

Registration form

Advanced Pest Control \$250.00
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 and 4. Signature is required.
You can electronically sign with XXX

Signature _____

Address: _____

City _____ **State** _____ **Zip** _____

Phone:
Home (____) _____ **Work** (____) _____

Fax (____) _____ **Email** _____

License or Operator ID # _____ **Exp. Date** _____

Class/Grade _____

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
P.O. Box 420, Payson, AZ 85547-0420
Toll Free (866) 557-1746 Fax (928) 272-0747
info@tlch2o.com Visit us on the web at www.abctlc.com

Discover card _____ **CCV code on card** _____
American Express _____
Master Card / Visa Card # _____ **Exp. Date** _____

If you've paid on the Internet, please write your Customer # _____

Include your e-mail address for we will e-mail your certificate to 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.

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

CUSTOMER SERVICE RESPONSE CARD

Advanced 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?

6. How about the price of the course?

Poor _____ Fair _____ Average _____ Good _____ Great _____

7. How was your customer service?

Poor _____ Fair _____ Average _____ Good _____ Great _____

8. Any other concerns or comments.

DISCLAIMER NOTICE

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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 \$129.95 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...

Advanced Pest Control Answer Key

Name _____

Phone# _____

Multiple Choice. Pick only one answer per question. Exactly as in text. Circle or Mark off, Underline or Bold the answer. Please circle or underline the number of the assignment version 1 or 2 or 3 or 4 or 5

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Assignment Instructions

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

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 E, you will pick assignment number 1, if your last name begins with the letter F to L, you are to complete assignment number 2 and if your last name begins with the letter M-Q, you will pick assignment number 3 and if your last name begins with the letter R-Z, you will pick assignment number 4.

Multiple Choice, Please select one answer and mark it on the answer key. The answer must come from the course text. (s) Means answer can be plural or singular.

Assignment #1 for all pest applicators whose last name begins with A-E you will find your assignment on pages 9-38.

Assignment #2 for all pest applicators whose last name begins starting with the letter F-L, your assignment is found on pages 39-68.

Assignment #3 for all pest applicators whose last name begins starting with the letter M-Q, your assignment is found on pages 69-98.

Assignment #4 for all pest applicators whose last name begins starting with the letter R-Z, your assignment is found on pages 99-129.

Rush Grading Service

If you need this assignment graded and the results mailed to you within a 48-hour period, prepare to pay an additional rush service handling fee of \$50.00. This fee may not cover postage costs. If you need this service, simply write RUSH on the top of your Registration Form. We will place you in the front of the grading and processing line.

When you are finished with your assignment. Please fax this answer key and your registration page along with the customer survey to TLC.

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

Fax Number (928) 272-0747 Back-Up Fax (928) 468-0675

Always call us after faxing the paperwork to ensure that we've received it. Allow two weeks for processing and for the proper forms to be sent back to you. 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.***

Advanced Pest Control Assignment #1 For Students Names A-E

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.

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 E, you will pick assignment number 1, if your last name begins with the letter F to L, you are to complete assignment number 2 and if your last name begins with the letter M-Q, you will pick assignment number 3 and if your last name begins with the letter R-Z, you will pick assignment number 4.

Multiple Choice, Please select one answer and mark it on the answer key. The answer must come from the course text. (s) Means answer can be plural or singular.

WHAT EMPLOYERS MUST DO FOR BOTH WORKERS AND HANDLERS

1. Some _____ protections that employers must provide are nearly the same whether the employees are workers or handlers.
 - A. Worker Protection Standard or WPS
 - B. Restricted-entry intervals or REIs
 - C. Pesticide-related ordinances
 - D. EPA registration number
 - E. Personal
 - F. None of the Above

What Information Must Be Displayed?

2. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, _____, and active ingredient(s) of the pesticide, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.
 - A. Worker Protection Standard or WPS
 - B. Pesticide-related ordinances
 - C. EPA registration number
 - D. Restricted-entry intervals or REIs
 - E. Personal
 - F. None of the Above
3. _____, which must include the name, telephone number and address of the nearest emergency medical facility.
 - A. Worker Protection Standard or WPS
 - B. Restricted-entry intervals or REIs
 - C. Emergency information
 - D. EPA registration number
 - E. Agricultural Use Requirements
 - F. None of the Above
4. A pesticide safety poster, which must be either the _____ safety poster developed by EPA or an equivalent poster that contains the concepts listed in Criteria for Pesticide Safety Poster.
 - A. Worker
 - B. Restricted-entry intervals or REIs
 - C. Pesticide-related ordinances
 - D. Worker Protection Standard or WPS
 - E. EPA registration Requirements
 - F. None of the Above

Where Must the Information Be Displayed?

5. Display the required information together in a central location on your agricultural establishment where it is readily accessible and can be easily seen and read by _____.
- A. Worker Protection Standard or WPS
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Workers or handlers
 - E. EPA registration Requirements
 - F. None of the Above

Timing of Displaying Application Information

6. If _____ are on your establishment at the start of an application, display the required pesticide-specific information before the application takes place.
- A. EPA registration number
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Only handlers
 - E. Workers or handlers
 - F. None of the Above
7. If _____ are not on your establishment at the start of an application, display pesticide-specific information no later than the beginning of their first work period.
- A. Workers or handlers
 - B. Appropriately trained Workers
 - C. Nursery workers
 - D. Only handlers
 - E. EPA registration Requirements
 - F. None of the Above
8. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the restricted-entry interval expires.
- A. Appropriately trained Workers
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Only handlers
 - E. Workers or handlers
 - F. None of the Above
9. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the end of the application, if there is no restricted-entry interval for the pesticide.
- A. Workers or handlers
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Only handlers
 - E. Supervisors
 - F. None of the Above

Other Responsibilities

10. Inform _____ where the information is located.
- A. Supervisors
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Only handlers
 - E. Workers or handlers
 - F. None of the Above
11. Allow _____ free, unhampered access to the information.
- A. Workers or handlers
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Only handlers
 - E. Crop handlers
 - F. None of the Above
12. Be sure that the poster, _____, and application information remain legible during the time they are posted.
- A. Workers or handlers
 - B. Appropriately trained and equipped handlers
 - C. Nursery workers
 - D. Only handlers
 - E. Crop handlers
 - F. None of the Above
13. Promptly inform _____ if there is any change in the information on emergency medical facilities and update the emergency information listed with the poster.
- A. Workers or handlers
 - B. Appropriately trained and equipped handlers
 - C. Supervisors
 - D. Workers
 - E. Only handlers
 - F. None of the Above

Restrictions During Applications

14. In areas being treated with pesticides, allow entry only to _____.

- A. Workers or handlers
- B. Supervisors
- C. Appropriately trained and equipped handlers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

15. Keep nursery workers at least 100 feet away from nursery areas being treated.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

16. Allow _____ to be in a greenhouse during a pesticide application, until labeling-listed air concentration level is met or, if no such level, until after 2 hours of ventilation with fans. (Also see nursery restrictions and greenhouse restrictions)

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Supervisors
- F. None of the Above

17. Restricted-Entry Intervals (REIs) During any REI, do not allow _____ to enter a treated area and contact anything treated with the pesticide to which the REI applies. (Also see early entry by workers)

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Workers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

Notice About Applications

18. _____ and post treated areas if the pesticide labeling requires.

- A. Provide to handlers
- B. Enter the establishment
- C. Call or e-mail
- D. Just before application
- E. Orally warn workers
- F. None of the Above

19. Otherwise, either _____ or post entrances to treated areas. Tell workers which method is in effect.

- A. Provide to handlers
- B. Enter the establishment
- C. Orally warn workers
- D. Just before application
- E. Identify
- F. None of the Above

Posted Warning Signs

20. Post legible 14" x 16" WPS-design signs just before application; keep posted during REI; remove _____ and within 3 days after the end of the REI.

- A. Posters
- B. Before workers enter
- C. After orally warning workers
- D. Just before application
- E. All of the Above
- F. None of the Above

21. Post signs _____ at all entrances to treated areas, including entrances from labor camps.

- A. Provided to handlers
- B. And then enter the establishment
- C. And then orally warn workers
- D. Just before application
- E. So they can be seen
- F. None of the Above

Oral Warnings

22. Before each application, _____ who are on the establishment (in a manner they can understand): location and description of treated area, REI, and not to enter during REI.

- A. Provide to handlers
- B. Tell workers
- C. Orally warn workers with signage
- D. Just before application tell employees
- E. So they can be seen
- F. None of the Above

23. Workers who enter the establishment after application starts _____ at the start of their work period.
- A. Must be provided to handlers
 - B. Must carefully enter the establishment
 - C. Just before application
 - D. Tell employees
 - E. Must receive the same warning
 - F. None of the Above

DECONTAMINATION SUPPLIES BASIC RESPONSIBILITIES

24. Handler employers _____ for washing off pesticides and pesticide residues are provided to handlers while they are doing handling tasks.

- A. Must inform the workers to wash
- B. Enter the establishment
- C. Must orally warn workers
- D. Must make sure that decontamination supplies
- E. Must receive the same warning
- F. None of the Above

25. Worker employers must make sure that decontamination supplies for washing off pesticide residues are provided to workers who are working in a (n) _____ and are doing tasks that involve contact with anything that has been treated with the pesticide, including soil, water, or surfaces of plants.

- A. Located together
- B. Pesticide-treated area
- C. Guidelines
- D. Nearest point
- E. Safe Zone
- F. None of the Above

SPECIFIC DUTIES

26. For workers, until 30 days after the end of any _____ for that area. If there is no restricted-entry interval, until 30 days after the end of any application in that area.

- A. Located together
- B. Restricted-entry interval
- C. Guidelines
- D. Nearest point
- E. Safe Zone
- F. None of the Above

Exception

27. When the only pesticides used in the treated area are products with a restricted-entry interval of 4 hours or less, the decontamination supplies must be provided until 7 days after the end of the _____.

- A. Located together
- B. Safe Zone
- C. Guidelines
- D. Nearest point
- E. Restricted-entry interval
- F. None of the Above

28. When products have no _____ listed on the label, the decontamination supplies must be provided until 30 days after the end of any application in that area.

- A. MSDS
- B. Guidelines
- C. Nearest point
- D. Restricted-entry interval
- E. Decontamination supply requirements
- F. None of the Above

29. For early-entry workers who will contact anything that has been treated with the pesticide, the _____ are different.

- A. Rules
- B. Restricted-entry interval
- C. Decontamination supply requirements
- D. Nearest point
- E. All of the Above
- F. None of the Above

30. Pilot's fresh air supply--Filtered air for the pilot to breathe is necessary because it is nearly impossible for the pilot to avoid flying back through some of the _____ passes. If a filtered-air helmet is not available, the pilot should at least wear an approved respirator.

