without food and for a month without water.
A. Adult D. Internode
B. Ovipositor E. Nymphal cockroaches
C. Malformation F. None of the Above

72. _____are not typically found in homes; however, in commercial and industrial establishments they can be found in damp, warm basements, in furnace or boiler rooms, and storage rooms.
A. Adult males D. Nymphs and adults
B. Females E. American cockroaches
C. Ovipositors F. None of the Above

73. Because of their preference for _____, they are notable as a problem in urban commercial districts.
A. Finances D. Heat
B. Dry areas E. Sewers and heat tunnels
C. Food F. None of the Above

Oriental Cockroach
74. This dark reddish brown to black roach is commonly referred to as the "_____." It is considered the most repulsive of all of the roaches and has a strong odor.
A. Roach D. Chinese roach
B. Sewer bug E. Blackie
C. Water bug F. None of the Above

75. The adult females are 1 1/4 inches long and_____.
A. Carries an egg capsule D. Is a reproductive
B. Lives in sewer drains E. Almost wingless
C. Has 8 legs F. None of the Above

76. The _____are 1 inch long and have wings that are about half as long as their body. Neither males nor females can fly or glide.
A. Dealates D. Adult females
B. Instars E. Adult males
C. Nymphs F. None of the Above

77. The _____carries an egg capsule for about 30 hours and then drops or attaches it to a protected surface near food. On average, a female produces eight egg capsules, each containing 16 eggs which hatch within 60 days.
A. Dealates D. Reproductives
B. Nymphs E. Female
C. Roach F. None of the Above

78. The _____ of this roach is completed in 6 to 9 months.
A. Egg capsule D. Reproductive cycle
B. Mating E. Life cycle
C. Completion F. None of the Above

79. _____ prefer damp, cool, dark areas. They are generally found in sewer drains, crawl space areas, basements, cellars, or on the first floor of buildings.
A. Nymphs D. Dealates
B. Roaches E. Adult males
C. Water bugs F. None of the Above

80. Infestations by this roach are most frequently found during spring (_____) and fall (October). They may spend considerable time outdoors during warm weather.
A. March to June D. April and May
B. June and July E. May or June
C. August F. None of the Above

Wood Cockroach
81. This group of roaches causes occasional problems in homes and public places. They are seen in late _____, especially after rains.
A. March to June D. April and May
B. June and July E. May or June
C. August F. None of the Above

82. This roach is often confused with both adult American and_____. However, the wood roach is chestnut brown and has a dull white band around the edges of the head and back.
A. Females D. Oriental roaches
B. Roaches E. One generation per year
C. Adults F. None of the Above

83. Adults are 1 to 1 1/4 inches long. _____ have wings covering only about half the body and do not fly. Males have wings longer than the body and are excellent fliers.
A. Females D. Adult males
B. Roaches E. Instars
C. Adults F. None of the Above

84. Females produce about 30 egg capsules, each containing about 32 to 36 eggs. This roach completes _____.
A. Her work D. The life cycle
B. Nymphet stage E. One generation per year
C. Egg laying F. None of the Above

85. Wood cockroaches are usually found in wood piles, hollow trees or under loose bark. Buildings in wooded areas are prone to have problems with wood roaches during rainy periods. Although this roach prefers to live outside, _____ are attracted to light and may enter buildings. They are sometimes brought in along with firewood, but do not usually survive or multiply inside buildings.
A. Females D. Adult males
B. Roaches E. Dealates
C. Adults F. None of the Above

86. The _____is slightly more than 1 inch long and is a uniform, very dark brown to black. The head shield is a solid dark color.
A. Females D. Adult males
B. Roaches E. Nymphs
C. Adult F. None of the Above

87. Both _____have wings longer than their bodies and are capable of flying or gliding.
A. Dealates and Instars D. Nymphs and Adults
B. Roaches E. Males and females
C. Adults and Instars F. None of the Above

88. Nymphs are smaller than adults and have only partially developed wings. _____ usually carry their egg capsules for a day or two before attaching them to the outside surfaces of buildings and other protected sites near the ground.
A. Females D. Adult males
B. Roaches E. Adult females
C. Adults F. None of the Above

89. These _____ live primarily outdoors and prefer wood, leaf litter, trash piles and other humid sites with abundant organic matter. They also hide under rocks, ground cover and building materials. They may enter homes with infested firewood during seasonal migrations.
A. Females D. Adult males
B. Roaches E. Cockroaches
C. Adults F. None of the Above

Habitat
90. The Smokybrown cockroach has a great tendency to lose moisture through the cuticle and thus requires water every two to three days. These requirements are important to remember when implementing your _____.
A. Treatment D. Control program
B. Monitoring E. Roach extermination program
C. Penetration F. None of the Above

91. This pest is most likely found in areas which are protected, moist, dark, relatively warm and free from the _____. In nature, tree holes and the canopies of palm trees offer the ideal environment in which this bug can thrive.
A. Pesticide D. Desiccating effects of air flow
B. Dry habitat E. Treatment
C. Deep penetration F. None of the Above

Control Smokybrown Cockroaches
92. Eliminate or alter any conditions which encourage the _____ of the roaches. These pests thrive in dark, humid areas which have little or no air flow.
A. Life cycle D. Presence and/or reproduction
B. Moist habitat E. Removal and destroying hiding areas
C. Deeper penetration F. None of the Above

93. Spray exterior of structure with Suspend SC, Demon WP or Cynoff WP. These odorless insecticides will give a quick knockdown of bugs while lasting for several weeks, usually yielding about a _____.
A. 90 day residual D. 30 day residual
B. 10 day residual E. 50 day residual
C. 1 inch penetration F. None of the Above

94. Spray any crack, crevice or entry point on the outside of the structure. This includes treating around all windows, doors, vents and in _____ of brick veneer. Also spray tree trunks, from ground to crotch of tree, but no higher than six feet.
A. Areas D. Areas roaches like to hide
B. Weep holes E. And outside
C. Deep penetration F. None of the Above

95. All _____ should be sprayed with insecticide. These exterior surfaces should be treated 3 to 4 times each year.
A. Interiors D. Grass and bushes
B. Moist habitats E. Roaches
C. Mulched areas F. None of the Above

96. If necessary, _____ in the following areas: basements, garages, carports, attics, closets, laundry rooms.
A. Trap D. Dust
B. B and G E. Spray indoors
C. C/C F. None of the Above

97. Also treat beneath and behind large appliances (refrigerators, stoves, etc.) or other areas where these _____. (Spraying all of your baseboards with any bug spray is not necessary!)
A. Thrive in the dark D. Pests live
B. Have a moist habitat E. Roaches prefer to hide
C. Penetrate F. None of the Above

98. Indoor areas should be treated_____.
A. Indoor areas D. 2 to 3 times per year
B. Delta Dust E. 1 to 2 times per year
C. Spraying F. None of the Above

99. Hollow blocks or other areas such as behind brick walls and along plumbing lines should be treated with _____.
A. Indoor areas D. Hollow blocks
B. Delta Dust E. Crusader Duster
C. Spraying F. None of the Above

100. Although many dusts will kill roaches, _____ is water-proof and will not be destroyed by the moist habitat of the Smokybrown as would other dusts.
A. Indoor areas D. Hollow blocks
B. Delta Dust E. Crusader Duster
C. Spraying F. None of the Above

Spider Section

101. The Chelicerata includes spiders and scorpions, _____, horseshoe crabs, daddy-longlegs, and extinct "sea-scorpions", to name a few.
A. Wasps and Mites
B. Mites and ticks
C. Crabs and Cockroaches
D. All Arthropods
E. None of the Above

102. Chelicerata is the second most prominent order of terrestrial arthropods, after the uniramians. Most of its marine representatives are extinct, but were prominent in the _____and included some fearsome predators.
A. Metaphidippus Era
B. Prehistoric time
C. Paleozoic Era
D. Devonian Period
E. None of the Above

103. Chelicerata are now distinguished from the other _____by the possession of (at least) six pairs of appendages. These normally include four pairs of walking legs, a pair of chelicerae and a pair of pedipalps.
A. Metaphidippus
B. Mites and ticks
C. Crabs
D. Arthropod groups
E. None of the Above

104. Chelicerata have no mandibles and no antennae and the body is divided into two, not three, sections, as in the Uniramia. They are, however, normally _____, have a through gut, have uniramous appendages, a non-calcareous exoskeleton, and are gonochoristic.
A. Bilaterally symmetrical
B. Completely relying
C. They spin a thread
D. They form a Y-shaped structure and
E. None of the Above

105. No chelicerates possess jaws for _____, but suck up their food in liquid or semi-liquid form.
A. Communication
B. Inject digestive juices
C. Biting and chewing
D. Breathing
E. None of the Above

106. Most species go in for external digestion to some extent, meaning they secrete digestive juices onto the food item as it is held close to the mouth or _____into their prey's body, and suck up the half-digested soup that results.
A. Palps
B. Inject digestive juices
C. Biting and chewing
D. Communication
E. None of the Above

107. The inclusion of the class Pycnogonida in the Chelicerata is _____but not scientifically proven; the fossil record for pycnogonids is very scant and they differ in many ways from the other chelicerates.
A. Control insect populations
B. Feed on detritus
C. Biting and chewing
D. Generally accepted
E. None of the Above

108. The Chelicerata contain more than 80,000 species known to science, most of which are Arachnids divided almost evenly between the _____.
A. Spiders and the mites
B. Crabs and wasps
C. Mites and crabs
D. Spiders and crabs
E. None of the Above

109. Chelicerates occupy a variety of roles in the ecology of marine and terrestrial systems. While many spiders build webs, others do not, but instead _____as it passes by. This is also the tactic used by scorpions, another group of chelicerate predators.
A. Control insect populations
B. Feed on detritus
C. Feed on the blood
D. Ambush prey
E. None of the Above

110. The predatory habits of these critters help to _____in many parts of the world.
A. Control insect populations
B. Feed on the blood
C. Ambush insects
D. Feed on detritus
E. None of the Above

111. Some arachnid chelicerates are _____, such as ticks and mites.
A. Pest population controllers
B. Detritus feeders
C. Blood feeders
D. Parasites
E. None of the Above

112. Chelicerates live upon the bodies of other animals and _____, skin, or hair. Some of these carry diseases, which they pass on to the host when they feed.
A. Control insect populations
B. Feed on the blood
C. Ambush insects
D. Feed on detritus
E. None of the Above

113. Other chelicerates are tiny organisms that _____, the bits of decaying matter that accumulate on and below the ground. The first terrestrial chelicerates are believed to have been detritus feeders.
A. Control insect populations
B. Feed on the blood
C. Ambush prey
D. Feed on detritus
E. None of the Above

114. Parental care is not common among the chelicerates, but some scorpions will carry their young on their backs for a time. In most cases, however, no such care is provided, and the young must fend for themselves from the time they _____.
A. Survive
B. Molt
C. Hatch
D. Mate
E. None of the Above

115. Survival is then dependant on the fact that large numbers of eggs are produced at a time, and it is likely that at least a few will _____.
A. Survive
B. Molt
C. Hatch
D. Mate
E. None of the Above

116. Those ancient spiders were relatively large, and their bodies were segmented. In contrast, almost all spiders _____have an unsegmented abdomen.
A. Who survive
B. With 8 legs
C. Hatch
D. Living today
E. None of the Above

117. Only members of the suborder Mesothelae still exhibit a segmented abdomen, and these spiders are generally considered the most _____ types of spiders.
A. Advanced
B. Primitive
C. Dangerous
D. Violent
E. None of the Above

118. Spiders are mostly terrestrial, of the class Arachnida, order Araneae, with four pairs of legs and a two-part body consisting of a(n) _____, or prosoma, and an unsegmented abdomen, or opisthosoma.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Set of Book lungs
E. None of the Above

119. The _____ is covered by a shield, or carapace, and bears eight simple eyes.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

120. On the underside of the spider's head (the cephalic part of the cephalothorax) are two pairs of appendages, the anterior pair called chelicerae, and the second pair _____, with which the spider captures and paralyzes its prey, injecting into it venom produced in the poison glands.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

121. The spider then liquefies the tissues of the prey with a digestive fluid and sucks this broth into its stomach, where it may be stored in a(n) _____.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

122. Breathing is by means of tracheae (air tubes) or _____, or both.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

123. Arachnid _____ are similar to the gill books of horseshoe crabs, but are internal and adapted to a terrestrial habitat.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

124. Three pairs of _____toward the tip of the abdomen produce protein-containing fluids that harden as they are drawn out to form silk threads.
A. Digestive glands
B. Legs
C. Pedipalps
D. Spinnerets
E. None of the Above

125. Several kinds of silk glands and _____ produce different kinds of silk used variously for constructing cocoons or egg sacs, spinning webs, and binding prey; other light strands are spun out for ballooning, or floating, the spiders, especially young ones, long distances on air currents.
A. Digestive glands
B. Cephalothoraxs
C. Pedipalps
D. Spinnerets
E. None of the Above

Cephalothorax Structures
126. The cephalothorax contains a number of structures and appendages: one pair of biting mouthparts known as chelicerae; a pair of _____; one pair of short, leglike appendages called pedipalps or palps; and four pairs of legs.
A. Chelicerae
B. Palps
C. Fangs
D. Poison glands
E. None of the Above

127. The spider's eight eyes are also located on the _____.
A. Chelicerae
B. Cephalothorax
C. Palps
D. Top of the poison glands
E. None of the Above