- A. ULV
- B. Agricultural flying
- C. Oils
- D. Swath of previous flight
- E. Over spray
- F. None of the Above

31. Fuselage features--Enclosed fuselages should be fitted with cleanout panels for the regular removal of _____. Spray pumps, filters, and control valves should be easily accessible for maintenance and repair.

- A. Corrosive sprays and dusts
- B. Cleanout panels
- C. Oils
- D. Adjuvants
- E. All of the Above
- F. None of the Above

32. Maintenance--The seasonal use of agricultural aircraft might suggest a pattern of inspection and repair during the_____.

- A. Crop spraying season
- B. Agricultural flying period
- C. Maintenance period
- D. Idle, off-season periods
- E. All of the Above
- F. None of the Above

33. The critical demands of _____call for all the regular maintenance checks at all required intervals to ensure that the aircraft is in first class order at all times.

- A. Rotary wing aircraft
- B. Agricultural aircraft
- C. Crop spraying season
- D. Maintenance and repair
- E. Agricultural flying
- F. None of the Above

34. Two of the more important advantages of fixed wing aircraft are a _____ and a large payload capacity per dollar invested. Maneuverability is adequate, though not equal to the Rotary wing aircraft.

- A. Not a factor
- B. Low overhead
- C. Agricultural flying
- D. Maintenance and repair
- E. High speed of application
- F. None of the Above

35. One of the limitations of _____equipment is the necessity of a designated landing area, which may not always be in close proximity to the application area.

- A. Fixed wing
- B. Agricultural aircraft
- C. Agricultural flying
- D. Rotary wing
- E. All of the Above
- F. None of the Above

36. Rotary wing aircraft offers the advantages of extreme maneuverability and speed variation, and may be operated in almost _____. Pilots of these crafts must also be competent, alert, and have knowledge of the area and the limitations of their crafts.

- A. Weather
- B. Agricultural application
- C. Agricultural setting
- D. Agricultural flying
- E. Any local area
- F. None of the Above

37. Rotary wing flying puts a special demand on the pilot to perform _____, hovering and landing, since this type aircraft is more expensive to operate per unit of flying time than fixed wing aircraft.

- A. Agricultural flying
- B. Agricultural crop dusting
- C. Fueling
- D. Agricultural setting
- E. Application with minimum time loss in turns
- F. None of the Above

38. _____, or additive compounds, aid in the mixing, application or effectiveness of pesticides.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

39. One class of _____, compatibility agents, allow uniform mixing of compounds that would normally separate.
- A. Adjuvants D. Surface active agents
 B. Surfactants E. All of the Above
 C. Synergists F. None of the Above
40. Other types of adjuvants include spreaders, stickers, and _____. There are nearly as many adjuvants as there are pesticides, and they provide a choice for every need.
- A. Adjuvants D. Surface active agents
 B. Surfactants E. All of the Above
 C. Synergists F. None of the Above
41. Some adjuvants are added during pesticide manufacture and are, thus, part of the _____.
- A. Adjuvants D. Surface active agents
 B. Surfactants E. All of the Above
 C. Synergists F. None of the Above
42. Other adjuvants are added just before application. To decide when to use an adjuvant, READ THE LABEL. It will state when a particular _____ is needed, whether or not one should be added or when one is already present.
- A. Adjuvant D. Surface active agents
 B. Surfactants E. All of the Above
 C. Synergists F. None of the Above
43. _____ assist application or pesticide activity without being toxic to pests. However, many of these chemicals can present hazards to the applicators.
- A. Oils D. Adjuvants
 B. Surfactants E. Surface active agents
 C. Synergists F. None of the Above
44. The EPA has not required manufacturers to perform the same type of research and reporting on _____ that is required for pesticide registration.
- A. Oils D. Adjuvants
 B. Surfactants E. Surface active agents
 C. Synergists F. None of the Above
45. Regulations are continually updated to protect the health of applicators and review and registration of _____ may be required in the future.
- A. Oils D. Adjuvants
 B. Surfactants E. Surface active agents
 C. Synergists F. None of the Above
46. It is a good practice to use the same care in handling _____ as is used with pesticides.
- A. Oils D. Adjuvants
 B. Surfactants E. Surface active agents
 C. Synergists F. None of the Above
47. Many, but not all, adjuvants function as surfactants, or _____.
- A. Adjuvants D. Surface active agents
 B. Surfactants E. All of the Above
 C. Synergists F. None of the Above

48. _____ improve the retention and absorption of herbicides. The benefit that they provide is offset, to a degree, by the increased drift hazard they cause.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

49. Reducing the _____ of the spray solution permits it to break up into finer droplets, which are more likely to drift off target.

- A. Application rates
- B. Drift control agents
- C. Penetrating agents
- D. Surface active agents
- E. Surface tension
- F. None of the Above

50. _____ agents are adjuvants that help reduce the risk of drift. Pesticide drift is off-target spray deposit and off-target damage.

- A. Application rates
- B. Drift control
- C. Penetrating agents
- D. Surface active agents
- E. Surface tension
- F. None of the Above

Differences between Africanized and European Bees

51. _____ are adapted to seasonal availability of food; Africanized bees are adapted to the tropics, where food is more available year-round.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

52. _____ make large, fairly permanent colonies; Africanized bees make smaller colonies that reproduce (swarm) often. The table outlines some differences between the two bee types.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

53. _____ usually nest in hollow trees or in wall voids of houses.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

54. Africanized bees nest in these places and in unusual places, such as old tires, tin cans, other trash and _____. These types of nest sites increase the chance of human encounters with Africanized bees, especially in urban settings.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Potential Range of Africanized Bees in the United States

55. As Africanized bees expand into temperate areas, their _____ are less advantageous.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Characteristics of the AHB

56. A number of _____ have been identified in the AHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Aggressive Hive Defense and Stinging

57. Although the _____ does not attack unprovoked, it is very defensive of its colony. When compared to the EHB, it is much easier to provoke.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

58. The AHB responds quicker and in larger numbers when its colony is threatened. Once provoked, the AHB remains agitated for a longer period of time than does the _____.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

59. Disturbing an AHB colony may result in 6-10 times as many stings as European bees inflict. This phenomenon is attributed to the _____'s more acute sensitivity and response to the "alarm pheromone," a chemical odor that is released after stinging is initiated.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Excessive Swarming

60. The _____ will swarm more frequently than the EHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

61. Typically, an EHB colony swarms once every year or two; a(n) _____ colony may swarm 4-8 times a year.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

62. Generally, an AHB swarm is much smaller than a(n) _____ swarm; some aren't much larger than a coffee cup.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

63. Swarming reduces the number of bees in a colony, thus reducing the _____, resulting in diminished honey production.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

64. Management practices directed at reducing swarming, such as _____ into smaller colonies and frequent harvesting of honey, add costs for beekeepers.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Abscending
- F. None of the Above

Excessive Abscending

65. While absconding is rare in the EHB, it's rather common with the AHB. Absconding not only results in loss of a managed colony but _____ competing with managed bees for nectar and pollen.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Selection of Nesting Site

66. EHBs are very _____. They prefer hollow trees, wall voids or other cavities (about 10 gallons in size) well above the ground that are clean and dry.

- A. At living anywhere
- B. Good at swarming
- D. Particular in selecting nesting sites
- E. Excessive Abscending or Absconding
- F. None of the Above

67. The AHB will _____ that is protected from the weather. Selected sites are often much smaller, closer to the ground, and may not be as protected from the elements.

- A. Take days to choose a colony
- B. Take weeks to choose a queen
- C. Nest almost anyplace
- D. Not move anywhere
- E. All of the Above
- F. None of the Above

68. This _____ is thought by some to be due to greater competition resulting from the larger number of AHB swarms.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Reproductive Capacity

69. Compared with the EHB, the AHB _____ of its nest to brood production and less to honey storage.

- A. Adds to the feral population
- B. Builds
- C. Chooses
- D. Devotes a greater percentage
- E. Excessive Absconds or Absconded
- F. None of the Above

70. The developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Larvae or Workers
- E. Queen or Queens
- F. None of the Above

Number of Feral Colonies

71. In areas where the _____ has become established, a noticeable increase in the number of feral honey bee colonies occurs. This is generally thought to be the result of higher reproductive capacity, increased swarming rate, and tendency to abscond.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Queen or Queens
- F. None of the Above

72. In much of the area where the _____ is now established, feral colonies were extremely rare, probably because the EHBs were not adapted to the tropical climate.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Drones
- E. Queen(s)
- F. None of the Above

73. This marked increase of _____ may not be as great in an area where feral bees are common.
- A. AHB
 - B. EHB
 - C. Feral colonies
 - D. Drones
 - E. Queen(s)
 - F. None of the Above

Robbing

74. _____ is a type of foraging behavior where bees take honey from other bee colonies. This often occurs when nectar is scarce or unavailable, or when some colonies are weak and others are strong.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

75. _____ weakens colonies and may spread diseases and parasites.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

Winter Survival

76. Since the _____ is tropical in nature, it may not be able to regulate its body temperature as efficiently as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

77. Studies indicate that the _____ does not form as efficient a cluster during cold weather as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Colony Takeover

78. Many researchers have reported that _____ swarms often take over EHB colonies, particularly colonies which do not have functional queens.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

79. _____ swarms will do the same. The importance of such takeovers is questionable.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

Mating Advantage

80. An AHB colony produces more drones than a(n) _____ colony of equal size.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids and All of the Above
- F. None of the Above

81. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

82. Similar behavior in areas where large numbers of _____ colonies are maintained is being studied.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Identification

83. Identifying the different races of honey bees and their _____ is very difficult.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

84. The _____ differ only slightly and overlap considerably among individuals.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

85. _____ is not only difficult but time-consuming and expensive.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

86. Rapid and _____ of AHB and EHB strains is very important for monitoring the presence and spread of bees through an area.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

87. Several techniques have been used to identify _____, though none are 100 percent effective.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

88. _____: This technique utilizes precise measurements of specific body parts. Computer-assisted measurements are made of 25 characters on 10 bees.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

89. _____ An average is determined and used to distinguish the EHB from the AHB. Variations of this technique include the Fast Africanized Bee Identification System (FABIS), in which only three characters are measured.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

90. _____ The FABIS II technique uses seven measurements.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
91. _____: The ELISA procedure for identifying the AHB uses electrophoresis and isoelectric focusing to identify specific proteins unique to the AHB. About 90 percent of all AHB contain at least one of these proteins. A sample of three bees can provide an accuracy of 99.9 percent.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
92. _____: DNA contains the molecular code for genetically inherited characters. Bee DNA can be extracted and used to identify the AHB.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
93. _____: Other techniques for identifying different strains of the honey bee include cuticular hydrocarbons, flow cytometry, and the use of a portable audiometer.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above

What is Killing Honeybees?

94. The honeybees may have been especially vulnerable to the _____ epidemic.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above
95. When the honeybee _____ was sequenced a few years ago, researchers discovered fewer immune-system genes than you'd find in other insects.
- A. Genome D. Parasites
 B. Varroa E. Mites
 C. Larva F. None of the Above
96. This is despite the fact that the honeybee lives in _____, anywhere between 15,000 and 30,000 of them crammed into a hive the size of a filing cabinet.
- A. Genome D. Mites
 B. Parasites E. Cracks
 C. Varroa F. None of the Above
97. To make matters worse, a weakened hive often becomes the target of honey-raiders from healthier colonies, which only helps the _____ to spread.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above

98. It's possible that if the American honeybees had been left to their own devices, they would have died off in epic numbers and then evolved natural defenses against _____ (like more effective grooming), as they did in Asia.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasites
- E. Secondary Pesticide Targeting
- F. None of the Above

Biology of Varroa Mites

99. The Varroa mite (*Varroa jacobsoni*) is an external _____ of honey bees. It was first discovered in the U.S. in 1987.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasite
- E. Secondary Pesticide Targeting
- F. None of the Above

100. The Varroa _____ is a small, red brown mite measuring approximately 1 - 1.5 millimeters in length and width.

- A. Varroa
- B. Mite
- C. Larva
- D. Parasites
- E. Gene
- F. None of the Above

Mosquito Section

101. Inflammation of the brain, which can be caused by numerous viruses, including West Nile Virus endemic the normal presence of a disease or infectious agent among human beings within a geographic area.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Flavivirus
- F. None of the Above

102. A disease naturally present in certain human or animal populations.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

103. A disease naturally present in certain animal populations (sometimes used in contrast with "endemic").

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

104. A disease outbreak affecting certain human or animal populations.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

105. A disease outbreak affecting certain animal populations (sometimes used in contrast with "epidemic").

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

106. Agents biologic organism or chemical material that cause disease.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Etiologic
- F. None of the Above

107. A subset of arboviruses (transmitted by arthropods); this family of viruses includes West Nile Virus, St. Louis Encephalitis and several others.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

108. Type of mosquito traps designed to attract pregnant female mosquitoes

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

109. A living organism that serves as a blood source for blood-feeding arthropods, or on which a parasite lives.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

110. The arthropod carrier of a parasitic organism.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

111. A system for minimizing the impact of vectors and pests by using a variety of control procedures, and decreasing the chemical input to the environment.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

112. Immature mosquitoes; stage which hatches from the egg, prior to adult stage.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

113. A type of pesticide used to eradicate immature mosquitoes (larvae).

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

114. A type of pesticide used to kill adult mosquitoes.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

115. Native to a place; not imported; used to describe a disease transmitted by vectors that became infected from a local source.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

116. A type of larvicide; chemical that is used to prevent mosquito larvae from emerging and developing into adult mosquitoes.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

117. An insecticide made of bacteria whose infection kills insects; a substance produced by bacteria that is lethal to insects.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

118. A location where mosquitoes lay eggs, usually in stagnant water with organic material.

- A. Larvae
- B. Ponds
- C. Lakes
- D. Tree holes
- E. Rafts
- F. None of the Above

119. Brand name of methoprene, a type of larvicide.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

120. A bacterium; type of biological pesticide used to eradicate mosquito larvae in water. Mosquito larvae die after ingesting this bacteria.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

121. Blood serum collected from patients recently recovered from a disease, often used to test whether a person has had a specific infection.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Convalescent Blood Sera
- E. Microbial insecticide
- F. None of the Above

122. A virus whose life cycle includes transmission by arthropods.

- A. Aseptic Meningitis
- B. Mosquito Pools
- C. Arthropod
- D. Arbovirus
- E. Spinal Meningitis
- F. None of the Above

123. An invertebrate animal with jointed legs and a segmented body (includes flies, mosquitoes, ticks; also centipedes, scorpions, spiders etc.)

- A. Termite
- B. Mosquito
- C. Spider
- D. Arthropod
- E. Flying insects
- F. None of the Above

124. Inflammation of the lining of the brain and spinal cord, not due to a bacterial infection.

- A. Aseptic Meningitis
- B. Mosquito fever
- C. Arthropod hives
- D. Arbovirus
- E. Spinal Meningitis
- F. None of the Above

125. A group of mosquitoes collected in one area and combined at the laboratory for testing for the presence of West Nile and related viruses.

- A. Raft
- B. Mosquito Pools
- C. Nest
- D. Arthropod Nesting
- E. Flock
- F. None of the Above

126. This chemical name **N,N-diethyl-meta-toluamide**, is the active ingredient in many insect repellent products.

- A. Malathion
- B. Naled
- C. Dursban
- D. DEET
- E. Suspend
- F. None of the Above

127. Autopsy on an animal.
 A. Aseptic D. Arbovirus
 B. Necropsy E. Autopsy
 C. Neurology F. None of the Above
128. The study of the nervous system and its disorders.
 A. Research D. Nervous study
 B. Emboli E. Neurology
 C. Erotology F. None of the Above
129. The jointed feelers on each side of the mouth of some arthropods.
 A. Craw D. Outbreak
 B. Palpi E. Neurology
 C. Tabs F. None of the Above
130. Substance used to kill pests such as insects, mice and rats; insecticide is a form of pesticide.
 A. Toxins D. Pesticide
 B. Dusts E. All of the Above
 C. Sprays F. None of the Above
131. Blood Drawing
 A. Phlebotomy D. Vampire
 B. Tax collectors E. Ticks
 C. Politicians F. None of the Above
132. An unexpected increase in frequency or distribution of a disease.
 A. Epidemic D. Outbreak
 B. Dance fever E. Spreading
 C. Fever F. None of the Above
133. A period of rest or hibernation by which insects survive the winter
 A. Sleep D. Siesta
 B. Suspension E. Both A and D
 C. Overwintering F. None of the Above
134. The straw-like sucking mouthparts of some blood feeding arthropods.
 A. Proboscis D. Vactoube
 B. Resmethrin E. Tube
 C. Spike F. None of the Above
135. Brand name for larvicide *Bacillus thuringiensis* var. *israelensis* (BTI).
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
136. Brand name for larvicide *Bacillus sphaericus*.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
137. A synthetic pyrethroid pesticide used to eradicate adult mosquitoes in the home, lawn, garden and at industrial sites; active ingredient in the product **Scourge**.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above

138. A group of small bacteria that live inside tissue cells, and are carried by ticks, mites, fleas or lice.

- A. Vectolex D. Bacilli
- B. Resmethrin E. Germs
- C. Rickettsia F. None of the Above

139. A method of insecticide distribution in which a small portion of the compound is fragmented into extremely fine particles for aerial dispersal.

- A. Dusting D. Spray
- B. Drift E. ULV
- C. Fire F. None of the Above

140. An arthropod carrier of a disease producing organism. Usually used when part of the organism's natural life cycle takes place in the arthropod (= intermediate host).

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

141. Management of organisms that carry disease.

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

142. Instituted to control and reduce the vector population.

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

143. Monitoring of the vector population for presence of a disease.

- A. Vector-borne disease D. Vector Surveillance
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

144. A disease carried by arthropod intermediate hosts.

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

145. Of or relating to a virus.

- A. Viral Encephalitis D. Death
- B. Zoonosis E. Virus
- C. Viral F. None of the Above

146. Inflammation of the brain caused by a virus.

- A. Viral Encephalitis D. Death
- B. Fever E. Bad headache
- C. Viral F. None of the Above

147. A disease of animals that may be secondarily transmitted to man.

- A. Encephalitis D. VD
- B. Zoonosis E. Herpes
- C. Viral F. None of the Above

148. Areas of vegetation in bodies of salt water that may support the breeding of certain types of mosquitoes such as *Aedes sollicitans*.

- A. Swamps
- B. Lakes
- C. Rivers
- D. Salt Marsh
- E. All of the Above
- F. None of the Above

149. The testing of birds and other animals as an early warning system for the presence of virus (e.g. sentinel chickens).

- A. AIMS
- B. Bac-T
- C. Driving
- D. Pass or Fail
- E. Sentinel 'Guard'
- F. None of the Above

150. This means of, or relating to serum.

- A. Serologic
- B. Syrup
- C. Viral
- D. Anti-serum
- E. Antibodies
- F. None of the Above

Common Pest Cockroaches

Life Cycle

151. All roaches have _____ in their life cycle -- egg, nymph (young) and adult.

- A. Ootheca
- B. Imago
- C. Pedipalps
- D. Internode
- E. Three stages
- F. None of the Above

152. 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
- B. Imago
- C. Pedipalps
- D. Internode
- E. Three stages
- F. None of the Above

153. The _____ grow into adults by periodically shedding their skins, and may appear white for a few hours until their new skin darkens.

- A. Detritivore
- B. Nymphs
- C. Malformation
- D. Dealates
- E. Instar
- F. None of the Above

Live Everywhere

154. Cockroaches can be present in almost any _____. They move quickly and are especially active at night.

- A. Home
- B. Inside household goods
- C. Business
- D. Place inhabited by humans
- E. Area
- F. None of the Above

155. 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
- B. Breed in cracks and crevices
- C. Die in cracks and crevices
- D. Molt in cracks and crevices
- E. Hide in cracks and crevices
- F. None of the Above

156. They _____ in food and beverage boxes, grocery sacks, animal food and other household goods.

- A. Cause allergens
- B. Love to eat
- C. Are especially active at night
- D. Reject pesticides
- E. Can be carried into structures
- F. None of the Above

157. 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
- B. Book bindings
- C. Bait Gel
- D. Vegetables
- E. Starchy foods and meat products
- F. None of the Above

158. 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

159. 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

160. All but the _____ cockroach are introduced species to North America.

- A. Asian
- B. American
- C. Madeira
- D. German
- E. Oriental
- F. None of the Above

Damage

161. 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)
- B. Organisms
- C. Repulsive odor
- D. Germs
- E. Pathogen(s)
- F. None of the Above

Allergy

162. 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
- B. Mutations
- C. Allergic reactions
- D. Considerable psychological or emotional distress
- E. Disease
- F. None of the Above

Anxiety

163. The _____ of cockroaches can cause considerable psychological or emotional distress in some individuals.

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

164. Cockroaches usually do not bite, but their heavy leg spines _____.

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

Scientific Classification

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

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

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

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

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

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

168. 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
- B. Madeira cockroach
- C. Cryptocercidae
- D. *Blatella germanica*
- E. *Gromphadorina portentosa*
- F. None of the Above

169. The remaining families are the Cryptocercidae and the_____.

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

170. There are 55 species of _____in the United States, but only five of these are troublesome in the most States.

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

German Cockroach

171. 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
- B. Instars
- C. Light brown
- D. Have two longitudinal dark lines on their thorax (back)
- E. Black
- F. None of the Above

172. Adults are 1/2 to 3/4 inch long, and both males and females have _____as long as the body.

- A. Antennas
- B. Wings
- C. Eggs
- D. Two longitudinal dark lines on their thorax (back)
- E. Legs
- F. None of the Above

173. _____are similar in general appearance, but lack wings and may be as small as 1/8 inch.