Mouthparts

128. When a spider catches prey, it uses a pair of jointed appendages known as the_____ located in front of the mouth opening. Chelicerae resemble tiny pocketknives.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

129. Each _____ has a sharp fang that swings out of its resting position to stab into the victim. Near the tip of the fang is a duct opening that comes from a poison gland.
A. Chelicera
B. Cephalothorax
C. Palp
D. Poison glands
E. None of the Above

130. The _____ acts like a hypodermic needle—it ejects venom from the poison gland and delivers it into the prey.
A. Chelicerae
B. Cephalothorax
C. Fang
D. Poison glands
E. None of the Above

131. Spiders also use _____ as multipurpose tools. They have been called the "hands" of the spider.
A. Chelicerae
B. Cephalothorax
C. Palps
D. Poison glands
E. None of the Above

132. Spiders can use their _____ to perform tasks such as digging burrows in the soil and transporting small prey.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

Poison Glands

133. Most spiders have a pair of poison glands that lie within the _____.
A. Chelicerae
B. Cephalothorax
C. Fang area
D. Palps
E. None of the Above

134. Each bulblike poison gland produces and stores toxin. A muscle spirals around the gland. When this muscle contracts, it squeezes poison from the gland through a duct into the _____ of the chelicerae, which then pass the poison into the prey.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

Palps and Legs
135. Behind the chelicerae is a pair of palps, _____that are used in feeding and as feelers.
A. That contain body fluids
B. That transfer sperm
C. Sensitive to touch
D. Segmented limbs
E. None of the Above

136. Male spiders also use palps to _____to females during mating. Adjacent to the palps are four pairs of long, hairy legs.
A. Transfer body fluid
B. Transfer sperm
C. Used to touch
D. Have seven jointed segments
E. None of the Above

137. Unlike human hair, each spider hair found on the legs acts as a sensory organ, _____ and vibration.
A. Contains body fluid
B. Used to transfer sperm
C. Sensitive to touch
D. Has seven jointed segments
E. None of the Above

138. Each leg is made up of _____, called the coxa, trochanter, femur, patella, tibia, metatarsus, and tarsus.
A. Tiny receptacles
B. Reproductive organs, heart and silk glands
C. Two sperm-producing testes
D. Seven jointed segments
E. None of the Above

139. More than 30 muscles control the movement of each leg. In addition, some joints of the leg move by the hydraulic action of _____.
A. Body fluid
B. Hydraulic action
C. The palps
D. Seven jointed segments
E. None of the Above

140. The tips of the legs have two or three small claws that are used for _____the spider's silk thread.
A. Molting
B. Transferring sperm
C. Climbing or grasping
D. Moving the seven jointed segments
E. None of the Above

141. Many ground spiders have specialized adhesive hairs _____, known as claw tufts or scopulae.
A. Used to attack prey
B. Beneath their claws
C. Used for climbing or grasping
D. Used to spin webs
E. None of the Above

142. These claw tufts enable the spiders to _____on smooth, vertical surfaces—even upside down on glass.
A. Climb upside down
B. Transfer sperm
C. Sensitivity touch
D. Walk sure-footedly
E. None of the Above

Sensory Organs
143. Most spiders are active at night, and as a result, they use their other senses more than they use their _____, which is not well developed. In addition to the thousands of hairs found on the palps and legs that are highly sensitive to touch and vibrations, spiders also have hairs on their feet that they use to taste things.
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Spigots
D. Silk glands
E. None of the Above

144. Most spiders have four pairs of _____ (eyes with a single lens) that are located on the front of the cephalothorax.
A. Compound palps
B. Simple eyes or Eyes
C. Spigots
D. Palps
E. None of the Above

145. The _____ are usually grouped into two or three rows that form specific patterns in different spider families. This eye arrangement is often used to identify and classify a spider.
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Spigots
D. Silk
E. None of the Above

146. Unlike spiders that are active at night, spiders that are active during the day, such as jumping spiders and lynx spiders, typically have _____at close range.
A. Good vision
B. Simple eyes or Eyes
C. Poor vision
D. Average vision
E. None of the Above

147. Their vision easily rivals the _____ of many insects, which have compound eyes (eyes with multiple lenses).
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Advance
D. Best
E. None of the Above

Spider's Abdomen
148. The spider's abdomen is soft and saclike. On the underside of the tip of the abdomen are three pairs of _____.
A. Palps
B. Shortened limbs
C. Spigots
D. Spinnerets
E. None of the Above

149. Each spinneret is studded with many fine, hair-like tubes called spigots, which produce a variety of silk threads. The _____ lead to several large silk glands inside the abdomen.
A. Palps
B. Shortened limbs
C. Spigot
D. Chelicerae
E. None of the Above

150. _____ is formed as a liquid inside these abdominal glands.
A. Digestive system fluids
B. Sperm
C. Larva
D. Silk
E. None of the Above

Creepy Tick Section
151. Most hard ticks undergo a 2-year life cycle in which they begin as _____.
A. 5-legged larvae
B. 8-legged larvae
C. 3-legged larvae
D. 6-legged larvae
E. None of the above

152. These ticks generally feed for_____.
A. Many days
B. Weeks
C. Months
D. Years
E. None of the above

153. The larvae hatch from eggs in the_____.
A. Winter
B. Spring
C. Summer
D. Fall
E. None of the above

154. If the larvae do not find a host for a blood meal, they _____.
A. Wait for a host
B. Attach to the ground
C. Live for a few days
D. Die
E. None of the above

155. Larvae that successfully feed then fall off the host live in the soil and decaying vegetation over the_____.
A. Winter
B. Spring
C. Fall
D. Summer

156. In_____, most often in May and June, the larvae molt into 8-legged nymphs.
A. Winter
B. Spring
C. Fall
D. Summer
E. None of the above

157. These _____ are quite small and seek their blood meal from a small vertebrate.
A. Nymphs
B. Dealates
C. Diapause
D. Peromyscus leucopus
E. None of the above

158. The _____ adult tick is somewhat larger and seeks a larger host for its required blood meal.
A. 5-legged
B. 8-legged
C. 3-legged
D. 6-legged
E. None of the above

159. The _____is the preferred host for adult ticks.
A. White-tailed deer
B. White-tailed rabbit
C. Bear
D. Fish
E. None of the above

160. In the United States, only ticks of the genus ornithodoros transmit_____, namely, relapsing fever.
A. Tick borne
B. Vector-borne
C. Human disease
D. Peromyscus leucopus
E. None of the above

161. The biology of soft ticks differs from that of hard ticks in that meals last for only short periods (<1 hour), and disease can be transmitted in less than _____.
A. 1 minute
B. 1 Day
C. 1 Week
D. 1 hour
E. None of the above

162. This tick species occurs from central Texas east to the Atlantic coast and north to Iowa and New York; it has also been reported in northern_____.
A. Atlantic coast
B. Arizona
C. Mexico
D. California
E. None of the above

163. The _____ is found in wooded areas;
A. Nymph
B. Seed tick
C. Lone Star tick
D. Brown dog tick
E. None of the above

164. Each female produces _____eggs, which are deposited under leaf and soil litter in middle to late spring.
A. 100-300
B. 1000-3000
C. 300-800
D. 3,000-8,000
E. None of the above

165. Incubation may take 30 days or longer, depending on_____.
A. Light
B. Temperature
C. Humidity
D. Weather
E. None of the above

166. The newly hatched six-legged immatures, also known as larvae or Seed ticks feed for _____ on a host.
A. 7-16 days
B. 3 to 7 days
C. 9-27 days
D. 4-15 months
E. None of the above

167. After full engorgement the larvae drop from the host into vegetation and shed their skins _____ later.
A. 7-16 days
B. 3 to 7 days
C. 9-27 days
D. 4-15 months
E. None of the above

168. The eight-legged immatures that emerge are called_____.
A. Immatures
B. Nymphs
C. Lone Star ticks
D. Seed ticks
E. None of the above

169. These attach to a second host and feed for up to _____.
A. 38 days
B. 3 to 7 days
C. 9-27 days
D. 13-46 days
E. None of the above

170. The nymphs then detach and rest for_____before they shed their skins to become adults.
A. 38 days
B. 3 to 7 days
C. 9-27 days
D. 13-46 days
E. None of the above

171. Adults attach to a third host, feed for_____, and detach.
A. 38 days
B. 3 to 7 days
C. 6-24 days
D. 13-46 days
E. None of the above

172. Oviposition occurs _____after the last blood meal.
A. 38 days
B. 7-16 days
C. 6-24 days
D. 13-46 days
E. None of the above

173. Larvae may survive for _____.
A. 3-6 months
B. 4-15 months
C. 2-9 months
D. 13-46 days
E. None of the above

174. Nymphs and adults survive for _____each.
A. 3-6 months
B. 4-15 months
C. 2-9 months
D. None of the above

175. The life cycle may take up to _____to complete.
A. 6 years
B. 4-15 months
C. 2-9 months
D. 2 years
E. None of the above

176. Lone Star tick nymphs can move very quickly and may cover a person's legs or arms in less than _____.
A. 13-46 days
B. 5 minutes
C. 4-15 months
D. 10 minutes
E. None of the above

177. Earlier in the _____, female ticks deposit masses of several thousand eggs on the ground.
A. Summer
B. Spring
C. Winter
D. Fall
E. None of the above

178. Anyone unfortunate enough to pass through such a site can easily pick up _____.
A. Dozens of larvae
B. Human Diseases
C. Flea Dirt
D. Seed ticks
E. None of the above

179. These tiny, 6-legged creatures, also called “seed ticks ", are most active between _____.
A. September and October
B. July and October
C. October and November
D. July and August
E. None of the above

180. Adults and nymphs are active from_____.
A. Early spring through midsummer
B. Late summer to early fall
C. Early Spring to late Fall
D. Late fall in early winter
E. None of the above

181. Larvae are active mainly from_____.
A. Early spring through midsummer
B. Late summer to early fall
C. Early Spring to late Fall
D. Late fall in early winter
E. None of the above

182. Low _____and high daytime temperatures restrict the occurrence and activity of these ticks.
A. Evening temperatures
B. Dew points
C. Humidities
D. Morning temperatures
E. None of the above

183. All three life stages of A. americanum aggressively bite people in the southern U.S. Research indicates that live spirochetes are observed in only _____ of A. americanum.
A. 1-3%
B. 2-4%
C. 4-5%
D. 6-9%
E. None of the above

184. The American dog tick is found throughout _____except in parts of the Rocky Mountain region.
A. Asia
B. The United States
C. England
D. Africa
E. None of the above

185. Its habitat includes _____.
A. Wooded areas
B. Abandoned fields
C. Medium height grasses
D. Sunny or open areas around woods
E. ALL of the above

186. The female lays 4,000-6,500 ellipsoidal eggs over a _____ period and then dies.
A. 14-32 day
B. 12-14 day
C. 32-40 day
D. 5-13 day
E. None of the above

187. The eggs usually hatch in _____.
A. 42-60 days
B. 14-32 days
C. 36-57 days
D. 12-36 days
E. None of the above

188. Larvae usually engorge for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

189. Nymphs for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

190. Adult females for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

191. Unfed larvae can live up to _____.
A. 15 months
B. 30 months
C. 20 months
D. None of the above

192. Nymphs can live up to_____.
A. 15 months
B. 30 months
C. 20 months
D. 40 months
E. None of the above

193. Adults can live up to_____ or longer.
A. 15 months
B. 30 months
C. 20 months
D. 40 months
E. None of the above

194. Adults are active from _____.
A. Mid-April to early September
B. June to early September
C. March through July
D. Mid summer to late fall
E. None of the above

195. Nymphs are active from _____.
A. Mid-April to early September
B. June to early September
C. March through July
D. Mid summer to late fall
E. None of the above

196. Larvae are active from _____.
A. Mid-April to early September
B. June to early September
C. Late March through July
D. Mid summer to late fall
E. None of the above

197. High light intensity and _____ stimulate questing behavior.
A. Low relative humidity
B. High relative humidity
C. Low temps
D. High temps
E. None of the above

198. The American dog tick is found throughout _____.
A. Eastern United States
B. Canada
C. Mexico
D. New England
E. None of the above

199. This tick is not known to spread _____, although it can transmit the causal agent of Rocky Mountain spotted fever.
A. Lyme disease
B. Borrelia lonestari
C. Human diseases
D. Seed ticks
E. None of the above

200. Adults become active about mid-April to _____and remain a nuisance until August.
A. Late May
B. Late August
C. Early August
D. Early May
E. None of the above

Common Kinds of Pesticides and their Function
201. Kill or inactivate disease-producing microorganisms on inanimate objects.
A. Disinfectants and sanitizers
B. Antimicrobials
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

202. Kill nematodes (microscopic, worm-like organisms that feed on plant roots).
A. Fumigants
B. Insecticides
C. Nematicides
D. Microbial pesticides
E. Molluscicides
F. None of the Above

203. Kill eggs of insects and mites.
A. Ovicides
B. Microbial pesticides
C. Pheromones
D. Molluscicides
E. Rodenticides
F. None of the Above

204. Kill fungi (including blights, mildews, molds, and rusts).
A. Disinfectants and sanitizers
B. Fungicides
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

205. Produce gas or vapor intended to destroy pests in buildings or soil.
A. Fumigants
B. Insecticides
C. Nematicides
D. Microbial pesticides
E. Molluscicides
F. None of the Above

206. Control algae in lakes, canals, swimming pools, water tanks, and other sites.
A. Disinfectants and sanitizers D. Miticides
B. Antimicrobials E. Algaecides
C. Fumigants F. None of the Above