- A. Instars
- B. Filiforms
- C. Immature stages
- D. Two longitudinal dark lines on their thorax (back)
- E. Nymph(s)
- F. None of the Above

174. The adult German cockroach is about 5/8 inch long, overall light brown in color with wings that cover the_____.

- A. Internode
- B. Dealates
- C. Proboscis
- D. Abdomen
- E. Furculum
- F. None of the Above

175. The _____just behind the head (pronotum) is marked with two prominent black stripes.

- A. Osmeterium
- B. Thoracic shield
- C. Scutellum
- D. Wings
- E. Poikilotherm
- F. None of the Above

176. 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
- B. Adult(s)
- C. Immature stages
- D. Wingless
- E. Nymph(s)
- F. None of the Above

177. 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
- B. Field cockroach
- C. Banded
- D. Brownbanded cockroach
- E. Nymphs
- F. None of the Above

178. 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
- B. Field cockroach
- C. Banded
- D. Brownbanded cockroach
- E. Nymphs
- F. None of the Above

179. 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
- B. Field cockroach
- C. Banded
- D. Brownbanded cockroach
- E. Nymphs
- F. None of the Above

180. _____ 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
- B. Field cockroach
- C. Banded
- D. Brownbanded cockroach
- E. Nymphs
- F. None of the Above

181. Each 5/16 inch long, _____ contains 30 to 40 eggs (oothecae) which hatch in 2 to 4 days after being deposited.

- A. New infestations
- B. Diapause
- C. Scutellum
- D. Dactyls
- E. Mesophyll
- F. None of the Above

182. _____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
- B. Dealates
- C. Parthenogenesis
- D. Femora
- E. Nymphs hatching
- F. None of the Above

183. This is mainly an indoor species, although they will also _____ from structure to structure.

- A. Start infestations
- B. Migrate outdoors
- C. Be active at night
- D. Have a life expectancy of six months
- E. Fly
- F. None of the Above

184. Occasionally, new infestations begin by bringing in cartons and other materials from infested structures that_____.

- A. Start new infestations
- B. Cause allergic reactions
- C. Are mainly active at night
- D. Harbor the roaches or their eggs
- E. Start in and around the landscape
- F. None of the Above

185. Kitchens, bathrooms and other locations that provide food, moisture, warmth and shelter are_____.

- A. Great new infestations
- B. Preferred habitats
- C. Mainly active at night
- D. Wet
- E. Dry
- F. None of the Above

186. German cockroaches are mainly active at night, when they _____ for food and water.

- A. Search
- B. Frass
- C. Detritivore
- D. Mesophyll
- E. Roset
- F. None of the Above

187. During the day, they remain concealed in _____ unless they are overcrowded, 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

188. 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

189. 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

190. 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

191. 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

192. 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

193. 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

194. 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

195. 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

196. 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

197. 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

198. 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

199. 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

200. _____ 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

Termite Section

General Treatment Guidelines

201. Insecticide barriers _____ during: Pre-construction (during construction).
- A. Requires additional treatment D. Include a Continuous insecticide barrier
 B. Are generally established E. B and D
 C. Require termite activity and treatment procedures F. None of the Above

202. Insecticide barriers are generally established during: Post-construction (existing building). In an existing building, termite treatments may involve any of the following: a) _____, and b) use of an insecticide for treating the soil, foundation, and wood.

- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treated E. All of the Above
 C. Distribution of insecticide F. None of the Above

203. In most cases, an untrained homeowner or building manager should not attempt a _____.

- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatment E. All of the Above
 C. Distribution of insecticide F. None of the Above

204. _____ should be performed by professional pest control operators (PCOs), that is right!

- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatment E. All of the Above
 C. Distribution of insecticide F. None of the Above

205. _____ requires special tools such as hammer drills, sub-slab injectors, rodding devices, high pressure pumps, a power supply, protective equipment.

- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatments E. B and D
 C. Distribution of insecticide F. None of the Above

Caution

206. Do not apply insecticides when soil is frozen or water-soaked (saturated). Frozen or saturated soil will not permit _____ for even distribution of insecticide.

- A. Mechanical alterations D. Termite treatment(s)
 B. Adequate absorption E. All of the Above
 C. Distribution of insecticide F. None of the Above

207. Do not permit humans and pets to _____ surfaces until dry.

- A. Walk on D. Adsorption
 B. Contact treated E. All of the Above
 C. Distribute of insecticide F. None of the Above

208. Before _____ for termite control, always read, understand and follow all label directions.

- A. Applying mechanical alterations
- B. Using insecticides
- C. Distribution of insecticide
- D. Applying termite treatment(s)
- E. All of the Above except A
- F. None of the Above

209. Keep all _____, out of reach of children and do not contaminate food, feed and water.

- A. Mechanical alterations
- B. Distribution of insecticide
- C. A and B
- D. Pesticides in original containers
- E. Termite treatment(s)
- F. None of the Above

Pre-Construction Treatment

210. Horizontal Barriers: In general, treat the footing trench with _____ before pouring cement footings.

- A. Diluted insecticide
- B. Insecticide
- C. A and D
- D. Establishing a chemical barrier
- E. Penetrating spray
- F. None of the Above

211. After grading is completed, _____ to areas before pouring slab floors, slab-supported porches, patios, carports, and entrance platforms at the rate of 1 gallon per 10 square feet.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. A and D
- D. Establish a chemical barrier
- E. Penetrating spray
- F. None of the Above

212. Vertical Barriers: _____ in areas such as around the bases of foundations, plumbing, utility entrances, and backfilled soil against foundation walls.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Penetrating spray
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

213. Treat crawl space areas either by _____.

- A. Applying diluted insecticide
- B. Applying insecticides
- C. Rodding or trenching procedures
- D. Establishing a chemical barrier
- E. All but C
- F. None of the Above

214. To _____ in soil, apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. After treatment, cover the crawl space area with a layer of untreated soil or polyethylene sheeting.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Produce a vertical barrier
- E. All of the Above
- F. None of the Above

Post-Construction Treatment

215. Do not _____ until locations of radiant heat pipes, water pipes, sewer lines, and electrical conduits are identified.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

216. Buildings requiring treatment generally fall into three categories: a) building on slab construction, b) building with crawl space, and c) building with a basement. There is a common belief that termites _____ slab foundations.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

217. Termites _____ solid concrete but they can enter through cracks as small as 1/64 of an inch.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

Building on Slab

218. _____ in a building on a slab is especially difficult and hazardous. In this type of construction, heat ducts (pipes) are buried in the concrete and serious damage can occur when they are accidentally drilled for holes to inject insecticide solutions.

- A. Injecting insecticide
- B. Drilling
- C. Controlling termite infestation
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

219. Treat the exterior of the foundation by _____ about 6 inches wide along the outside of the foundation.

- A. Injecting the insecticide
- B. Drilling
- C. Digging a narrow and shallow trench
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

220. _____ to the trench and soil at the rate of 4 gallons per 10 linear feet.

- A. Inject insecticide or Injecting the insecticide
- B. Drilling
- C. Applying the diluted insecticide
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

221. _____ with a thin layer of untreated soil. For an inside barrier, drill slab and space holes about 1 foot apart and 6 inches from the wall.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Cover treated soil in the trench
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

222. Using a subslab injector, inject insecticide through holes at the rate of 4 gallons per 10 linear feet. After application, _____ with mortar or any other special compound.

- A. Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Plug all holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Applications

223. Building With a Basement and Crawl Space

Basement: For an interior vertical barrier, _____ and space holes about one foot apart.

- A. Inject insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. A and B
- F. None of the Above

224. _____ may be required along the foundation walls, along one side of partition walls, along both sides of load-bearing wall, around sewer pipes, floor drains, conduits, and any crack in the basement floor.

- A. Inject insecticide
- B. Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above except D
- F. None of the Above

225. Using a sub-slab injector, _____ at the rate of 4 gallons per 10 linear feet. For an insecticide barrier around the exterior of foundation walls, apply an insecticide by rodding and/or trenching.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

226. The rod holes should be spaced 1 to 1 1/2 feet apart to _____ barrier. If a trench is necessary, it should not be wider than 6 inches.

- A. Inject insecticide or Inject the insecticide
- B. Provide a continuous chemical
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

227. _____ using rodding technique at the rate of 4 gallons per 10 linear feet. Cover the trench with untreated soil.
- A. Inject insecticide or Inject the insecticide
 - B. Drill the floor slab or Drilling
 - C. Space rod holes
 - D. Broadcast insecticide spray
 - E. All of the Above
 - F. None of the Above

Crawl Spaces

228. _____ by rodding and/or trenching procedures. A shallow trench should not be wider than 6 inches.

- A. Inject insecticide
- B. Establish vertical barriers
- C. Drill and rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

229. _____ about 1 to 1 1/2 feet apart. Apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth.

- A. Inject the insecticide
- B. Space rod holes
- C. B and D
- D. Drill the floor slab or Drilling
- E. Broadcast insecticide spray
- F. None of the Above

230. Do not treat soil in crawl space area with a(n) _____.

- A. Insecticide
- B. Fungicide
- C. Pesticide
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Hollow Masonry Units of the Foundation Walls

231. Treat through _____ to provide a continuous chemical barrier at the top of the footing.

- A. Masonry voids
- B. Debris
- C. All holes
- D. Such situations
- E. All but D
- F. None of the Above

232. When treatment is necessary, access holes must be drilled through _____ below the sill plate, as close as possible to the footing.

- A. Mortar joints
- B. Other debris
- C. All holes
- D. Such situations
- E. C and D
- F. None of the Above

233. Apply insecticide at the rate of 2 gallons per 10 linear feet. Plug _____ with mortar or any other special compound.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above except C
- F. None of the Above

Bath Traps

234. Soil may require insecticide treatment if it is exposed beneath and around plumbing/waste pipe entrances through a _____.

- A. Masonry voids
- B. Other debris
- C. Concrete slab
- D. Such situations
- E. B and C
- F. None of the Above

235. Remove _____ or excavated soil and treat the soil by rodding or flooding with an insecticide solution.

- A. Masonry voids
- B. Any wood
- C. A and B
- D. Other debris
- E. Such situations
- F. None of the Above

236. Treatment Near Ponds, Wells, Cisterns, and Faulty _____, Around Pipes or Utility Lines Insecticide applications through rodding is discouraged in excavated soil.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Foundation walls
- E. All of the Above
- F. None of the Above

237. The suggested procedure is to make a trench and remove the excavated _____ or similar material.

- A. Soil sheeting
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

238. Treat the _____ with insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. Mix the soil with insecticide and replace it in the trench.

- A. Masonry voids
- B. Excavated soil
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

239. Cover the _____ with a thin layer of untreated soil. In the case of wells, ponds, and cisterns, if a rodding technique is necessary, the distance between the treated area and the water source should be 50 feet or more.

- A. Masonry voids
- B. Treated soil
- C. All holes
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

240. Wood Treatment In addition to soil treatment, it may be necessary to treat infested wood with insecticide spray or injection. Applications are made to inaccessible areas by drilling and then _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Injecting the insecticide solution
- E. All of the Above
- F. None of the Above

241. _____ must be limited to wood in attics, crawl spaces and unfinished basements or similar unoccupied areas.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Graded or sloped away
- E. B and C
- F. None of the Above

242. Treatment of Secondary Subterranean Termite Colony Apply insecticide to infested wood and void spaces with a _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Graded or sloped away
- E. All of the Above
- F. None of the Above

Prevention

243. Preventive practices are a(n) _____.

- A. Form of crack and crevice injector
- B. Critical aspect of termite management
- C. A and B only
- D. Form of broadcast spraying
- E. Graded or sloped away
- F. None of the Above

244. _____ of subterranean termite infestation of wooden structures centers upon disrupting their ability to locate moisture, food (wood), and shelter.
- A. Crack and crevice injecting D. Grading or sloping away
 B. Broadcast spraying E. All of the Above
 C. Prevention F. None of the Above
245. Avoid moisture accumulation near the foundation, which provides water _____.
- A. And this is a bad sign D. And needs to be sloped away
 B. For Nursery E. All of the Above
 C. Needed for termite survival F. None of the Above
246. Divert water _____ with properly functioning downspouts, gutters, and splash blocks.
- A. To sewer D. Away from the foundation
 B. After broadcast spraying E. A and C
 C. Quickly F. None of the Above
247. Soil needs to be _____ away from the foundation in order for surface water to drain away from the building.
- A. Sprayed D. Graded or sloped away
 B. Drained E. A and C
 C. Prevented F. None of the Above

Soil Barrier Termiticides

248. _____ rely on creating a chemical barrier in the soil that is toxic to termites when they come into contact with it.
- A. Effective termite control D. Such treatments during preconstruction
 B. Repellent characteristics E. All of the Above except B
 C. Conventional soil treatments F. None of the Above
249. Many also have _____ which causes the termites to avoid treated soil. To achieve termite control for long periods of time, such termiticides must be applied as a continuous barrier in the soil next to and under the foundation. If there are untreated gaps in the soil, termites may circumvent the chemical treatment.
- A. Effective termite control D. Dangers
 B. Repellent characteristics E. All of the Above
 C. Conventional soil treatments F. None of the Above
250. Such treatments during preconstruction can provide for more _____. Once a home is constructed, the chemical has to be injected through drill holes and trenching around the foundation, which can result in less accurate coverage.
- A. Effective termite control D. Uniform coverage
 B. Repellent characteristics E. All of the Above
 C. Conventional soil treatments F. None of the Above

You are finished with your assignment, please fax or e-mail a copy of your driver's license and the Answer Key and Registration form. Always call us the next day to ensure we received all your information.

Our e-mail is info@tlch2o.com our fax number is (928) 468-0675

Advanced Pest Control Assignment #2 For Students Names F-L

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.

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 E, you will pick assignment number 1, if your last name begins with the letter F to L, you are to complete assignment number 2 and if your last name begins with the letter M-Q, you will pick assignment number 3 and if your last name begins with the letter R-Z, you will pick assignment number 4.

Multiple Choice, Please select one answer and mark it on the answer key. The answer must come from the course text. (s) Means answer can be plural or singular.

Common Pest Cockroaches

American Cockroach (*Periplaneta americana*)

1. 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
2. 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
3. _____ 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
4. 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
5. 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

6. _____ 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
7. 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
8. 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
9. 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
10. 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
11. _____ 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
12. 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

13. 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
14. 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

15. 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 |
16. 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 |
17. 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 |
18. _____ 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 |
19. 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

20. 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 |
21. 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 |
22. 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 |
23. 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 |

24. 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
- B. Roaches
- C. Adults
- D. Adult males
- E. Dealates
- F. None of the Above

25. 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
- B. Roaches
- C. Adult
- D. Adult males
- E. Nymphs
- F. None of the Above

26. Both _____ have wings longer than their bodies and are capable of flying or gliding.

- A. Dealates and Instars
- B. Roaches
- C. Adults and Instars
- D. Nymphs and Adults
- E. Males and females
- F. None of the Above

27. 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
- B. Roaches
- C. Adults
- D. Adult males
- E. Adult females
- F. None of the Above

28. 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
- B. Roaches
- C. Adults
- D. Adult males
- E. Cockroaches
- F. None of the Above

Habitat

29. 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
- B. Monitoring
- C. Penetration
- D. Control program
- E. Roach extermination program
- F. None of the Above

30. 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
- B. Dry habitat
- C. Deep penetration
- D. Desiccating effects of air flow
- E. Treatment
- F. None of the Above

Control Smokybrown Cockroaches

31. 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
- B. Moist habitat
- C. Deeper penetration
- D. Presence and/or reproduction
- E. Removal and destroying hiding areas
- F. None of the Above

32. 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
- B. 10 day residual
- C. 1 inch penetration
- D. 30 day residual
- E. 50 day residual
- F. None of the Above

33. 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
- B. Weep holes
- C. Deep penetration
- D. Areas roaches like to hide
- E. And outside
- F. None of the Above

34. All _____ should be sprayed with insecticide. These exterior surfaces should be treated 3 to 4 times each year.

- A. Interiors
- B. Moist habitats
- C. Mulched areas
- D. Grass and bushes
- E. Roaches
- F. None of the Above

35. If necessary, _____ in the following areas: basements, garages, carports, attics, closets, laundry rooms.

- A. Trap
- B. B and G
- C. C/C
- D. Dust
- E. Spray indoors
- F. None of the Above

36. 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

37. 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

38. 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

39. 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

40. 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*

41. 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

42. 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

43. 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

44. 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

45. 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

46. 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

47. 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

48. _____ will take flight during the day if disturbed. The presence of this pest is obvious since their peak activity period coincides with our leisure time.

- A. Asian cockroach(es)
- B. German cockroach(es)
- C. Adults
- D. Males
- E. Indoor infestations
- F. None of the Above

Description

49. _____ are almost identical to German cockroaches. Chemical analysis by gas chromatography will confirm the species.

- A. Asian cockroach(es)
- B. German cockroach(es)
- C. Adults
- D. Wood cockroach(es)
- E. Indoor infestations
- F. None of the Above

50. However, there are also slight morphological differences between *B. asahinai* and *B. germanica*. _____ adults have longer and narrower wings than those of German cockroaches.

- A. Asian cockroach(es)
- B. German cockroach(es)
- C. Black
- D. Male tergal glands
- E. Wood cockroach(es)
- F. None of the Above

Differences between Africanized and European Bees

51. _____ are adapted to seasonal availability of food; Africanized bees are adapted to the tropics, where food is more available year-round.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

52. _____ make large, fairly permanent colonies; Africanized bees make smaller colonies that reproduce (swarm) often. The table outlines some differences between the two bee types.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

53. _____ usually nest in hollow trees or in wall voids of houses.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

54. Africanized bees nest in these places and in unusual places, such as old tires, tin cans, other trash and _____. These types of nest sites increase the chance of human encounters with Africanized bees, especially in urban settings.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Potential Range of Africanized Bees in the United States

55. As Africanized bees expand into temperate areas, their _____ are less advantageous.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Characteristics of the AHB

56. A number of _____ have been identified in the AHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Aggressive Hive Defense and Stinging

57. Although the _____ does not attack unprovoked, it is very defensive of its colony. When compared to the EHB, it is much easier to provoke.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

58. The AHB responds quicker and in larger numbers when its colony is threatened. Once provoked, the AHB remains agitated for a longer period of time than does the _____.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

59. Disturbing an AHB colony may result in 6-10 times as many stings as European bees inflict. This phenomenon is attributed to the _____'s more acute sensitivity and response to the "alarm pheromone," a chemical odor that is released after stinging is initiated.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Excessive Swarming

60. The _____ will swarm more frequently than the EHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

61. Typically, an EHB colony swarms once every year or two; a(n) _____ colony may swarm 4-8 times a year.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

62. Generally, an AHB swarm is much smaller than a(n) _____ swarm; some aren't much larger than a coffee cup.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

63. Swarming reduces the number of bees in a colony, thus reducing the _____, resulting in diminished honey production.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

64. Management practices directed at reducing swarming, such as dividing large colonies into smaller colonies and _____ of honey, add costs for beekeepers.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Abscending
- F. None of the Above

Excessive Abscending

65. While absconding is rare in the EHB, it's rather common with the AHB. Absconding not only results in loss of a managed colony but _____ competing with managed bees for nectar and pollen.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Selection of Nesting Site

66. EHBs are very _____. They prefer hollow trees, wall voids or other cavities (about 10 gallons in size) well above the ground that are clean and dry.

- A. At living anywhere
- B. Good at swarming
- D. Particular in selecting nesting sites
- E. Excessive Abscending or Absconding
- F. None of the Above

67. The AHB will _____ that is protected from the weather. Selected sites are often much smaller, closer to the ground, and may not be as protected from the elements.