207. Kill or repel organisms that attach to underwater surfaces, such as boat bottoms.
A. Disinfectants and sanitizers D. Miticides
B. Antifouling agents E. Rodenticides
C. Fumigants F. None of the Above

208. Kill microorganisms (such as bacteria and viruses).
A. Disinfectants and sanitizers D. Miticides
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

209. Attract pests (for example, to lure an insect or rodent to a trap).
(However, food is not considered a pesticide when used as an attractant.)
A. Disinfectants and sanitizers D. Attractants
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

210. Kill weeds and other plants that grow where they are not wanted.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Herbicides
C. Nematicides F. None of the Above

211. Kill insects and other arthropods.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

212. Kill mites that feed on plants and animals.
A. Ovicides D. Molluscicides
B. Miticides E. Rodenticides
C. Pheromones F. None of the Above

213. Microorganisms that kill, inhibit, or out compete pests, including insects or other microorganisms.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

214. Kill snails and slugs.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

215. Biochemicals used to disrupt the mating behavior of insects.
A. Ovicides D. Molluscicides
B. Microbial pesticides E. Rodenticides
C. Pheromones F. None of the Above

216. Kill microorganisms.
A. Biocides D. Miticides
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

217. Repel pests, including insects (such as mosquitoes) and birds.
A. Fumigants D. Repellents
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

218. Control mice and other rodents.
A. Ovicides D. Molluscicides
B. Microbial pesticides E. Rodenticides
C. Pheromones F. None of the Above

The term pesticide also includes these substances:
219. Cause leaves or other foliage to drop from a plant, usually to facilitate harvest.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

220. Promote drying of living tissues, such as unwanted plant tops.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

221. Disrupt the molting, maturity from pupal stage to adult or other life processes of insects.
A. Desiccants D. Insect growth regulators
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

222. Substances (excluding fertilizers or other plant nutrients) that alter the expected growth, flowering, or reproduction rate of plants.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

The U.S. definition of pesticides is quite broad, but it does have some exclusions:
223. _____used to control diseases of humans or animals (such as livestock and pets) are not considered pesticides; such drugs are regulated by the Food and Drug Administration.
A. Antimicrobials D. Drugs
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

224. Fertilizers, nutrients, and other substances used to promote plant survival and health are not considered plant growth regulators and thus are not _____.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Pesticides
C. Biopesticides F. None of the Above

225. _____, except for certain microorganisms, are exempted from regulation by the EPA. (Biological control agents include beneficial predators such as birds or ladybugs that eat insect pests.)
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

226. Products which contain certain_____, such as garlic and mint oil, have been exempted from Federal registration requirements, although State regulatory requirements may still apply.
A. Antimicrobials D. Conventional pesticides
B. Low-risk ingredients E. Biochemical pesticides
C. Biopesticides F. None of the Above

Antimicrobial Pesticides
227. Antimicrobials are especially important because many are_____. They help to control microorganisms (viruses, bacteria, and other microorganisms) that can cause human disease.
A. Public health pesticides D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

228. Antimicrobial _____are used as disinfectants in medical settings, where they are present in products used in cleaning cabinets, floors, walls, toilets, and other surfaces.
A. Public health pesticides D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

229. Proper use of these _____is an important part of infection control activities employed by hospitals and other medical establishments.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Disinfectants
C. Biopesticides F. None of the Above

Biopesticides
230. Biopesticides are certain types of pesticides derived from such natural materials as animals, plants, _____, and certain minerals.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Bacteria F. None of the Above

231. Canola oil and baking soda have pesticidal applications and are considered _____.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

Biopesticides fall into three major classes:
232. _____ consist of a microorganism (e.g., a bacterium, fungus, virus or protozoan) as the active ingredient.
A. Antimicrobials D. Microbial pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

233. _____ can control many different kinds of pests, although each separate active ingredient is relatively specific for its target pest[s].
A. Antimicrobials D. Microbial pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

234. The most widely used microbial pesticides are subspecies and strains of Bacillus thuringiensis, or Bt. Each strain of this _____ produces a different mix of proteins, and specifically kills one or a few related species of insect larvae.
A. Antimicrobials D. Bacterium
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

235. While some Bt's control moth larvae found on plants, other Bt's are specific for larvae of flies and mosquitoes. The target insect species are determined by whether the particular Bt produces a protein that can bind to a _____, thereby causing the insect larvae to starve.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

236. Plant-Incorporated-Protectants (PIPs) are _____that plants produce from genetic material that has been added to the plant.
A. Pesticidal substances D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

237. _____are naturally occurring substances that control pests by non-toxic mechanisms.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biochemical pesticides F. None of the Above

238. _____, by contrast, are generally synthetic materials that directly kill or inactivate the pest.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

239. _____include substances, such as insect sex pheromones that interfere with mating as well as various scented plant extracts that attract insect pests to traps.
A. Biochemical pesticides D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

What are the advantages of using biopesticides?
240. Biopesticides are usually inherently less toxic than _____.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

241. Biopesticides generally affect only the target pest and closely related organisms, in contrast to broad spectrum, _____ that may affect organisms as different as birds, insects, and mammals.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

242. _____often are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

243. When used as a component of Integrated Pest Management (IPM) programs, _____ can greatly decrease the use of conventional pesticides, while crop yields remain high. To use biopesticides effectively, however, users need to know a great deal about managing pests.

A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Conventional pesticides,
E. Biochemical pesticides
F. None of the Above

What is Malathion?

244. Malathion is an organophosphate (OP) insecticide that has been registered for use in the United States since 1956. It is used in agriculture, residential gardens, public recreation areas, and in_____.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Public health pest control programs
E. High-dose poisoning
F. None of the Above

245. When applied in accordance with the rate of application and safety precautions specified on the label, _____can be used to kill mosquitoes without posing unreasonable risks to human health or the environment.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Malathion
D. Active ingredient
E. High-dose poisoning
F. None of the Above

How is Malathion Used in Mosquito Control?

246. The _____goes through four distinct stages during its life cycle: egg, larva, pupa, and adult.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Mosquito
D. Active ingredient
E. Malathion
F. None of the Above

247. _____ is an adulticide, used to kill adult mosquitoes. In mosquito control programs conducted by state or local authorities.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. Malathion
F. None of the Above

248. Malathion is applied by truck-mounted or_____.

A. Ultra-low volume or (ULV)
B. Aircraft-mounted sprayers
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

249. Malathion is applied as an _____ spray.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

250. ULV _____ dispense very fine aerosol droplets that stay aloft and kill mosquitoes on contact.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

251. _____ applications involve small quantities of pesticide active ingredient in relation to the size of the area treated.

A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

252. For mosquito control, Malathion is applied at a maximum rate of 0.23 pounds (or about 2.5 fluid ounces) of _____ per acre, which minimizes exposure and risks to people and the environment.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

Does Malathion Pose Risks to Human Health?
253. Malathion can be used for public health _____without posing unreasonable risks to the general population when applied according to the label.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. Mosquito control programs
C. Maximum rate F. None of the Above

254. The EPA has estimated the exposure and risks to both adults and children posed by ULV aerial and _____of Malathion.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Ground applications E. High-dose poisoning
C. Maximum rate F. None of the Above

255. Because of the very small amount of _____ released per acre of ground, the estimates found that for all scenarios considered, exposures were hundreds or even thousands of times below an amount that might pose a health concern.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

256. These estimates assumed several spraying events over a period of weeks, and also assumed that a toddler would ingest some soil and grass in addition to_____.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Skin and inhalation exposure E. High-dose poisoning
C. Maximum rate F. None of the Above

257. At high doses, Malathion, like other _____, can over stimulate the nervous system causing nausea, dizziness, or confusion.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphates or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

258. Severe high-dose poisoning with any _____ can cause convulsions, respiratory paralysis, and death.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

Does Malathion Pose Risks to Wildlife or the Environment?
259. _____used in mosquito control programs does not pose unreasonable risks to wildlife or the environment.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. Malathion
C. Maximum rate F. None of the Above

260. Malathion degrades rapidly in the_____, especially in moist soil, and it displays low toxicity to birds and mammals.
A. Ultra-low volume or (ULV) D. Environment
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

261. Malathion is _____to insects, including beneficial insects such as honeybees. For that reason, the EPA has established specific precautions on the label to reduce such risks.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Highly toxic E. High-dose poisoning
C. Maximum rate F. None of the Above

Larvicides For Mosquito Control
262. The _____ evaluates and registers (licenses) pesticides to ensure that they can be used safely.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

263. These pesticides include products used in the _____ that states and communities have established.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

264. To evaluate any pesticide, the EPA assesses a wide variety of tests to determine whether a pesticide has the potential to cause adverse effects on humans, wildlife, fish and plants, including endangered species and_____.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Non-target organisms F. None of the Above

265. Officials responsible for mosquito control programs make decisions to use pesticides based on an evaluation of the risks to the general public from diseases transmitted by mosquitoes or on an evaluation of the _____that communities can tolerate from a mosquito infestation.
A. Prevention programs D. Mosquito control programs
B. Nuisance level E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

266. Based on _____, mosquito control officials select specific pesticides and other control measures that best suit local conditions in order to achieve effective control of mosquitoes with the least impact on human health and the environment.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

267. It is especially important to conduct effective mosquito prevention programs by eliminating _____or applying pesticides to control the early life stages of the mosquito.
A. Prevention programs D. Mosquito control programs
B. Breeding habitats E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

268. Prevention programs, such as elimination of any standing water that could serve as a breeding site, help reduce the _____and the need to apply other pesticides for adult mosquito control.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Adult mosquito population F. None of the Above

269. Since no pesticide can be considered 100 percent safe, _____and the general public should always exercise care and follow specified safety precautions during use to reduce risks.
A. Pesticide applicators D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

What are Larvicides?
270. Larvicides kill mosquito larvae. Larvicides include_____, such as the microbial larvicides Bacillus sphaericus and Bacillus thuringiensis israelensis.
A. IPM D. Mosquito larvae
B. Control program E. Biological insecticides
C. Bacillus sphaericus F. None of the Above

271. Since mosquitoes must have water to breed, source reduction can be as simple as turning over trapped water in a container to _____and management of marsh water levels.
A. IPM D. Mosquito larvae
B. Control program E. Undertaking large-scale engineering
C. Bacillus sphaericus F. None of the Above

272. Larviciding involves _____to breeding habitats to kill mosquito larvae. Larviciding can reduce overall pesticide usage in a control program.
A. IPM D. Mosquito larvae
B. Control program E. Temephos
C. Applying pesticides F. None of the Above

273. Killing mosquito larvae before they emerge as adults can reduce or eliminate the need for ground or aerial application of pesticides to_____.
A. IPM D. Mosquito larvae
B. Control program E. Kill adult mosquitoes
C. Bacillus sphaericus F. None of the Above

What are Microbial Larvicides?
274. Microbial larvicides are _____that are registered as pesticides for control of mosquito larvae in outdoor areas such as irrigation ditches, flood water, standing ponds, woodland pools, pastures, tidal water, fresh or saltwater marshes, and storm water retention areas.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacteria F. None of the Above

275. Duration of effectiveness depends primarily on the_____, the environmental conditions, the formulation of the product, and water quality.
A. IPM D. Mosquito species
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

276. Microbial larvicides may be used along with other mosquito control measures in an IPM program. The microbial larvicides used for mosquito control are _____ and Bacillus sphaericus (B. sphaericus).
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

277. _____ is a naturally occurring soil bacterium registered for control of mosquito larvae.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

278. Bti was first registered by the EPA as an insecticide in 1983. Mosquito larvae eat the _____ product that is made up of the dormant spore form of the bacterium and an associated pure toxin.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

279. The _____disrupts the gut in the mosquito by binding to receptor cells present in insects, but not in mammals.
A. Toxin D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

280. There are 26 Bti products registered for use in the United States. Aquabac, Teknar, Vectobac, and _____are examples of common trade names for the mosquito control products.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

281. _____ is a naturally occurring bacterium that is found throughout the world. B. sphaericus was initially registered by the EPA in 1991 for use against various kinds of mosquito larvae.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

282. Mosquito larvae ingest the bacteria, and as with _____, the toxin disrupts the gut in the mosquito by binding to receptor cells present in insects but not in mammals.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

283. VectoLex CG and WDG are registered _____products and are effective for approximately one to four weeks after application.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. B. sphaericus F. None of the Above

Do Microbial Larvicides Pose Risks to Human Health?

284. The microbial pesticides have undergone extensive testing prior to registration. They are essentially nontoxic to humans, so there are no concerns for human health effects with _____ or B. sphaericus when they are used according to label directions.

A. IPM
B. LarvX
C. Bacillus sphaericus
D. Mosquito larvae
E. Bacillus thuringiensis israelensis (Bti)
F. None of the Above

Do Microbial Larvicides Pose Risks to Wildlife or the Environment?

285. Extensive testing shows that _____do not pose risks to wildlife, non-target species, or the environment, when used according to label directions.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Microbial larvicides
F. None of the Above

What is Methoprene?

286. Methoprene is a compound first registered by the EPA in 1975 that mimics the action of an insect growth-regulating hormone and prevents the normal maturation of_____.

A. IPM
B. Altosid
C. Methoprene
D. Insect larvae
E. Nontoxic
F. None of the Above

287. It is applied to water to kill _____, and it may be used along with other mosquito control measures in an IPM program.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

288. _____ is the name of the methoprene product used in mosquito control and is applied as briquettes (similar in form to charcoal briquettes), pellets, sand granules, and liquids. The liquid and pelletized formulations can be applied by helicopter and fixed-wing aircraft.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

Does Methoprene Pose Risks to Human Health?

289. _____, used for mosquito control according to its label directions, does not pose unreasonable risks to human health.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

290. In addition to posing _____to mammals, there is little opportunity for human exposure, since the material is applied directly to ditches, ponds, marshes, or flooded areas that are not drinking water sources.

A. Low toxicity
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

Does Methoprene Pose Risks to Wildlife or the Environment?

291. Methoprene used in _____does not pose unreasonable risks to wildlife or the environment.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Mosquito control programs
F. None of the Above

292. Toxicity of methoprene to birds and fish is low, and it is _____ to bees.
A. IPM D. Mosquito larvae
B. Altosid E. Nontoxic
C. Methoprene F. None of the Above

293. _____ breaks down quickly in water and soil and will not leach into ground water.
A. IPM D. Mosquito larvae
B. Altosid E. Nontoxic
C. Methoprene F. None of the Above

294. _____ mosquito control products present minimal acute and chronic risk to freshwater fish, freshwater invertebrates, and estuarine species.
A. IPM D. Mosquito larvae
B. Altosid E. Nontoxic
C. Methoprene F. None of the Above

What is Temephos?
295. Temephos is an organophosphate (OP) pesticide registered by the EPA in 1965 to control mosquito larvae, and it is the only organophosphate with_____. It is an important resistance management tool for mosquito control programs; its use helps prevent mosquitoes from developing resistance to the bacterial larvicides.
A. IPM D. Abate or Temephos
B. Larvicidal use E. Mosquito control
C. Larviciding techniques F. None of the Above

296. Temephos is used in areas of standing water, shallow ponds, swamps, marshes, and intertidal zones. It may be used along with other mosquito control measures in an _____ program.
A. IPM D. Abate or Temephos
B. OPs E. Mosquito control
C. Larviciding techniques F. None of the Above

297. _____is the trade name of the temephos product used for mosquito control.
A. IPM D. Abate or Temephos
B. OPs E. Mosquito control
C. Larviciding techniques F. None of the Above

298. _____ is applied most commonly by helicopter but can be applied by backpack sprayers, fixed-wing aircraft, and right-of-way sprayers in either liquid or granular form.
A. IPM D. Abate or Temephos
B. OPs E. Mosquito control
C. Larviciding techniques F. None of the Above

Does Temephos Pose Risks to Human Health?
299. _____, applied according to the label for mosquito control, does not pose unreasonable risks to human health.
A. IPM D. Abate or Temephos
B. OPs E. Mosquito control
C. Larviciding techniques F. None of the Above

300. It is applied to water, and the amount of _____ is very small in relation to the area covered, less than 1 ounce of active ingredient per acre for the liquid and 8 ounces per acre for the granular formulations.
A. IPM D. Abate or Temephos
B. OPs E. Mosquito control
C. Larviciding techniques F. None of the Above

General Pests CEU Training Awareness Assignment #3
For Students Names Q-Z

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.

Write your answers on the Answer Key found in the front of this assignment.

INSTRUCTIONS

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

2. 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 P, you are to complete assignment number 2 and if your last name begins with the letter Q-Z, you will pick assignment number 3.

Multiple Choice, Please select one answer and mark it on the answer key. (s) means the answer is plural or singular.

Cockroach Section

Brownbanded Cockroach

1. Both nymphs and adults of this species are _____and can be distinguished easily by the presence of two angled or transverse bands across the base of the wings and abdomen.

A. Black
B. Red
C. Light brown
D. Internode
E. Detritivore
F. None of the Above

2. Adult males are 1/2 to 5/8 inch long; the female is slightly shorter. Though both have wings, only the _____ can fly.

A. Male
B. Female
C. TV roaches
D. Nymphs and adults
E. Instars
F. None of the Above

3. The _____ carries each egg capsule for only a day or two before attaching it to a protected surface.

A. Adult males
B. Female
C. Ovipositor
D. Dealates
E. Phytotoxemia
F. None of the Above

4. The egg capsules are usually_____, and most of the eggs hatch within 50 days.

A. Diapause
B. Cursorial
C. Scutellum
D. Deposited in clusters or rows
E. Deposited in frass
F. None of the Above

5. Approximately 5 to 18 egg capsules are produced per female, each containing 19 eggs. About 3 to 9 months are required to complete the _____.
A. Diapause D. Defoliate, defoliation
B. Estivation E. Reproductive cycle
C. Metamorphosis F. None of the Above

6. _____ prefer a dry, warm environment. They are generally found on ceilings, high on walls, and in light switches, closets and furniture. In some places they are known as "TV roaches" because of their frequent presence in living-room furniture and appliances.
A. Adult males D. Nymphs and adults
B. Female E. Reproductives
C. TV roaches F. None of the Above

7. The wings of _____ cover their abdomens, while the females' wings are shorter. The yellow bands across the back are more pronounced on nymphs than on adults.
A. Adult males D. Nymphs and adults
B. Female E. Dealates
C. Ovipositor F. None of the Above

8. These cockroaches are quite active, and the adults, especially the males, fly rapidly when disturbed. Both _____may jump to escape danger.
A. Adult males D. Adults and nymphs
B. Female E. Reproductives
C. Dealates F. None of the Above

9. The _____carries her egg capsule for only a day or two before gluing it to a protected surface underneath or inside furniture, in a closet or on the ceiling in a darkened room. They can also be found in televisions and other appliances.
A. Adult female D. Nymphs and adults
B. Detritivores E. Dealates
C. Pedipalps F. None of the Above

10. Brownbanded cockroaches are more apt to be found in homes, apartments, hotels, motels, nursing homes and hospitals than in restaurants, grocery stores and other commercial establishments. They prefer starchy foods and appear to have lower water requirements than _____.
A. American Cockroaches D. Nymphs and adults
B. German cockroaches E. Other cockroaches
C. TV roaches F. None of the Above

11. They can occupy drier locations within a building. _____ frequently are found on ceilings in dark or dimly lit rooms, behind picture frames, in light switches, in upper walls of cabinets and closets, or on undersides of furniture and inside upholstered furniture. Because brownbanded cockroaches are found in so many locations they may be more difficult to control.
A. American Cockroaches D. Nymphs and adults
B. German cockroaches E. Other cockroaches
C. TV roaches F. None of the Above

American Cockroach (Periplaneta americana)
12. The American cockroach is the largest of the common species, growing to a length of 1 1/2 to 2 inches. It is reddish-brown with a light yellow band around the edge of the _____.
A. Petiole D. Exoskeleton
B. Proboscis E. Crepuscular
C. Head shield F. None of the Above

13. Adults of both sexes have_____, but seldom fly. They are, however, capable of gliding flights.
A. Pedipalps D. Well-developed wings
B. Forbs E. Pronotums
C. Imagoes F. None of the Above

14. _____ are smaller than adults, grayish-brown in color and less fully winged.
A. Instars D. Nymphs and adults
B. Female E. Nymphal cockroaches
C. Imagoes F. None of the Above

15. The adult female usually drops her egg capsule within a day after it is formed. She often places the capsule near a food or water source or in a location where it can be covered with _____.
A. Frass D. Miscellaneous debris
B. Endosperm E. Poikilotherm
C. Capsule F. None of the Above

16. Occasionally, she glues the capsule to some surface with secretions from her mouth. The capsule may be _____in moist wood, in cracks in bark or in whorls of plants.
A. Ovipositor D. Overwinter
B. Diapause E. Deposited outdoors
C. Capsule F. None of the Above

American Cockroach
17. _____of this species are 1 1/2 to 2 inches long. They are the largest of all the cockroaches common in the World.
A. Adult males D. Adults
B. Female E. Nymphal cockroaches
C. Instars F. None of the Above

18. Both _____ are shiny, reddish brown with a pale brown or yellow band around the edge of the head and back. The wings of both the male and female extend slightly beyond the body.
A. Adult males D. Nymphs and adults
B. Female E. Male and female
C. Instars F. None of the Above

19. The female produces 15 to 90 egg capsules, each containing 14 to 16 eggs. Egg capsules are deposited near a _____ where the majority of eggs hatch within 60 days.
A. Dactyl D. Endosperm
B. Internode E. Scutellum
C. Capsule F. None of the Above

20. The _____ is completed in 12 to 18 months.
A. Overwinter D. Defoliate, defoliation
B. Dealate E. Reproductive cycle
C. Overwinter F. None of the Above

21. The _____ can survive 2 to 3 months without food and for a month without water.
A. Adult D. Internode
B. Ovipositor E. Nymphal cockroaches
C. Malformation F. None of the Above

22. _____are not typically found in homes; however, in commercial and industrial establishments they can be found in damp, warm basements, in furnace or boiler rooms, and storage rooms.
A. Adult males D. Nymphs and adults
B. Females E. American cockroaches
C. Ovipositors F. None of the Above

23. Because of their preference for _____, they are notable as a problem in urban commercial districts.
A. Finances D. Heat
B. Dry areas E. Sewers and heat tunnels
C. Food F. None of the Above

Oriental Cockroach
24. This dark reddish brown to black roach is commonly referred to as the "_____." It is considered the most repulsive of all of the roaches and has a strong odor.
A. Roach D. Chinese roach
B. Sewer bug E. Blackie
C. Water bug F. None of the Above

25. The adult females are 1 1/4 inches long and_____.
A. Carries an egg capsule D. Is a reproductive
B. Lives in sewer drains E. Almost wingless
C. Has 8 legs F. None of the Above

26. The _____are 1 inch long and have wings that are about half as long as their body. Neither males nor females can fly or glide.
A. Dealates D. Adult females
B. Instars E. Adult males
C. Nymphs F. None of the Above

27. The _____carries an egg capsule for about 30 hours and then drops or attaches it to a protected surface near food. On average, a female produces eight egg capsules, each containing 16 eggs which hatch within 60 days.
A. Dealates D. Reproductives
B. Nymphs E. Female
C. Roach F. None of the Above

28. The _____ of this roach is completed in 6 to 9 months.
A. Egg capsule D. Reproductive cycle
B. Mating E. Life cycle
C. Completion F. None of the Above

29. _____ prefer damp, cool, dark areas. They are generally found in sewer drains, crawl space areas, basements, cellars, or on the first floor of buildings.
A. Nymphs D. Dealates
B. Roaches E. Adult males
C. Water bugs F. None of the Above

30. Infestations by this roach are most frequently found during spring (_____) and fall (October). They may spend considerable time outdoors during warm weather.
A. March to June D. April and May
B. June and July E. May or June
C. August F. None of the Above

Wood Cockroach

31. This group of roaches causes occasional problems in homes and public places. They are seen in late _____, especially after rains.
A. March to June D. April and May
B. June and July E. May or June
C. August F. None of the Above

32. This roach is often confused with both adult American and_____. However, the wood roach is chestnut brown and has a dull white band around the edges of the head and back.
A. Females D. Oriental roaches
B. Roaches E. One generation per year
C. Adults F. None of the Above

33. Adults are 1 to 1 1/4 inches long. _____ have wings covering only about half the body and do not fly. Males have wings longer than the body and are excellent fliers.
A. Females D. Adult males
B. Roaches E. Instars
C. Adults F. None of the Above

34. Females produce about 30 egg capsules, each containing about 32 to 36 eggs. This roach completes _____.
A. Her work D. The life cycle
B. Nymphet stage E. One generation per year
C. Egg laying F. None of the Above

35. Wood cockroaches are usually found in wood piles, hollow trees or under loose bark. Buildings in wooded areas are prone to have problems with wood roaches during rainy periods. Although this roach prefers to live outside, _____ are attracted to light and may enter buildings. They are sometimes brought in along with firewood, but do not usually survive or multiply inside buildings.
A. Females D. Adult males
B. Roaches E. Dealates
C. Adults F. None of the Above

36. The _____is slightly more than 1 inch long and is a uniform, very dark brown to black. The head shield is a solid dark color.
A. Females D. Adult males
B. Roaches E. Nymphs
C. Adult F. None of the Above

37. Both _____have wings longer than their bodies and are capable of flying or gliding.
A. Dealates and Instars D. Nymphs and Adults
B. Roaches E. Males and females
C. Adults and Instars F. None of the Above

38. Nymphs are smaller than adults and have only partially developed wings. _____ usually carry their egg capsules for a day or two before attaching them to the outside surfaces of buildings and other protected sites near the ground.
A. Females D. Adult males
B. Roaches E. Adult females
C. Adults F. None of the Above

39. These _____ live primarily outdoors and prefer wood, leaf litter, trash piles and other humid sites with abundant organic matter. They also hide under rocks, ground cover and building materials. They may enter homes with infested firewood during seasonal migrations.
A. Females D. Adult males
B. Roaches E. Cockroaches
C. Adults F. None of the Above

Habitat
40. The Smokybrown cockroach has a great tendency to lose moisture through the cuticle and thus requires water every two to three days. These requirements are important to remember when implementing your _____.
A. Treatment D. Control program
B. Monitoring E. Roach extermination program
C. Penetration F. None of the Above

41. This pest is most likely found in areas which are protected, moist, dark, relatively warm and free from the _____. In nature, tree holes and the canopies of palm trees offer the ideal environment in which this bug can thrive.
A. Pesticide D. Desiccating effects of air flow
B. Dry habitat E. Treatment
C. Deep penetration F. None of the Above

Control Smokybrown Cockroaches
42. Eliminate or alter any conditions which encourage the _____ of the roaches. These pests thrive in dark, humid areas which have little or no air flow.
A. Life cycle D. Presence and/or reproduction
B. Moist habitat E. Removal and destroying hiding areas
C. Deeper penetration F. None of the Above

43. Spray exterior of structure with Suspend SC, Demon WP or Cynoff WP. These odorless insecticides will give a quick knockdown of bugs while lasting for several weeks, usually yielding about a _____.
A. 90 day residual D. 30 day residual
B. 10 day residual E. 50 day residual
C. 1 inch penetration F. None of the Above

44. Spray any crack, crevice or entry point on the outside of the structure. This includes treating around all windows, doors, vents and in _____ of brick veneer. Also spray tree trunks, from ground to crotch of tree, but no higher than six feet.
A. Areas D. Areas roaches like to hide
B. Weep holes E. And outside
C. Deep penetration F. None of the Above

45. All _____ should be sprayed with insecticide. These exterior surfaces should be treated 3 to 4 times each year.
A. Interiors D. Grass and bushes
B. Moist habitats E. Roaches
C. Mulched areas F. None of the Above

46. If necessary, _____ in the following areas: basements, garages, carports, attics, closets, laundry rooms.
A. Trap D. Dust
B. B and G E. Spray indoors
C. C/C F. None of the Above

47. Also treat beneath and behind large appliances (refrigerators, stoves, etc.) or other areas where these _____. (Spraying all of your baseboards with any bug spray is not necessary!)