- A. Take days to choose a colony
- B. Take weeks to choose a queen
- C. Nest almost anyplace
- D. Not move anywhere
- E. All of the Above
- F. None of the Above

68. This _____ is thought by some to be due to greater competition resulting from the larger number of AHB swarms.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Reproductive Capacity

69. Compared with the EHB, the AHB _____ of its nest to brood production and less to honey storage.

- A. Adds to the feral population
- B. Builds
- C. Chooses
- D. Devotes a greater percentage
- E. Excessive Absconds or Absconded
- F. None of the Above

70. The developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Larvae or Workers
- E. Queen or Queens
- F. None of the Above

Number of Feral Colonies

71. In areas where the _____ has become established, a noticeable increase in the number of feral honey bee colonies occurs. This is generally thought to be the result of higher reproductive capacity, increased swarming rate, and tendency to abscond.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Queen or Queens
- F. None of the Above

72. In much of the area where the _____ is now established, feral colonies were extremely rare, probably because the EHBs were not adapted to the tropical climate.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Drones
- E. Queen(s)
- F. None of the Above

73. This marked increase of _____ may not be as great in an area where feral bees are common.
- A. AHB
 - B. EHB
 - C. Feral colonies
 - D. Drones
 - E. Queen(s)
 - F. None of the Above

Robbing

74. _____ is a type of foraging behavior where bees take honey from other bee colonies. This often occurs when nectar is scarce or unavailable, or when some colonies are weak and others are strong.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

75. _____ weakens colonies and may spread diseases and parasites.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

Winter Survival

76. Since the _____ is tropical in nature, it may not be able to regulate its body temperature as efficiently as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

77. Studies indicate that the _____ does not form as efficient a cluster during cold weather as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Colony Takeover

78. Many researchers have reported that _____ swarms often take over EHB colonies, particularly colonies which do not have functional queens.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

79. _____ swarms will do the same. The importance of such takeovers is questionable.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

Mating Advantage

80. An AHB colony produces more drones than a(n) _____ colony of equal size.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids and All of the Above
- F. None of the Above

81. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

82. Similar behavior in areas where large numbers of _____ colonies are maintained is being studied.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Identification

83. Identifying the different races of honey bees and their _____ is very difficult.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

84. The _____ differ only slightly and overlap considerably among individuals.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

85. _____ is not only difficult but time-consuming and expensive.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

86. Rapid and _____ of AHB and EHB strains is very important for monitoring the presence and spread of bees through an area.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

87. Several techniques have been used to identify _____, though none are 100 percent effective.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

88. _____: This technique utilizes precise measurements of specific body parts. Computer-assisted measurements are made of 25 characters on 10 bees.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

89. _____ An average is determined and used to distinguish the EHB from the AHB. Variations of this technique include the Fast Africanized Bee Identification System (FABIS), in which only three characters are measured.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

90. _____ The FABIS II technique uses seven measurements.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
91. _____: The ELISA procedure for identifying the AHB uses electrophoresis and isoelectric focusing to identify specific proteins unique to the AHB. About 90 percent of all AHB contain at least one of these proteins. A sample of three bees can provide an accuracy of 99.9 percent.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
92. _____: DNA contains the molecular code for genetically inherited characters. Bee DNA can be extracted and used to identify the AHB.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
93. _____: Other techniques for identifying different strains of the honey bee include cuticular hydrocarbons, flow cytometry, and the use of a portable audiometer.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above

What is Killing Honeybees?

94. The honeybees may have been especially vulnerable to the _____ epidemic.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above
95. When the honeybee _____ was sequenced a few years ago, researchers discovered fewer immune-system genes than you'd find in other insects.
- A. Genome D. Parasites
 B. Varroa E. Mites
 C. Larva F. None of the Above
96. This is despite the fact that the honeybee lives in _____, anywhere between 15,000 and 30,000 of them crammed into a hive the size of a filing cabinet.
- A. Genome D. Mites
 B. Parasites E. Cracks
 C. Varroa F. None of the Above
97. To make matters worse, a weakened hive often becomes the target of honey-raiders from healthier colonies, which only helps the _____ to spread.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above

98. It's possible that if the American honeybees had been left to their own devices, they would have died off in epic numbers and then evolved natural defenses against _____ (like more effective grooming), as they did in Asia.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasites
- E. Secondary Pesticide Targeting
- F. None of the Above

Biology of Varroa Mites

99. The Varroa mite (*Varroa jacobsoni*) is an external _____ of honey bees. It was first discovered in the U.S. in 1987.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasite
- E. Secondary Pesticide Targeting
- F. None of the Above

100. The Varroa _____ is a small, red brown mite measuring approximately 1 - 1.5 millimeters in length and width.

- A. Varroa
- B. Mite
- C. Larva
- D. Parasites
- E. Gene
- F. None of the Above

Mosquito Section

101. Inflammation of the brain, which can be caused by numerous viruses, including West Nile Virus endemic the normal presence of a disease or infectious agent among human beings within a geographic area.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Flavivirus
- F. None of the Above

102. A disease naturally present in certain human or animal populations.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

103. A disease naturally present in certain animal populations (sometimes used in contrast with "endemic").

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

104. A disease outbreak affecting certain human or animal populations.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

105. A disease outbreak affecting certain animal populations (sometimes used in contrast with "epidemic").

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

106. Agents biologic organism or chemical material that cause disease.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Etiologic
- F. None of the Above

107. A subset of arboviruses (transmitted by arthropods); this family of viruses includes West Nile Virus, St. Louis Encephalitis and several others.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

108. Type of mosquito traps designed to attract pregnant female mosquitoes

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

109. A living organism that serves as a blood source for blood-feeding arthropods, or on which a parasite lives.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

110. The arthropod carrier of a parasitic organism.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

111. A system for minimizing the impact of vectors and pests by using a variety of control procedures, and decreasing the chemical input to the environment.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

112. Immature mosquitoes; stage which hatches from the egg, prior to adult stage.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

113. A type of pesticide used to eradicate immature mosquitoes (larvae).

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

114. A type of pesticide used to kill adult mosquitoes.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

115. Native to a place; not imported; used to describe a disease transmitted by vectors that became infected from a local source.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

116. A type of larvicide; chemical that is used to prevent mosquito larvae from emerging and developing into adult mosquitoes.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

117. An insecticide made of bacteria whose infection kills insects; a substance produced by bacteria that is lethal to insects.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

118. A location where mosquitoes lay eggs, usually in stagnant water with organic material.

- A. Larvae
- B. Ponds
- C. Lakes
- D. Tree holes
- E. Rafts
- F. None of the Above

119. Brand name of methoprene, a type of larvicide.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

120. A bacterium; type of biological pesticide used to eradicate mosquito larvae in water. Mosquito larvae die after ingesting this bacteria.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

121. Blood serum collected from patients recently recovered from a disease, often used to test whether a person has had a specific infection.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Convalescent Blood Sera
- E. Microbial insecticide
- F. None of the Above

122. A virus whose life cycle includes transmission by arthropods.

- A. Aseptic Meningitis
- B. Mosquito Pools
- C. Arthropod
- D. Arbovirus
- E. Spinal Meningitis
- F. None of the Above

123. An invertebrate animal with jointed legs and a segmented body (includes flies, mosquitoes, ticks; also centipedes, scorpions, spiders etc.)

- A. Termite
- B. Mosquito
- C. Spider
- D. Arthropod
- E. Flying insects
- F. None of the Above

124. Inflammation of the lining of the brain and spinal cord, not due to a bacterial infection.

- A. Aseptic Meningitis
- B. Mosquito fever
- C. Arthropod hives
- D. Arbovirus
- E. Spinal Meningitis
- F. None of the Above

125. A group of mosquitoes collected in one area and combined at the laboratory for testing for the presence of West Nile and related viruses.

- A. Raft
- B. Mosquito Pools
- C. Nest
- D. Arthropod Nesting
- E. Flock
- F. None of the Above

126. This chemical name **N,N-diethyl-meta-toluamide**, is the active ingredient in many insect repellent products.

- A. Malathion
- B. Naled
- C. Dursban
- D. DEET
- E. Suspend
- F. None of the Above

127. Autopsy on an animal.
 A. Aseptic D. Arbovirus
 B. Necropsy E. Autopsy
 C. Neurology F. None of the Above
128. The study of the nervous system and its disorders.
 A. Research D. Nervous study
 B. Emboli E. Neurology
 C. Erotology F. None of the Above
129. The jointed feelers on each side of the mouth of some arthropods.
 A. Craw D. Outbreak
 B. Palpi E. Neurology
 C. Tabs F. None of the Above
130. Substance used to kill pests such as insects, mice and rats; insecticide is a form of pesticide.
 A. Toxins D. Pesticide
 B. Dusts E. All of the Above
 C. Sprays F. None of the Above
131. Blood Drawing
 A. Phlebotomy D. Vampire
 B. Tax collectors E. Ticks
 C. Politicians F. None of the Above
132. An unexpected increase in frequency or distribution of a disease.
 A. Epidemic D. Outbreak
 B. Dance fever E. Spreading
 C. Fever F. None of the Above
133. A period of rest or hibernation by which insects survive the winter
 A. Sleep D. Siesta
 B. Suspension E. Both A and D
 C. Overwintering F. None of the Above
134. The straw-like sucking mouthparts of some blood feeding arthropods.
 A. Proboscis D. Vactoube
 B. Resmethrin E. Tube
 C. Spike F. None of the Above
135. Brand name for larvicide *Bacillus thuringiensis* var. *israelensis* (BTI).
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
136. Brand name for larvicide *Bacillus sphaericus*.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
137. A synthetic pyrethroid pesticide used to eradicate adult mosquitoes in the home, lawn, garden and at industrial sites; active ingredient in the product **Scourge**.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above

138. A group of small bacteria that live inside tissue cells, and are carried by ticks, mites, fleas or lice.

- A. Vectolex D. Bacilli
- B. Resmethrin E. Germs
- C. Rickettsia F. None of the Above

139. A method of insecticide distribution in which a small portion of the compound is fragmented into extremely fine particles for aerial dispersal.

- A. Dusting D. Spray
- B. Drift E. ULV
- C. Fire F. None of the Above

140. An arthropod carrier of a disease producing organism. Usually used when part of the organism's natural life cycle takes place in the arthropod (= intermediate host).

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

141. Management of organisms that carry disease.

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

142. Instituted to control and reduce the vector population.

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

143. Monitoring of the vector population for presence of a disease.

- A. Vector-borne disease D. Vector Surveillance
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

144. A disease carried by arthropod intermediate hosts.

- A. Vector-borne disease D. Vector control
- B. Vector E. Vector Control Mechanism
- C. Host F. None of the Above

145. Of or relating to a virus.

- A. Viral Encephalitis D. Death
- B. Zoonosis E. Virus
- C. Viral F. None of the Above

146. Inflammation of the brain caused by a virus.

- A. Viral Encephalitis D. Death
- B. Fever E. Bad headache
- C. Viral F. None of the Above

147. A disease of animals that may be secondarily transmitted to man.

- A. Encephalitis D. VD
- B. Zoonosis E. Herpes
- C. Viral F. None of the Above

148. Areas of vegetation in bodies of salt water that may support the breeding of certain types of mosquitoes such as *Aedes sollicitans*.

- A. Swamps
- B. Lakes
- C. Rivers
- D. Salt Marsh
- E. All of the Above
- F. None of the Above

149. The testing of birds and other animals as an early warning system for the presence of virus (e.g. sentinel chickens).

- A. AIMS
- B. Bac-T
- C. Driving
- D. Pass or Fail
- E. Sentinel 'Guard'
- F. None of the Above

150. This means of, or relating to serum.

- A. Serologic
- B. Syrup
- C. Viral
- D. Anti-serum
- E. Antibodies
- F. None of the Above

WHAT EMPLOYERS MUST DO FOR BOTH WORKERS AND HANDLERS

151. Some _____ protections that employers must provide are nearly the same whether the employees are workers or handlers.

- A. Worker Protection Standard or WPS
- B. Restricted-entry intervals or REIs
- C. Pesticide-related ordinances
- D. EPA registration number
- E. Personal
- F. None of the Above

What Information Must Be Displayed?

152. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, _____, and active ingredient(s) of the pesticide, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

- A. Worker Protection Standard or WPS
- B. Pesticide-related ordinances
- C. EPA registration number
- D. Restricted-entry intervals or REIs
- E. Personal
- F. None of the Above

153. _____, which must include the name, telephone number and address of the nearest emergency medical facility.

- A. Worker Protection Standard or WPS
- B. Restricted-entry intervals or REIs
- C. Emergency information
- D. EPA registration number
- E. Agricultural Use Requirements
- F. None of the Above

154. A pesticide safety poster, which must be either the _____ safety poster developed by EPA or an equivalent poster that contains the concepts listed in Criteria for Pesticide Safety Poster.

- A. Worker
- B. Restricted-entry intervals or REIs
- C. Pesticide-related ordinances
- D. Worker Protection Standard or WPS
- E. EPA registration Requirements
- F. None of the Above

Where Must the Information Be Displayed?

155. Display the required information together in a central location on your agricultural establishment where it is readily accessible and can be easily seen and read by _____.

- A. Worker Protection Standard or WPS
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Workers or handlers
- E. EPA registration Requirements
- F. None of the Above

Timing of Displaying Application Information

156. If _____ are on your establishment at the start of an application, display the required pesticide-specific information before the application takes place.

- A. EPA registration number
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

157. If _____ are not on your establishment at the start of an application, display pesticide-specific information no later than the beginning of their first work period.

- A. Workers or handlers
- B. Appropriately trained Workers
- C. Nursery workers
- D. Only handlers
- E. EPA registration Requirements
- F. None of the Above

158. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the restricted-entry interval expires.

- A. Appropriately trained Workers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

159. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the end of the application, if there is no restricted-entry interval for the pesticide.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Supervisors
- F. None of the Above

Other Responsibilities

160. Inform _____ where the information is located.

- A. Supervisors
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

161. Allow _____ free, unhampered access to the information.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Crop handlers
- F. None of the Above

162. Be sure that the poster, _____, and application information remain legible during the time they are posted.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Crop handlers
- F. None of the Above

163. Promptly inform _____ if there is any change in the information on emergency medical facilities and update the emergency information listed with the poster.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Supervisors
- D. Workers
- E. Only handlers
- F. None of the Above

Restrictions During Applications

164. In areas being treated with pesticides, allow entry only to _____.

- A. Workers or handlers
- B. Supervisors
- C. Appropriately trained and equipped handlers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

165. Keep nursery workers at least 100 feet away from nursery areas being treated.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

166. Allow _____ to be in a greenhouse during a pesticide application, until labeling-listed air concentration level is met or, if no such level, until after 2 hours of ventilation with fans. (Also see nursery restrictions and greenhouse restrictions)

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Supervisors
- F. None of the Above

167. Restricted-Entry Intervals (REIs) During any REI, do not allow _____ to enter a treated area and contact anything treated with the pesticide to which the REI applies. (Also see early entry by workers)

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Workers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

Notice About Applications

168. _____ and post treated areas if the pesticide labeling requires.

- A. Provide to handlers
- B. Enter the establishment
- C. Call or e-mail
- D. Just before application
- E. Orally warn workers
- F. None of the Above

169. Otherwise, either _____ or post entrances to treated areas. Tell workers which method is in effect.

- A. Provide to handlers
- B. Enter the establishment
- C. Orally warn workers
- D. Just before application
- E. Identify
- F. None of the Above

Posted Warning Signs

170. Post legible 14" x 16" WPS-design signs just before application; keep posted during REI; remove _____ and within 3 days after the end of the REI.

- A. Posters
- B. Before workers enter
- C. After orally warning workers
- D. Just before application
- E. All of the Above
- F. None of the Above

171. Post signs _____ at all entrances to treated areas, including entrances from labor camps.

- A. Provided to handlers
- B. And then enter the establishment
- C. And then orally warn workers
- D. Just before application
- E. So they can be seen
- F. None of the Above

Oral Warnings

172. Before each application, _____ who are on the establishment (in a manner they can understand): location and description of treated area, REI, and not to enter during REI.

- A. Provide to handlers
- B. Tell workers
- C. Orally warn workers with signage
- D. Just before application tell employees
- E. So they can be seen
- F. None of the Above

173. Workers who enter the establishment after application starts _____ at the start of their work period.

- A. Must be provided to handlers
- B. Must carefully enter the establishment
- C. Just before application
- D. Tell employees
- E. Must receive the same warning
- F. None of the Above

DECONTAMINATION SUPPLIES BASIC RESPONSIBILITIES

174. Handler employers _____ for washing off pesticides and pesticide residues are provided to handlers while they are doing handling tasks.

A. Must inform the workers to wash D. Must make sure that decontamination supplies
B. Enter the establishment E. Must receive the same warning
C. Must orally warn workers F. None of the Above

175. Worker employers must make sure that decontamination supplies for washing off pesticide residues are provided to workers who are working in a (n) _____ and are doing tasks that involve contact with anything that has been treated with the pesticide, including soil, water, or surfaces of plants.

- A. Located together D. Nearest point
B. Pesticide-treated area E. Safe Zone
C. Guidelines F. None of the Above

SPECIFIC DUTIES

176. For workers, until 30 days after the end of any _____ for that area. If there is no restricted-entry interval, until 30 days after the end of any application in that area.

- A. Located together D. Nearest point
B. Restricted-entry interval E. Safe Zone
C. Guidelines F. None of the Above

Exception

177. When the only pesticides used in the treated area are products with a restricted-entry interval of 4 hours or less, the decontamination supplies must be provided until 7 days after the end of the _____.

- A. Located together D. Nearest point
B. Safe Zone E. Restricted-entry interval
C. Guidelines F. None of the Above

178. When products have no _____ listed on the label, the decontamination supplies must be provided until 30 days after the end of any application in that area.

- A. MSDS D. Restricted-entry interval
B. Guidelines E. Decontamination supply requirements
C. Nearest point F. None of the Above

179. For early-entry workers who will contact anything that has been treated with the pesticide, the _____ are different.

- A. Rules D. Nearest point
B. Restricted-entry interval E. All of the Above
C. Decontamination supply requirements F. None of the Above

180. Pilot's fresh air supply--Filtered air for the pilot to breathe is necessary because it is nearly impossible for the pilot to avoid flying back through some of the _____ passes. If a filtered-air helmet is not available, the pilot should at least wear an approved respirator.

- A. ULV D. Swath of previous flight
B. Agricultural flying E. Over spray
C. Oils F. None of the Above

181. Fuselage features--Enclosed fuselages should be fitted with cleanout panels for the regular removal of _____. Spray pumps, filters, and control valves should be easily accessible for maintenance and repair.

- A. Corrosive sprays and dusts D. Adjuvants
B. Cleanout panels E. All of the Above
C. Oils F. None of the Above

182. Maintenance--The seasonal use of agricultural aircraft might suggest a pattern of inspection and repair during the_____.

- A. Crop spraying season
- B. Agricultural flying period
- C. Maintenance period
- D. Idle, off-season periods
- E. All of the Above
- F. None of the Above

183. The critical demands of _____call for all the regular maintenance checks at all required intervals to ensure that the aircraft is in first class order at all times.

- A. Rotary wing aircraft
- B. Agricultural aircraft
- C. Crop spraying season
- D. Maintenance and repair
- E. Agricultural flying
- F. None of the Above

184. Two of the more important advantages of fixed wing aircraft are a _____ and a large payload capacity per dollar invested. Maneuverability is adequate, though not equal to the Rotary wing aircraft.

- A. Not a factor
- B. Low overhead
- C. Agricultural flying
- D. Maintenance and repair
- E. High speed of application
- F. None of the Above

185. One of the limitations of _____equipment is the necessity of a designated landing area, which may not always be in close proximity to the application area.

- A. Fixed wing
- B. Agricultural aircraft
- C. Agricultural flying
- D. Rotary wing
- E. All of the Above
- F. None of the Above

186. Rotary wing aircraft offers the advantages of extreme maneuverability and speed variation, and may be operated in almost _____. Pilots of these crafts must also be competent, alert, and have knowledge of the area and the limitations of their crafts.

- A. Weather
- B. Agricultural application
- C. Agricultural setting
- D. Agricultural flying
- E. Any local area
- F. None of the Above

187. Rotary wing flying puts a special demand on the pilot to perform _____, hovering and landing, since this type aircraft is more expensive to operate per unit of flying time than fixed wing aircraft.

- A. Agricultural flying
- B. Agricultural crop dusting
- C. Fueling
- D. Agricultural setting
- E. Application with minimum time loss in turns
- F. None of the Above

188. _____, or additive compounds, aid in the mixing, application or effectiveness of pesticides.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

189. One class of _____, compatibility agents, allow uniform mixing of compounds that would normally separate.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

190. Other types of adjuvants include spreaders, stickers, and _____. There are nearly as many adjuvants as there are pesticides, and they provide a choice for every need.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

200. Lo-Drift, Nalco-Trol and Drift Proof are examples of _____ agents.
- A. Application rates D. Surface active agents
 B. Drift control E. Surface tension
 C. Penetrating agents F. None of the Above

Termite Section

General Treatment Guidelines

201. Insecticide barriers _____ during: Pre-construction (during construction).
- A. Requires additional treatment D. Include a Continuous insecticide barrier
 B. Are generally established E. B and D
 C. Require termite activity and treatment procedures F. None of the Above

202. Insecticide barriers are generally established during: Post-construction (existing building). In an existing building, termite treatments may involve any of the following: a) _____, and b) use of an insecticide for treating the soil, foundation, and wood.
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treated E. All of the Above
 C. Distribution of insecticide F. None of the Above

203. In most cases, an untrained homeowner or building manager should not attempt a _____.
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatment E. All of the Above
 C. Distribution of insecticide F. None of the Above

204. _____ should be performed by professional pest control operators (PCOs), that is right!
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatment E. All of the Above
 C. Distribution of insecticide F. None of the Above

205. _____ requires special tools such as hammer drills, sub-slab injectors, rodding devices, high pressure pumps, a power supply, protective equipment.
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatments E. B and D
 C. Distribution of insecticide F. None of the Above

Caution

206. Do not apply insecticides when soil is frozen or water-soaked (saturated). Frozen or saturated soil will not permit _____ for even distribution of insecticide.