A. Thrive in the dark
B. Have a moist habitat
C. Penetrate
D. Pests live
E. Roaches prefer to hide
F. None of the Above

48. Indoor areas should be treated_____.

A. Indoor areas
B. Delta Dust
C. Spraying
D. 2 to 3 times per year
E. 1 to 2 times per year
F. None of the Above

49. Hollow blocks or other areas such as behind brick walls and along plumbing lines should be treated with _____.

A. Indoor areas
B. Delta Dust
C. Spraying
D. Hollow blocks
E. Crusader Duster
F. None of the Above

50. Although many dusts will kill roaches, _____ is water-proof and will not be destroyed by the moist habitat of the Smokybrown as would other dusts.

A. Indoor areas
B. Delta Dust
C. Spraying
D. Hollow blocks
E. Crusader Duster
F. None of the Above

51. For deeper penetration and better distribution of insecticide dust, use a _____. Delta Dust should be used once each year or as needed.

A. Indoor areas
B. Delta Dust
C. Spraying
D. Hollow blocks
E. Crusader Duster
F. None of the Above

Asian Cockroach Blattella asahinai

52. The Asian cockroach was identified as a _____to the United States in 1986 when a professional pest control operator collected these insects in Lakeland, Florida.

A. Asian cockroach(es)
B. German cockroach(es)
C. American cockroach(es)
D. Wood cockroach(es)
E. Newly introduced species
F. None of the Above

53. He referred to them as German cockroaches, Blattella germanica (L.), but noted that their behavior was unlike any other _____ that he had previously encountered. Upon further investigation the cockroaches were found to be B. asahinai, Asian cockroaches.

A. Asian cockroach(es)
B. German cockroach(es)
C. American cockroach(es)
D. Male tergal glands
E. Wood cockroach(es)
F. None of the Above

Distribution and Habits

54. The Asian cockroach was first described in 1981 from insects collected on Okinawa Island, Japan. It is most likely that _____was introduced into the United States through imports from Japan.

A. Asian cockroach(es)
B. German cockroach(es)
C. American cockroach(es)
D. B. asahinai
E. Wood cockroach(es)
F. None of the Above

55. Since the first identification of _____in Lakeland (Polk County), it has been reported from Marion County in central Florida to Broward County in southwest Florida.
A. Asian cockroach(es)
B. German cockroach(es)
C. American cockroach(es)
D. Wood cockroach(es)
E. B. asahinai
F. None of the Above

56. The primary habitat of the _____ is outdoors in shaded mulched or composted areas, such as landscaping and gardens, where fresh plant litter accumulates.
A. Asian cockroach(es)
B. German cockroach(es)
C. American cockroach(es)
D. Water bug
E. Wood cockroach(es)
F. None of the Above

57. Populations of 30,000 to 250,000 insects per acre have been reported. Members of this species are strong fliers, unlike their close relative, the _____.
A. Asian cockroach(es)
B. German cockroach(es)
C. American cockroach(es)
D. Polish cockroach
E. Wood cockroach(es)
F. None of the Above

58. They may invade structures but indoor infestations are rare occurrences. They become _____and are attracted to light-colored surfaces and brightly lit areas.
A. Asian cockroach(es)
B. German cockroach(es)
C. Adults
D. Male tergal glands
E. Indoor infestations
F. None of the Above

Ant Section

59. This behavior pattern is known as "satelliting," " _____" or "budding" where part of the colony migrates to a new location rather than by single females dispersing after a reproductive swarm.
A. Immatures
B. Fractionating
C. Thimble
D. Overcrowding
E. None of the Above

60. Budding may occur due to_____, seasonal changes in the building's central heating and cooling system, or application of a repellent pesticide.
A. Immatures
B. Thimble
C. Fractionating
D. Overcrowding
E. None of the Above

61. Nests are often so small they can be contained in a_____, located between sheets of paper, in clothing or laundry, furniture, foods, etc.
A. Immatures
B. Fractionating
C. Thimble
D. Overcrowding
E. None of the Above

62. They prefer dark, warm areas near hot water pipes and _____, in bathrooms, kitchens, intensive care units, operating rooms, etc.
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

63. They are "trail-making" ants and often are found foraging in drains, toilets, _____, bedpans, and other unsanitary sites, as well as in sealed packs of sterile dressing, intravenous drip systems, on surgical wounds, food, and medical equipment.
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

Habitat, Food Source(s), Damage
64. Mouthparts are for chewing. Pharaoh ants are_____, feeding on sweets (jelly, particularly mint apple jelly, sugar, honey, etc.), cakes and breads, and greasy or fatty foods (pies, butter, liver, and bacon).
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

65. Nests can be found outdoors and almost anywhere indoors (light sockets, potted plants, wall voids, attics, in any cracks and_____) particularly close to sources of warmth and water.
A. Heating tapes
B. Washbasins
C. Omnivorous
D. Crevices
E. None of the Above

Pharaoh Ant Control Measures
66. Pharaoh ants are usually much harder to control than other ants because of their _____.
A. Ability to disperse
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

67. There may be dozens or _____in a single building and when a few colonies are missed during control, populations will quickly rebound. About 90 percent of the colony remains hidden in the nest, so even if 10 percent of the colony is killed by a residual pesticide, the remaining reservoir of ants is enormous.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

68. Conventional contact pesticide applications, especially repellent products such as pyrethrins, may spread infestations to new areas with _____blossoming within the structure.
A. Multiple colonies
B. Hundreds of colonies
C. Ability to disperse
D. Long term
E. None of the Above

69. These ants will avoid certain pesticides. Control is difficult and often _____ (months to years), depending on the building size, wall voids, etc., especially in hospitals and food plants. Complete cooperation from the property manager and residents is essential for a successful control program.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

Inspection
70. Carefully examine the building inside and outside from the roof to the basement, finding the ant distribution, population size, and food sources. Locate ant trails, following them to _____.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

71. A single stream of ants moving in one direction may indicate_____, not foraging. Mark the established feeding trail with a sticker and date. Trails with many ants coming and going indicate a large colony.
A. Ability to disperse.
B. Hundreds of colonies
C. Multiple colonies
D. Colony movement
E. None of the Above

72. _____ (dilute honey or peanut butter on three-by-five cards) helps to identify "hot spots," but with experience, one will already know where such places are located.
A. Ability to disperse
B. Pre-baiting
C. Multiple colonies
D. Long term
E. None of the Above

73. In the winter, these ants tend to concentrate near and_____, whereas in the spring and summer, they move to the outside walls and distribute themselves throughout the building. Carefully check areas with moisture, such as pipes, faucets, air conditioners, refrigerators, drains, leaking roofs, etc.
A. Ability to disperse
B. Pre-baiting
C. Multiple colonies
D. Around heat
E. None of the Above

Prevention

74. When insecticides are prohibited around high-tech equipment and in health areas, use sticky tapes, double-faced adhesive tapes, and _____(glue side out) wrapped around objects as barriers.
A. Masking tape
B. Hundreds of colonies
C. Multiple colonies
D. Long term
E. None of the Above

75. Use a ring_____, non-hardening glues, sticky dust mats, or glue boards under equipment legs.
A. Masking tape.
B. Petroleum jelly
C. Multiple colonies
D. Long term
E. None of the Above

76. Seal cracks and voids with _____after applying low residual repellent insecticides such as chlorpyrifos (Dursban) or Diazinon.
A. Masking tape.
B. Petroleum jelly
C. Caulking compound
D. Long term
E. None of the Above

Insecticides

77. In areas of active colonies, treat walls and ceiling voids through cracks and crevices with _____and make bait placements.
A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

78. Keep the ants in the area long enough to get the _____to the main colony where the workers, larvae and queens are poisoned. (A delayed-action stomach poison is recommended.)
A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

79. Repellent insecticides, such as_____, will move the colonies, spreading them further throughout the building.
A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

80. Research has shown that it is best to use bait placement only where _____ are found. This ensures feeding, since some ants have not been able to find the bait even when only one inch away from the bait stations.
A. Active ant trails
B. Slow-acting toxicants
C. Pyrethrins
D. Non-repellent boric acid dust
E. None of the Above

81. Intersect the ant trail with bait on a cotton swab taken from the station to ensure instant feeding. _____may change during the season due to changing needs of the developing colonies. An effective bait is a 99 percent boric acid formulation mixed at a 5 percent concentration by weight in mint apple jelly (about two level tablespoons of powdered boric acid per 10 ounces of mint apple jelly). Another bait is 2 percent boric acid and 98 percent light corn syrup.
A. Non-repellent boric acid dust
B. Slow-acting toxicants
C. Pyrethrins
D. Active ant trails
E. None of the Above

Methoprene
82. A commercial bait called _____(Pharorid) is marketed for use by pest control operators in a bait that consists of liver, honey, and sponge cake. It is often difficult to use the bait ants prefer; as ants feed on one compound, another compound placed less than 1/4-inch away will be ignored until the ants spill over into the second bait.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

Boric Acid
83. Boric acid and methoprene baits work slowly, sometimes taking 15 to 40 weeks or more before ant eradication. A bait containing _____(same as in Maxforce roach bait stations) gives quicker results, 2 to 35 days, according to certain pest control operators.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

84. Bait stations may include jumbo size plastic drinking straw sections, medicine (pill) dispensing cups, plastic vial caps and/or drafting (masking) tape. Placement can be made on the rear lip of kitchen counters, at plumbing pipe-wall junctions, on window sills, behind wall electrical outlets, above door frames, etc., in less accessible areas of pets or young children. There may be increased or new ant feeding activity during the early part of the_____. No other pesticides, heavy-duty cleaners, or paints should be used during the baiting periods to discourage ant feeding.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

Bendiocarb

85. Applications of _____(Ficam), which is odorless, can give fast eradication of Pharaoh ants if treatments are thorough. Ficam 76 percent WP and 91 percent dust are labeled for licensed commercial and pest control operators.
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

86. The bait products most recommended for Pharaoh ant control include: (boric acid plus mint apple jelly (Drax), hydramethylnon (Maxforce), methoprene (Pharorid), bendiocarb (Ficam), propoxur (Baygon) and _____(Pro-Control)).
A. Methoprene
B. Hydramethylon
C. Bendiocarb
D. Sulfluramid
E. None of the Above

87. After bait stations are placed, one will see ants trailing to and from these bait stations. Do not spray or disturb the ants or_____. Ants must be allowed to carry the bait back into their nest where the active ingredient in the bait will eliminate the colony.
A. Methoprene
B. Bait stations
C. Bendiocarb
D. Sulfluramid
E. None of the Above

88. Usually, Pharaoh ant control is best achieved by a licensed pest control operator or applicator who is trained, experienced, and has the proper equipment--an Applicator like yourself. Before using an_____, always read the label, follow directions and safety precautions.
A. Methoprene
B. Bait stations
C. Bendiocarb
D. Insecticide
E. None of the Above

Red Imported Fire Ants RIFA Solenopsis invicta

89. Red imported fire ants (RIFA) are medium sized ants that build mounds of soft soil rarely larger than_____. The ants emerge out aggressively when they are disturbed and sting. Their sting usually leaves a white pustule the next day. Harvester ants are much larger and make large bare areas with a single entrance hole to the colony. Leaf cutter ants are also much larger and do not have a distinctive built-up mound, but do have many entrance holes over a very large area. Other small to medium-sized ants that build small mounds will actually run away from disturbances and aren't fire ants.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

90. Some confusion comes from the fact that red imported fire ants come in a variety of sizes (_____) with the largest workers 2 or 3 times larger than the smallest. Native fire ants are less common in imported fire ant infested areas. Solenopsis geminata is the most common native fire ant species encountered. To the unaided eye, they are almost identical to red imported fire ants. However, geminata will have a few larger workers with large, square-shaped heads. These ants specialize in collecting and milling seeds.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

Queens
91. Single queen (monogyne form): only one queen per colony or mound; slightly larger workers; members of colonies are territorial; mound densities usually_____; fewer ants per acre.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

92. Multiple queen (polygyne form): dozens of queens per colony; smaller average worker ants; colonies are interconnected; mound densities 100 to_____; more ants per acre.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

Difference between Fire Ants and Termites
93. Although most ants are recognizable, some forms of winged ants are often confused with termites, especially during the termite swarming season. The front pair of wings on ants is _____, while the four wings of termites are approximately the same size.
A. 18" in diameter
B. 1/16 to almost 1/4 inch long
C. 1,000+ per acre
D. 2080 mounds per acre
E. None of the Above

94. Ants have "elbowed" antennae and a "_____," being narrow between the thorax and hind abdominal segments. Termites have the thorax and abdomen broadly connected and their antennae are straight and hair-like.
A. Thin waist
B. 1/16 to almost 1/4 inch long
C. Hair-like
D. Abdomen
E. None of the Above

History

95. Where are Fire Ants From?

Fire ants are from South America. They entered the U.S. through_____, probably in soil used for ships' ballast. They were accidentally introduced around the 1930s and have been spreading ever since.

A. Texas
B. Mobile, Alabama
C. 1,000+ per acre
D. Pacific Coast
E. None of the Above

We Didn't Used to Have Fire Ants When I Was a Child. Why Do We Have Them Now?

96. Red imported fire ants are very aggressive, efficient competitors. Since the 1950s, the ant has been spreading northward, westward, and southward from_____. Their northward spread depends on temperature.

A. Texas
B. Mobile, Alabama
C. 1,000+ per acre
D. Pacific Coast
E. None of the Above

97. Cold winters tend to push them back. Western spread is largely dependent on _____. They will mostly be found in urban areas, creek bottoms, irrigated land, etc. The entire Pacific Coast is fertile ground for infestation. The bad news is that they are probably here to stay. The good news is that with relatively little cost and effort, you can prevent most of the problems they cause using currently available methods.

A. Texas
B. Water
C. Temperature
D. Pacific Coast
E. None of the Above

Medical Importance

Why Do Fire Ants Appear to Sting at the Same Time?

98. Fire ants are sensitive to_____or movement and tend to sting when the object they are on moves.

A. Texas
B. Water
C. Temperature
D. Vibration
E. None of the Above

Fire Ant Management Approaches

100. Can Fire Ants be Eradicated Completely?

Red imported fire ants cannot be eradicated completely with methods available today. They can be eliminated temporarily from small areas, with proper_____.

A. Reducing compaction
B. Water
C. Periodic treatments
D. Control methods
E. None of the Above

Spider Section

101. The Chelicerata includes spiders and scorpions, _____, horseshoe crabs, daddy-longlegs, and extinct "sea-scorpions", to name a few.
A. Wasps and Mites
B. Mites and ticks
C. Crabs and Cockroaches
D. All Arthropods
E. None of the Above

102. Chelicerata is the second most prominent order of terrestrial arthropods, after the uniramians. Most of its marine representatives are extinct, but were prominent in the _____and included some fearsome predators.
A. Metaphidippus Era
B. Prehistoric time
C. Paleozoic Era
D. Devonian Period
E. None of the Above

103. Chelicerata are now distinguished from the other _____by the possession of (at least) six pairs of appendages. These normally include four pairs of walking legs, a pair of chelicerae and a pair of pedipalps.
A. Metaphidippus
B. Mites and ticks
C. Crabs
D. Arthropod groups
E. None of the Above

104. Chelicerata have no mandibles and no antennae and the body is divided into two, not three, sections, as in the Uniramia. They are, however, normally _____, have a through gut, have uniramous appendages, a non-calcareous exoskeleton, and are gonochoristic.
A. Bilaterally symmetrical
B. Completely relying
C. They spin a thread
D. They form a Y-shaped structure and
E. None of the Above

105. No chelicerates possess jaws for _____, but suck up their food in liquid or semi-liquid form.
A. Communication
B. Inject digestive juices
C. Biting and chewing
D. Breathing
E. None of the Above

106. Most species go in for external digestion to some extent, meaning they secrete digestive juices onto the food item as it is held close to the mouth or _____into their prey's body, and suck up the half-digested soup that results.
A. Palps
B. Inject digestive juices
C. Biting and chewing
D. Communication
E. None of the Above

107. The inclusion of the class Pycnogonida in the Chelicerata is _____but not scientifically proven; the fossil record for pycnogonids is very scant and they differ in many ways from the other chelicerates.
A. Control insect populations
B. Feed on detritus
C. Biting and chewing
D. Generally accepted
E. None of the Above

108. The Chelicerata contain more than 80,000 species known to science, most of which are Arachnids divided almost evenly between the _____.
A. Spiders and the mites
B. Crabs and wasps
C. Mites and crabs
D. Spiders and crabs
E. None of the Above

109. Chelicerates occupy a variety of roles in the ecology of marine and terrestrial systems. While many spiders build webs, others do not, but instead _____as it passes by. This is also the tactic used by scorpions, another group of chelicerate predators.
A. Control insect populations
B. Feed on detritus
C. Feed on the blood
D. Ambush prey
E. None of the Above

110. The predatory habits of these critters help to _____in many parts of the world.
A. Control insect populations
B. Feed on the blood
C. Ambush insects
D. Feed on detritus
E. None of the Above

111. Some arachnid chelicerates are _____, such as ticks and mites.
A. Pest population controllers
B. Detritus feeders
C. Blood feeders
D. Parasites
E. None of the Above

112. Chelicerates live upon the bodies of other animals and _____, skin, or hair. Some of these carry diseases, which they pass on to the host when they feed.
A. Control insect populations
B. Feed on the blood
C. Ambush insects
D. Feed on detritus
E. None of the Above

113. Other chelicerates are tiny organisms that _____, the bits of decaying matter that accumulate on and below the ground. The first terrestrial chelicerates are believed to have been detritus feeders.
A. Control insect populations
B. Feed on the blood
C. Ambush prey
D. Feed on detritus
E. None of the Above

114. Parental care is not common among the chelicerates, but some scorpions will carry their young on their backs for a time. In most cases, however, no such care is provided, and the young must fend for themselves from the time they _____.
A. Survive
B. Molt
C. Hatch
D. Mate
E. None of the Above

115. Survival is then dependant on the fact that large numbers of eggs are produced at a time, and it is likely that at least a few will _____.
A. Survive
B. Molt
C. Hatch
D. Mate
E. None of the Above

116. Those ancient spiders were relatively large, and their bodies were segmented. In contrast, almost all spiders _____have an unsegmented abdomen.
A. Who survive
B. With 8 legs
C. Hatch
D. Living today
E. None of the Above

117. Only members of the suborder Mesothelae still exhibit a segmented abdomen, and these spiders are generally considered the most _____ types of spiders.
A. Advanced
B. Primitive
C. Dangerous
D. Violent
E. None of the Above

118. Spiders are mostly terrestrial, of the class Arachnida, order Araneae, with four pairs of legs and a two-part body consisting of a(n) _____, or prosoma, and an unsegmented abdomen, or opisthosoma.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Set of Book lungs
E. None of the Above

119. The _____ is covered by a shield, or carapace, and bears eight simple eyes.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

120. On the underside of the spider's head (the cephalic part of the cephalothorax) are two pairs of appendages, the anterior pair called chelicerae, and the second pair _____, with which the spider captures and paralyzes its prey, injecting into it venom produced in the poison glands.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

121. The spider then liquefies the tissues of the prey with a digestive fluid and sucks this broth into its stomach, where it may be stored in a(n) _____.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

122. Breathing is by means of tracheae (air tubes) or _____, or both.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

123. Arachnid _____ are similar to the gill books of horseshoe crabs, but are internal and adapted to a terrestrial habitat.
A. Digestive gland
B. Cephalothorax
C. Pedipalps
D. Book lungs
E. None of the Above

124. Three pairs of _____toward the tip of the abdomen produce protein-containing fluids that harden as they are drawn out to form silk threads.
A. Digestive glands
B. Legs
C. Pedipalps
D. Spinnerets
E. None of the Above

125. Several kinds of silk glands and _____ produce different kinds of silk used variously for constructing cocoons or egg sacs, spinning webs, and binding prey; other light strands are spun out for ballooning, or floating, the spiders, especially young ones, long distances on air currents.
A. Digestive glands
B. Cephalothoraxs
C. Pedipalps
D. Spinnerets
E. None of the Above

Cephalothorax Structures

126. The cephalothorax contains a number of structures and appendages: one pair of biting mouthparts known as chelicerae; a pair of _____; one pair of short, leglike appendages called pedipalps or palps; and four pairs of legs.
A. Chelicerae
B. Palps
C. Fangs
D. Poison glands
E. None of the Above

127. The spider's eight eyes are also located on the _____.
A. Chelicerae
B. Cephalothorax
C. Palps
D. Top of the poison glands
E. None of the Above

Mouthparts

128. When a spider catches prey, it uses a pair of jointed appendages known as the _____, located in front of the mouth opening. Chelicerae resemble tiny pocketknives.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

129. Each _____ has a sharp fang that swings out of its resting position to stab into the victim. Near the tip of the fang is a duct opening that comes from a poison gland.
A. Chelicera
B. Cephalothorax
C. Palp
D. Poison glands
E. None of the Above

130. The _____ acts like a hypodermic needle—it ejects venom from the poison gland and delivers it into the prey.
A. Chelicerae
B. Cephalothorax
C. Fang
D. Poison glands
E. None of the Above

131. Spiders also use _____ as multipurpose tools. They have been called the "hands" of the spider.
A. Chelicerae
B. Cephalothorax
C. Palps
D. Poison glands
E. None of the Above

132. Spiders can use their _____ to perform tasks such as digging burrows in the soil and transporting small prey.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. None of the Above

Poison Glands

133.Most spiders have a pair of poison glands that lie within the _____.
A. Chelicerae
B. Cephalothorax
C. Fang area
D. Palps
E. None of the Above

134. Each bulblike poison gland produces and stores toxin. A muscle spirals around the gland. When this muscle contracts, it squeezes poison from the gland through a duct into the _____ of the chelicerae, which then pass the poison into the prey.
A. Chelicerae
B. Cephalothorax
C. Fangs
D. Poison glands
E. None of the Above

Palps and Legs

135. Behind the chelicerae is a pair of palps, _____that are used in feeding and as feelers.
A. That contain body fluids
B. That transfer sperm
C. Sensitive to touch
D. Segmented limbs
E. None of the Above

136. Male spiders also use palps to _____to females during mating. Adjacent to the palps are four pairs of long, hairy legs.
A. Transfer body fluid
B. Transfer sperm
C. Used to touch
D. Have seven jointed segments
E. None of the Above

137. Unlike human hair, each spider hair found on the legs acts as a sensory organ, _____ and vibration.
A. Contains body fluid
B. Used to transfer sperm
C. Sensitive to touch
D. Has seven jointed segments
E. None of the Above

138. Each leg is made up of _____, called the coxa, trochanter, femur, patella, tibia, metatarsus, and tarsus.
A. Tiny receptacles
B. Reproductive organs, heart and silk glands
C. Two sperm-producing testes
D. Seven jointed segments
E. None of the Above

139. More than 30 muscles control the movement of each leg. In addition, some joints of the leg move by the hydraulic action of _____.
A. Body fluid
B. Hydraulic action
C. The palps
D. None of the Above

140. The tips of the legs have two or three small claws that are used for _____the spider's silk thread.
A. Molting
B. Transferring sperm
C. Climbing or grasping
D. None of the Above

141. Many ground spiders have specialized adhesive hairs _____, known as claw tufts or scopulae.
A. Used to attack prey
B. Beneath their claws
C. Used for climbing or grasping
D. Used to spin webs
E. None of the Above

142. These claw tufts enable the spiders to _____on smooth, vertical surfaces—even upside down on glass.
A. Climb upside down
B. Transfer sperm
C. Sensitivity touch
D. Walk sure-footedly
E. None of the Above

Sensory Organs
143. Most spiders are active at night, and as a result, they use their other senses more than they use their _____, which is not well developed. In addition to the thousands of hairs found on the palps and legs that are highly sensitive to touch and vibrations, spiders also have hairs on their feet that they use to taste things.
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Spigots
D. Silk glands
E. None of the Above

144. Most spiders have four pairs of _____ (eyes with a single lens) that are located on the front of the cephalothorax.
A. Compound palps
B. Simple eyes or Eyes
C. Spigots
D. Palps
E. None of the Above

145. The _____ are usually grouped into two or three rows that form specific patterns in different spider families. This eye arrangement is often used to identify and classify a spider.
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Spigots
D. Silk
E. None of the Above

146. Unlike spiders that are active at night, spiders that are active during the day, such as jumping spiders and lynx spiders, typically have _____at close range.
A. Good vision
B. Simple eyes or Eyes
C. Poor vision
D. Average vision
E. None of the Above

147. Their vision easily rivals the _____ of many insects, which have compound eyes (eyes with multiple lenses).
A. Eyesight or Good vision
B. Simple eyes or Eyes
C. Advance
D. Best
E. None of the Above

Spider's Abdomen
148. The spider's abdomen is soft and saclike. On the underside of the tip of the abdomen are three pairs of _____.
A. Palps
B. Shortened limbs
C. Spigots
D. Spinnerets
E. None of the Above

149. Each spinneret is studded with many fine, hair-like tubes called spigots, which produce a variety of silk threads. The _____ lead to several large silk glands inside the abdomen.
A. Palps
B. Shortened limbs
C. Spigot
D. Chelicerae
E. None of the Above

150. _____ is formed as a liquid inside these abdominal glands.
A. Digestive system fluids
B. Sperm
C. Larva
D. Silk
E. None of the Above

Tick Section
151. Most hard ticks undergo a 2-year life cycle in which they begin as_____.
A. 5-legged larvae
B. 8-legged larvae
C. 3-legged larvae
D. 6-legged larvae
E. None of the above

152. These ticks generally feed for_____.
A. Many days
B. Weeks
C. Months
D. Years
E. None of the above

153. The larvae hatch from eggs in the_____.
A. Winter
B. Spring
C. Summer
D. Fall
E. None of the above

154. If the larvae do not find a host for a blood meal, they _____.
A. Wait for a host
B. Attach to the ground
C. Live for a few days
D. Die
E. None of the above

155. Larvae that successfully feed then fall off the host live in the soil and decaying vegetation over the_____.
A. Winter
B. Spring
C. Fall
D. Summer

156. In_____, most often in May and June, the larvae molt into 8-legged nymphs.
A. Winter
B. Spring
C. Fall
D. Summer
E. None of the above

157. These _____ are quite small and seek their blood meal from a small vertebrate.
A. Nymphs
B. Dealates
C. Diapause
D. Peromyscus leucopus
E. None of the above

158. The _____ adult tick is somewhat larger and seeks a larger host for its required blood meal.
A. 5-legged
B. 8-legged
C. 3-legged
D. 6-legged
E. None of the above

159. The _____is the preferred host for adult ticks.
A. White-tailed deer
B. White-tailed rabbit
C. Bear
D. Fish
E. None of the above

160. In the United States, only ticks of the genus ornithodoros transmit_____, namely, relapsing fever.
A. Tick borne
B. Vector-borne
C. Human disease
D. Peromyscus leucopus
E. None of the above

161. The biology of soft ticks differs from that of hard ticks in that meals last for only short periods (<1 hour), and disease can be transmitted in less than _____.
A. 1 minute
B. 1 Day
C. 1 Week
D. 1 hour
E. None of the above

162. This tick species occurs from central Texas east to the Atlantic coast and north to Iowa and New York; it has also been reported in northern_____.
A. Atlantic coast
B. Arizona
C. Mexico
D. California
E. None of the above

163. The _____ is found in wooded areas;
A. Nymph
B. Seed tick
C. Lone Star tick
D. Brown dog tick
E. None of the above

164. Each female produces _____eggs, which are deposited under leaf and soil litter in middle to late spring.
A. 100-300
B. 1000-3000
C. 300-800
D. 3,000-8,000
E. None of the above

165. Incubation may take 30 days or longer, depending on_____.
A. Light
B. Temperature
C. Humidity
D. Weather
E. None of the above

166. The newly hatched six-legged immatures, also known as larvae or Seed ticks feed for _____ on a host.
A. 7-16 days
B. 3 to 7 days
C. 9-27 days
D. 4-15 months
E. None of the above

167. After full engorgement the larvae drop from the host into vegetation and shed their skins _____ later.
A. 7-16 days
B. 3 to 7 days
C. 9-27 days
D. 4-15 months
E. None of the above

168. The eight-legged immatures that emerge are called_____.
A. Immatures
B. Nymphs
C. Lone Star ticks
D. Seed ticks
E. None of the above

169. These attach to a second host and feed for up to _____.
A. 38 days
B. 3 to 7 days
C. 9-27 days
D. 13-46 days
E. None of the above

170. The nymphs then detach and rest for_____before they shed their skins to become adults.
A. 38 days
B. 3 to 7 days
C. 9-27 days
D. 13-46 days
E. None of the above

171. Adults attach to a third host, feed for_____, and detach.
A. 38 days
B. 3 to 7 days
C. 6-24 days
D. 13-46 days
E. None of the above

172. Oviposition occurs _____after the last blood meal.
A. 38 days
B. 7-16 days
C. 6-24 days
D. 13-46 days
E. None of the above

173. Larvae may survive for _____.
A. 3-6 months
B. 4-15 months
C. 2-9 months
D. 13-46 days
E. None of the above

174. Nymphs and adults survive for _____each.
A. 3-6 months
B. 4-15 months
C. 2-9 months
D. None of the above

175. The life cycle may take up to _____to complete.
A. 6 years
B. 4-15 months
C. 2-9 months
D. 2 years
E. None of the above

176. Lone Star tick nymphs can move very quickly and may cover a person's legs or arms in less than_____.
A. 13-46 days
B. 5 minutes
C. 4-15 months
D. 10 minutes
E. None of the above

177. Earlier in the _____, female ticks deposit masses of several thousand eggs on the ground.
A. Summer
B. Spring
C. Winter
D. Fall
E. None of the above

178. Anyone unfortunate enough to pass through such a site can easily pick up _____.
A. Dozens of larvae
B. Human Diseases
C. Flea Dirt
D. Seed ticks
E. None of the above

179. These tiny, 6-legged creatures, also called “seed ticks ", are most active between _____.
A. September and October
B. July and October
C. October and November
D. July and August
E. None of the above

180. Adults and nymphs are active from_____.
A. Early spring through midsummer
B. Late summer to early fall
C. Early Spring to late Fall
D. Late fall in early winter
E. None of the above

181. Larvae are active mainly from_____.
A. Early spring through midsummer
B. Late summer to early fall
C. Early Spring to late Fall
D. Late fall in early winter
E. None of the above

182. Low _____and high daytime temperatures restrict the occurrence and activity of these ticks.
A. Evening temperatures
B. Dew points
C. Humidities
D. Morning temperatures
E. None of the above

183. All three life stages of A. americanum aggressively bite people in the southern U.S. Research indicates that live spirochetes are observed in only _____ of A. americanum.
A. 1-3%
B. 2-4%
C. 4-5%
D. 6-9%
E. None of the above

184. The American dog tick is found throughout _____except in parts of the Rocky Mountain region.
A. Asia
B. The United States
C. England
D. Africa
E. None of the above

185. Its habitat includes _____.
A. Wooded areas
B. Abandoned fields
C. Medium height grasses
D. Sunny or open areas around woods
E. ALL of the above

186. The female lays 4,000-6,500 ellipsoidal eggs over a _____ period and then dies.
A. 14-32 day
B. 12-14 day
C. 32-40 day
D. 5-13 day
E. None of the above

187. The eggs usually hatch in _____.
A. 42-60 days
B. 14-32 days
C. 36-57 days
D. 12-36 days
E. None of the above

188. Larvae usually engorge for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

189. Nymphs for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

190. Adult females for _____.
A. 3-5 days
B. 3-11 days
C. 5-13 days
D. 6-12 days
E. None of the above

191. Unfed larvae can live up to _____.
A. 15 months
B. 30 months
C. 20 months
D. None of the above

192. Nymphs can live up to_____.
A. 15 months
B. 30 months
C. 20 months
D. 40 months
E. None of the above

193. Adults can live up to_____ or longer.
A. 15 months
B. 30 months
C. 20 months
D. 40 months
E. None of the above

194. Adults are active from _____.
A. Mid-April to early September
B. June to early September
C. March through July
D. Mid summer to late fall
E. None of the above

195. Nymphs are active from _____.
A. Mid-April to early September
B. June to early September
C. March through July
D. Mid summer to late fall
E. None of the above

196. Larvae are active from _____.
A. Mid-April to early September
B. June to early September
C. Late March through July
D. Mid summer to late fall
E. None of the above

197. High light intensity and _____ stimulate questing behavior.
A. Low relative humidity
B. High relative humidity
C. Low temps
D. High temps
E. None of the above

198. The American dog tick is found throughout _____.
A. Eastern United States
B. Canada
C. Mexico
D. New England
E. None of the above

199. This tick is not known to spread _____, although it can transmit the causal agent of Rocky Mountain spotted fever.
A. Lyme disease
B. Borrelia lonestari
C. Human diseases
D. Seed ticks
E. None of the above

200. Adults become active about mid-April to _____and remain a nuisance until August.
A. Late May
B. Late August
C. Early August
D. Early May
E. None of the above

Common Kinds of Pesticides and their Function

201. Kill nematodes (microscopic, worm-like organisms that feed on plant roots).
A. Fumigants
B. Insecticides
C. Nematicides
D. Microbial pesticides
E. Molluscicides
F. None of the Above

202. Kill eggs of insects and mites.
A. Ovicides
B. Microbial pesticides
C. Pheromones
D. Molluscicides
E. Rodenticides
F. None of the Above

203. Kill microorganisms.
A. Biocides
B. Antimicrobials
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

204. Kill or inactivate disease-producing microorganisms on inanimate objects.
A. Disinfectants and sanitizers
B. Antimicrobials
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

205. Kill fungi (including blights, mildews, molds, and rusts).
A. Disinfectants and sanitizers
B. Fungicides
C. Fumigants
D. Miticides
E. Rodenticides
F. None of the Above

206 Kill or repel organisms that attach to underwater surfaces, such as boat bottoms.
A. Disinfectants and sanitizers D. Miticides
B. Antifouling agents E. Rodenticides
C. Fumigants F. None of the Above

207. Kill microorganisms (such as bacteria and viruses).
A. Disinfectants and sanitizers D. Miticides
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

208. Produce gas or vapor intended to destroy pests in buildings or soil.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

209. Control algae in lakes, canals, swimming pools, water tanks, and other sites.
A. Disinfectants and sanitizers D. Miticides
B. Antimicrobials E. Algaecides
C. Fumigants F. None of the Above

210. Attract pests (for example, to lure an insect or rodent to a trap).
(However, food is not considered a pesticide when used as an attractant.)
A. Disinfectants and sanitizers D. Attractants
B. Antimicrobials E. Rodenticides
C. Fumigants F. None of the Above

211. Kill weeds and other plants that grow where they are not wanted.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Herbicides
C. Nematicides F. None of the Above

212. Kill insects and other arthropods.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

213. Kill mites that feed on plants and animals.
A. Ovicides D. Molluscicides
B. Miticides E. Rodenticides
C. Pheromones F. None of the Above

214. Microorganisms that kill, inhibit, or out compete pests, including insects or other microorganisms.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

215. Kill snails and slugs.
A. Fumigants D. Microbial pesticides
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

216. Biochemicals used to disrupt the mating behavior of insects.
A. Ovicides D. Molluscicides
B. Microbial pesticides E. Rodenticides
C. Pheromones F. None of the Above

217. Repel pests, including insects (such as mosquitoes) and birds.
A. Fumigants D. Repellents
B. Insecticides E. Molluscicides
C. Nematicides F. None of the Above

218. Control mice and other rodents.
A. Ovicides D. Molluscicides
B. Microbial pesticides E. Rodenticides
C. Pheromones F. None of the Above

The term pesticide also includes these substances:
219. Cause leaves or other foliage to drop from a plant, usually to facilitate harvest.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

220. Promote drying of living tissues, such as unwanted plant tops.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

221. Disrupt the molting, maturity from pupal stage to adult or other life processes of insects.
A. Desiccants D. Insect growth regulators
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

222. Substances (excluding fertilizers or other plant nutrients) that alter the expected growth, flowering, or reproduction rate of plants.
A. Desiccants D. Microbial pesticides
B. Defoliants E. Plant growth regulators
C. Nematicides F. None of the Above

The U.S. definition of pesticides is quite broad, but it does have some exclusions:
223. _____used to control diseases of humans or animals (such as livestock and pets) are not considered pesticides; such drugs are regulated by the Food and Drug Administration.
A. Antimicrobials D. Drugs
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

224. Fertilizers, nutrients, and other substances used to promote plant survival and health are not considered plant growth regulators and thus are not _____.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Pesticides
C. Biopesticides F. None of the Above

225. _____, except for certain microorganisms, are exempted from regulation by the EPA. (Biological control agents include beneficial predators such as birds or ladybugs that eat insect pests.)
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

226. Products which contain certain_____, such as garlic and mint oil, have been exempted from Federal registration requirements, although State regulatory requirements may still apply.
A. Antimicrobials D. Conventional pesticides
B. Low-risk ingredients E. Biochemical pesticides
C. Biopesticides F. None of the Above

Antimicrobial Pesticides
227. Antimicrobials are especially important because many are_____. They help to control microorganisms (viruses, bacteria, and other microorganisms) that can cause human disease.
A. Public health pesticides D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

228. Antimicrobial _____are used as disinfectants in medical settings, where they are present in products used in cleaning cabinets, floors, walls, toilets, and other surfaces.
A. Public health pesticides D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

229. Proper use of these _____is an important part of infection control activities employed by hospitals and other medical establishments.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Disinfectants
C. Biopesticides F. None of the Above

Biopesticides
230. Biopesticides are certain types of pesticides derived from such natural materials as animals, plants, _____, and certain minerals.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Bacteria F. None of the Above

231. Canola oil and baking soda have pesticidal applications and are considered _____.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

Biopesticides fall into three major classes:
232. _____ consist of a microorganism (e.g., a bacterium, fungus, virus or protozoan) as the active ingredient.
A. Antimicrobials D. Microbial pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

233. _____ can control many different kinds of pests, although each separate active ingredient is relatively specific for its target pest[s].
A. Antimicrobials D. Microbial pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

234. The most widely used microbial pesticides are subspecies and strains of Bacillus thuringiensis, or Bt. Each strain of this _____ produces a different mix of proteins, and specifically kills one or a few related species of insect larvae.
A. Antimicrobials D. Bacterium
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

235. While some Bt's control moth larvae found on plants, other Bt's are specific for larvae of flies and mosquitoes. The target insect species are determined by whether the particular Bt produces a protein that can bind to a _____, thereby causing the insect larvae to starve.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

236. Plant-Incorporated-Protectants (PIPs) are _____that plants produce from genetic material that has been added to the plant.
A. Pesticidal substances D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

237. _____are naturally occurring substances that control pests by non-toxic mechanisms.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biochemical pesticides F. None of the Above

238. _____, by contrast, are generally synthetic materials that directly kill or inactivate the pest.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

239. _____include substances, such as insect sex pheromones that interfere with mating as well as various scented plant extracts that attract insect pests to traps.
A. Biochemical pesticides D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

What are the advantages of using biopesticides?
240. Biopesticides are usually inherently less toxic than _____.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

241. Biopesticides generally affect only the target pest and closely related organisms, in contrast to broad spectrum, _____ that may affect organisms as different as birds, insects, and mammals.
A. Antimicrobials D. Conventional pesticides
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

242. _____often are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides.
A. Antimicrobials D. Conventional pesticides,
B. Biological control agents E. Biochemical pesticides
C. Biopesticides F. None of the Above

243. When used as a component of Integrated Pest Management (IPM) programs, _____ can greatly decrease the use of conventional pesticides, while crop yields remain high. To use biopesticides effectively, however, users need to know a great deal about managing pests.
A. Antimicrobials
B. Biological control agents
C. Biopesticides
D. Conventional pesticides,
E. Biochemical pesticides
F. None of the Above

What is Malathion?
244. Malathion is an organophosphate (OP) insecticide that has been registered for use in the United States since 1956. It is used in agriculture, residential gardens, public recreation areas, and in_____.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Public health pest control programs
E. High-dose poisoning
F. None of the Above

245. When applied in accordance with the rate of application and safety precautions specified on the label, _____can be used to kill mosquitoes without posing unreasonable risks to human health or the environment.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Malathion
D. Active ingredient
E. High-dose poisoning
F. None of the Above

How is Malathion Used in Mosquito Control?
246. The _____goes through four distinct stages during its life cycle: egg, larva, pupa, and adult.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Mosquito
D. Active ingredient
E. Malathion
F. None of the Above

247. _____ is an adulticide, used to kill adult mosquitoes. In mosquito control programs conducted by state or local authorities.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. Malathion
F. None of the Above

248. Malathion is applied by truck-mounted or_____.
A. Ultra-low volume or (ULV)
B. Aircraft-mounted sprayers
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

249. Malathion is applied as an _____ spray.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

250. ULV _____ dispense very fine aerosol droplets that stay aloft and kill mosquitoes on contact.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

251. _____ applications involve small quantities of pesticide active ingredient in relation to the size of the area treated.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

252. For mosquito control, Malathion is applied at a maximum rate of 0.23 pounds (or about 2.5 fluid ounces) of _____ per acre, which minimizes exposure and risks to people and the environment.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

Does Malathion Pose Risks to Human Health?
253. Malathion can be used for public health _____without posing unreasonable risks to the general population when applied according to the label.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. Mosquito control programs
C. Maximum rate F. None of the Above

254. The EPA has estimated the exposure and risks to both adults and children posed by ULV aerial and _____of Malathion.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Ground applications E. High-dose poisoning
C. Maximum rate F. None of the Above

255. Because of the very small amount of _____ released per acre of ground, the estimates found that for all scenarios considered, exposures were hundreds or even thousands of times below an amount that might pose a health concern.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

256. These estimates assumed several spraying events over a period of weeks, and also assumed that a toddler would ingest some soil and grass in addition to_____.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Skin and inhalation exposure E. High-dose poisoning
C. Maximum rate F. None of the Above

257. At high doses, Malathion, like other _____, can over stimulate the nervous system causing nausea, dizziness, or confusion.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphates or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

258. Severe high-dose poisoning with any _____ can cause convulsions, respiratory paralysis, and death.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. High-dose poisoning
C. Maximum rate F. None of the Above

Does Malathion Pose Risks to Wildlife or the Environment?
259. _____used in mosquito control programs does not pose unreasonable risks to wildlife or the environment.
A. Ultra-low volume or (ULV) D. Active ingredient
B. Organophosphate or (OP) E. Malathion
C. Maximum rate F. None of the Above

260. Malathion degrades rapidly in the_____, especially in moist soil, and it displays low toxicity to birds and mammals.
A. Ultra-low volume or (ULV)
B. Organophosphate or (OP)
C. Maximum rate
D. Environment
E. High-dose poisoning
F. None of the Above

261. Malathion is _____to insects, including beneficial insects such as honeybees. For that reason, the EPA has established specific precautions on the label to reduce such risks.
A. Ultra-low volume or (ULV)
B. Highly toxic
C. Maximum rate
D. Active ingredient
E. High-dose poisoning
F. None of the Above

Larvicides For Mosquito Control

262. The _____ evaluates and registers (licenses) pesticides to ensure that they can be used safely.
A. Prevention programs
B. Organophosphate or (OP)
C. Bacillus sphaericus
D. Mosquito control programs
E. Surveillance and monitoring
F. None of the Above

263. These pesticides include products used in the _____ that states and communities have established.
A. Prevention programs
B. Organophosphate or (OP)
C. Bacillus sphaericus
D. Mosquito control programs
E. Surveillance and monitoring
F. None of the Above

264. To evaluate any pesticide, the EPA assesses a wide variety of tests to determine whether a pesticide has the potential to cause adverse effects on humans, wildlife, fish and plants, including endangered species and_____.
A. Prevention programs
B. Organophosphate or (OP)
C. Non-target organisms
D. Mosquito control programs
E. Surveillance and monitoring
F. None of the Above

265. Officials responsible for mosquito control programs make decisions to use pesticides based on an evaluation of the risks to the general public from diseases transmitted by mosquitoes or on an evaluation of the _____that communities can tolerate from a mosquito infestation.
A. Prevention programs
B. Nuisance level
C. Bacillus sphaericus
D. Mosquito control programs
E. Surveillance and monitoring
F. None of the Above

266. Based on _____, mosquito control officials select specific pesticides and other control measures that best suit local conditions in order to achieve effective control of mosquitoes with the least impact on human health and the environment.
A. Prevention programs
B. Organophosphate or (OP)
C. Bacillus sphaericus
D. Mosquito control programs
E. Surveillance and monitoring
F. None of the Above

267. It is especially important to conduct effective mosquito prevention programs by eliminating _____or applying pesticides to control the early life stages of the mosquito.
A. Prevention programs
B. Breeding habitats
C. Bacillus sphaericus
D. Mosquito control programs
E. Surveillance and monitoring
F. None of the Above

268. Prevention programs, such as elimination of any standing water that could serve as a breeding site, help reduce the _____and the need to apply other pesticides for adult mosquito control.
A. Prevention programs D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Adult mosquito population F. None of the Above

269. Since no pesticide can be considered 100 percent safe, _____and the general public should always exercise care and follow specified safety precautions during use to reduce risks.
A. Pesticide applicators D. Mosquito control programs
B. Organophosphate or (OP) E. Surveillance and monitoring
C. Bacillus sphaericus F. None of the Above

What are Larvicides?
270. Larvicides kill mosquito larvae. Larvicides include_____, such as the microbial larvicides Bacillus sphaericus and Bacillus thuringiensis israelensis.
A. IPM D. Mosquito larvae
B. Control program E. Biological insecticides
C. Bacillus sphaericus F. None of the Above

271. Larvicides include other pesticides, such as temephos, _____, oils, and monomolecular films.
A. Methoprene D. Mosquito larvae
B. Control program E. Temephos
C. Bacillus sphaericus F. None of the Above

272. Larvicide treatment of _____helps reduce the adult mosquito population in nearby areas.
A. IPM D. Breeding habitats
B. Control program E. Temephos
C. Bacillus sphaericus F. None of the Above

How are Larvicides Used in Mosquito Control?
273. State and local agencies in charge of _____typically employ a variety of techniques in an Integrated Pest Management (IPM) program.
A. IPM D. Mosquito larvae
B. Mosquito control E. Temephos
C. Bacillus sphaericus F. None of the Above

274. An IPM approach includes surveillance, _____, larviciding and adulticiding to control mosquito populations.
A. Source reduction D. Mosquito larvae
B. Control program E. Temephos
C. Bacillus sphaericus F. None of the Above

275. Since mosquitoes must have water to breed, source reduction can be as simple as turning over trapped water in a container to _____and management of marsh water levels.
A. IPM D. Mosquito larvae
B. Control program E. Undertaking large-scale engineering
C. Bacillus sphaericus F. None of the Above

276. Larviciding involves _____to breeding habitats to kill mosquito larvae. Larviciding can reduce overall pesticide usage in a control program.
A. IPM D. Mosquito larvae
B. Control program E. Temephos
C. Applying pesticides F. None of the Above

277. Killing mosquito larvae before they emerge as adults can reduce or eliminate the need for ground or aerial application of pesticides to_____.
A. IPM D. Mosquito larvae
B. Control program E. Kill adult mosquitoes
C. Bacillus sphaericus F. None of the Above

What are Microbial Larvicides?
278. Microbial larvicides are _____that are registered as pesticides for control of mosquito larvae in outdoor areas such as irrigation ditches, flood water, standing ponds, woodland pools, pastures, tidal water, fresh or saltwater marshes, and storm water retention areas.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacteria F. None of the Above

279. Duration of effectiveness depends primarily on the_____, the environmental conditions, the formulation of the product, and water quality.
A. IPM D. Mosquito species
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

280. Microbial larvicides may be used along with other mosquito control measures in an IPM program. The microbial larvicides used for mosquito control are _____ and Bacillus sphaericus (B. sphaericus).
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

281. _____ is a naturally occurring soil bacterium registered for control of mosquito larvae.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

282. Bti was first registered by the EPA as an insecticide in 1983. Mosquito larvae eat the _____ product that is made up of the dormant spore form of the bacterium and an associated pure toxin.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

283. The _____disrupts the gut in the mosquito by binding to receptor cells present in insects, but not in mammals.
A. Toxin D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

284. There are 26 Bti products registered for use in the United States. Aquabac, Teknar, Vectobac, and _____are examples of common trade names for the mosquito control products.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

285. _____ is a naturally occurring bacterium that is found throughout the world. B. sphaericus was initially registered by the EPA in 1991 for use against various kinds of mosquito larvae.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

286. Mosquito larvae ingest the bacteria, and as with _____, the toxin disrupts the gut in the mosquito by binding to receptor cells present in insects but not in mammals.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

287. VectoLex CG and WDG are registered _____products and are effective for approximately one to four weeks after application.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. B. sphaericus F. None of the Above

Do Microbial Larvicides Pose Risks to Human Health?
288. The microbial pesticides have undergone extensive testing prior to registration. They are essentially nontoxic to humans, so there are no concerns for human health effects with _____ or B. sphaericus when they are used according to label directions.
A. IPM D. Mosquito larvae
B. LarvX E. Bacillus thuringiensis israelensis (Bti)
C. Bacillus sphaericus F. None of the Above

Do Microbial Larvicides Pose Risks to Wildlife or the Environment?
289. Extensive testing shows that _____do not pose risks to wildlife, non-target species, or the environment, when used according to label directions.
A. IPM D. Mosquito larvae
B. Altosid E. Microbial larvicides
C. Methoprene F. None of the Above

What is Methoprene?
290. Methoprene is a compound first registered by the EPA in 1975 that mimics the action of an insect growth-regulating hormone and prevents the normal maturation of_____.
A. IPM D. Insect larvae
B. Altosid E. Nontoxic
C. Methoprene F. None of the Above

291. It is applied to water to kill _____, and it may be used along with other mosquito control measures in an IPM program.
A. IPM D. Mosquito larvae
B. Altosid E. Nontoxic
C. Methoprene F. None of the Above

292. _____ is the name of the methoprene product used in mosquito control and is applied as briquettes (similar in form to charcoal briquettes), pellets, sand granules, and liquids. The liquid and pelletized formulations can be applied by helicopter and fixed-wing aircraft.
A. IPM D. Mosquito larvae
B. Altosid E. Nontoxic
C. Methoprene F. None of the Above

Does Methoprene Pose Risks to Human Health?

293. _____, used for mosquito control according to its label directions, does not pose unreasonable risks to human health.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

294. In addition to posing _____to mammals, there is little opportunity for human exposure, since the material is applied directly to ditches, ponds, marshes, or flooded areas that are not drinking water sources.

A. Low toxicity
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

Does Methoprene Pose Risks to Wildlife or the Environment?

295. Methoprene used in _____does not pose unreasonable risks to wildlife or the environment.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Mosquito control programs
F. None of the Above

296. Toxicity of methoprene to birds and fish is low, and it is _____ to bees.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

297. _____ breaks down quickly in water and soil and will not leach into ground water.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

298. _____ mosquito control products present minimal acute and chronic risk to freshwater fish, freshwater invertebrates, and estuarine species.

A. IPM
B. Altosid
C. Methoprene
D. Mosquito larvae
E. Nontoxic
F. None of the Above

What is Temephos?

299. Temephos is an organophosphate (OP) pesticide registered by the EPA in 1965 to control mosquito larvae, and it is the only organophosphate with_____. It is an important resistance management tool for mosquito control programs; its use helps prevent mosquitoes from developing resistance to the bacterial larvicides.

A. IPM
B. Larvicidal use
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

300. Temephos is used in areas of standing water, shallow ponds, swamps, marshes, and intertidal zones. It may be used along with other mosquito control measures in an _____ program.

A. IPM
B. OPs
C. Larviciding techniques
D. Abate or Temephos
E. Mosquito control
F. None of the Above

You are finished with your assignment…please e-mail or fax the answer key and registration form to TLC.