- A. Mechanical alterations D. Termite treatment(s)
 B. Adequate absorption E. All of the Above
 C. Distribution of insecticide F. None of the Above

207. Do not permit humans and pets to _____ surfaces until dry.

- A. Walk on D. Adsorption
 B. Contact treated E. All of the Above
 C. Distribute of insecticide F. None of the Above

208. Before _____ for termite control, always read, understand and follow all label directions.

- A. Applying mechanical alterations D. Applying termite treatment(s)
 B. Using insecticides E. All of the Above except A
 C. Distribution of insecticide F. None of the Above

209. Keep all _____, out of reach of children and do not contaminate food, feed and water.
- A. Mechanical alterations
 - B. Distribution of insecticide
 - C. A and B
 - D. Pesticides in original containers
 - E. Termite treatment(s)
 - F. None of the Above

Pre-Construction Treatment

210. Horizontal Barriers: In general, treat the footing trench with _____ before pouring cement footings.

- A. Diluted insecticide
- B. Insecticide
- C. A and D
- D. Establishing a chemical barrier
- E. Penetrating spray
- F. None of the Above

211. After grading is completed, _____ to areas before pouring slab floors, slab-supported porches, patios, carports, and entrance platforms at the rate of 1 gallon per 10 square feet.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. A and D
- D. Establish a chemical barrier
- E. Penetrating spray
- F. None of the Above

212. Vertical Barriers: _____ in areas such as around the bases of foundations, plumbing, utility entrances, and backfilled soil against foundation walls.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Penetrating spray
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

213. Treat crawl space areas either by _____.

- A. Applying diluted insecticide
- B. Applying insecticides
- C. Rodding or trenching procedures
- D. Establishing a chemical barrier
- E. All but C
- F. None of the Above

214. To _____ in soil, apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. After treatment, cover the crawl space area with a layer of untreated soil or polyethylene sheeting.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Produce a vertical barrier
- E. All of the Above
- F. None of the Above

Post-Construction Treatment

215. Do not _____ until locations of radiant heat pipes, water pipes, sewer lines, and electrical conduits are identified.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

216. Buildings requiring treatment generally fall into three categories: a) building on slab construction, b) building with crawl space, and c) building with a basement. There is a common belief that termites _____ slab foundations.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

217. Termites _____ solid concrete but they can enter through cracks as small as 1/64 of an inch.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

Building on Slab

218. _____ in a building on a slab is especially difficult and hazardous. In this type of construction, heat ducts (pipes) are buried in the concrete and serious damage can occur when they are accidentally drilled for holes to inject insecticide solutions.

- A. Injecting insecticide
- B. Drilling
- C. Controlling termite infestation
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

219. Treat the exterior of the foundation by _____ about 6 inches wide along the outside of the foundation.

- A. Injecting the insecticide
- B. Drilling
- C. Digging a narrow and shallow trench
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

220. _____ to the trench and soil at the rate of 4 gallons per 10 linear feet.

- A. Inject insecticide or Injecting the insecticide
- B. Drilling
- C. Applying the diluted insecticide
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

221. _____ with a thin layer of untreated soil. For an inside barrier, drill slab and space holes about 1 foot apart and 6 inches from the wall.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Cover treated soil in the trench
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

222. Using a subslab injector, inject insecticide through holes at the rate of 4 gallons per 10 linear feet. After application, _____ with mortar or any other special compound.

- A. Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Plug all holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Applications

223. Building With a Basement and Crawl Space

Basement: For an interior vertical barrier, _____ and space holes about one foot apart.

- A. Inject insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. A and B
- F. None of the Above

224. _____ may be required along the foundation walls, along one side of partition walls, along both sides of load-bearing wall, around sewer pipes, floor drains, conduits, and any crack in the basement floor.

- A. Inject insecticide
- B. Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above except D
- F. None of the Above

225. Using a sub-slab injector, _____ at the rate of 4 gallons per 10 linear feet. For an insecticide barrier around the exterior of foundation walls, apply an insecticide by rodding and/or trenching.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

226. The rod holes should be spaced 1 to 1 1/2 feet apart to _____ barrier. If a trench is necessary, it should not be wider than 6 inches.

- A. Inject insecticide or Inject the insecticide
- B. Provide a continuous chemical
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

227. _____ using rodding technique at the rate of 4 gallons per 10 linear feet. Cover the trench with untreated soil.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Crawl Spaces

228. _____ by rodding and/or trenching procedures. A shallow trench should not be wider than 6 inches.

- A. Inject insecticide
- B. Establish vertical barriers
- C. Drill and rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

229. _____ about 1 to 1 1/2 feet apart. Apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth.

- A. Inject the insecticide
- B. Space rod holes
- C. B and D
- D. Drill the floor slab or Drilling
- E. Broadcast insecticide spray
- F. None of the Above

230. Do not treat soil in crawl space area with a(n) _____.

- A. Insecticide
- B. Fungicide
- C. Pesticide
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Hollow Masonry Units of the Foundation Walls

231. Treat through _____ to provide a continuous chemical barrier at the top of the footing.

- A. Masonry voids
- B. Debris
- C. All holes
- D. Such situations
- E. All but D
- F. None of the Above

232. When treatment is necessary, access holes must be drilled through _____ below the sill plate, as close as possible to the footing.

- A. Mortar joints
- B. Other debris
- C. All holes
- D. Such situations
- E. C and D
- F. None of the Above

233. Apply insecticide at the rate of 2 gallons per 10 linear feet. Plug _____ with mortar or any other special compound.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above except C
- F. None of the Above

Bath Traps

234. Soil may require insecticide treatment if it is exposed beneath and around plumbing/waste pipe entrances through a _____.

- A. Masonry voids
- B. Other debris
- C. Concrete slab
- D. Such situations
- E. B and C
- F. None of the Above

235. Remove _____ or excavated soil and treat the soil by rodding or flooding with an insecticide solution.

- A. Masonry voids
- B. Any wood
- C. A and B
- D. Other debris
- E. Such situations
- F. None of the Above

236. Treatment Near Ponds, Wells, Cisterns, and Faulty _____, Around Pipes or Utility Lines Insecticide applications through rodding is discouraged in excavated soil.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Foundation walls
- E. All of the Above
- F. None of the Above

237. The suggested procedure is to make a trench and remove the excavated _____ or similar material.

- A. Soil sheeting
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

238. Treat the _____ with insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. Mix the soil with insecticide and replace it in the trench.

- A. Masonry voids
- B. Excavated soil
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

239. Cover the _____ with a thin layer of untreated soil. In the case of wells, ponds, and cisterns, if a rodding technique is necessary, the distance between the treated area and the water source should be 50 feet or more.

- A. Masonry voids
- B. Treated soil
- C. All holes
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

240. Wood Treatment In addition to soil treatment, it may be necessary to treat infested wood with insecticide spray or injection. Applications are made to inaccessible areas by drilling and then _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Injecting the insecticide solution
- E. All of the Above
- F. None of the Above

241. _____ must be limited to wood in attics, crawl spaces and unfinished basements or similar unoccupied areas.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Graded or sloped away
- E. B and C
- F. None of the Above

242. Treatment of Secondary Subterranean Termite Colony Apply insecticide to infested wood and void spaces with a _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Graded or sloped away
- E. All of the Above
- F. None of the Above

Prevention

243. Preventive practices are a(n) _____.

- A. Form of crack and crevice injector
- B. Critical aspect of termite management
- C. A and B only
- D. Form of broadcast spraying
- E. Graded or sloped away
- F. None of the Above

244. _____ of subterranean termite infestation of wooden structures centers upon disrupting their ability to locate moisture, food (wood), and shelter.

- A. Crack and crevice injecting
- B. Broadcast spraying
- C. Prevention
- D. Grading or sloping away
- E. All of the Above
- F. None of the Above

245. Avoid moisture accumulation near the foundation, which provides water _____.

- A. And this is a bad sign
- B. For Nursery
- C. Needed for termite survival
- D. And needs to be sloped away
- E. All of the Above
- F. None of the Above

246. Divert water _____ with properly functioning downspouts, gutters, and splash blocks.

- A. To sewer
- B. After broadcast spraying
- C. Quickly
- D. Away from the foundation
- E. A and C
- F. None of the Above

247. Soil needs to be _____ away from the foundation in order for surface water to drain away from the building.

- A. Sprayed
- B. Drained
- C. Prevented
- D. Graded or sloped away
- E. A and C
- F. None of the Above

Soil Barrier Termiticides

248. _____ rely on creating a chemical barrier in the soil that is toxic to termites when they come into contact with it.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Such treatments during preconstruction
- E. All of the Above except B
- F. None of the Above

249. Many also have _____ which causes the termites to avoid treated soil. To achieve termite control for long periods of time, such termiticides must be applied as a continuous barrier in the soil next to and under the foundation. If there are untreated gaps in the soil, termites may circumvent the chemical treatment.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Dangers
- E. All of the Above
- F. None of the Above

250. Such treatments during preconstruction can provide for more _____. Once a home is constructed, the chemical has to be injected through drill holes and trenching around the foundation, which can result in less accurate coverage.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Uniform coverage
- E. All of the Above
- F. None of the Above

You are finished with your assignment, please fax or e-mail a copy of your driver's license and the Answer Key and Registration form. Always call us the next day to ensure we received all your information.

Our e-mail is info@tlch2o.com our fax number is (928) 468-0675

Advanced Pest Control Assignment #3 For Students Names M-Q

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.
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 E, you will pick assignment number 1, if your last name begins with the letter F to L, you are to complete assignment number 2 and if your last name begins with the letter M-Q, you will pick assignment number 3 and if your last name begins with the letter R-Z, you will pick assignment number 4.

Multiple Choice, Please select one answer and mark it on the answer key. The answer must come from the course text. (s) Means answer can be plural or singular.

Differences between Africanized and European Bees

1. _____ are adapted to seasonal availability of food; Africanized bees are adapted to the tropics, where food is more available year-round.
A. EHB D. Wasps and similar meat eating bees
B. Killer Bee E. Both EHB and AHB
C. AHB F. None of the Above
2. _____ make large, fairly permanent colonies; Africanized bees make smaller colonies that reproduce (swarm) often. The table outlines some differences between the two bee types.
A. EHB D. Wasps and similar meat eating bees
B. Killer Bee E. Both EHB and AHB
C. AHB F. None of the Above
3. _____ usually nest in hollow trees or in wall voids of houses.
A. EHB D. Wasps and similar meat eating bees
B. Killer Bee E. Both EHB and AHB
C. AHB F. None of the Above
4. Africanized bees nest in these places and in unusual places, such as old tires, tin cans, other trash and _____. These types of nest sites increase the chance of human encounters with Africanized bees, especially in urban settings.
A. EHB D. Wasps and similar meat eating bees
B. Killer Bee E. Both EHB and AHB
C. AHB F. None of the Above

Potential Range of Africanized Bees in the United States

5. As Africanized bees expand into temperate areas, their _____ are less advantageous.
A. EHB D. Wasps and similar meat eating bees
B. Killer Bee E. Both EHB and AHB
C. AHB F. None of the Above

Characteristics of the AHB

6. A number of _____ have been identified in the AHB.
- A. EHB
 - B. Killer Bee
 - C. AHB
 - D. Wasps and similar meat eating bees
 - E. Both EHB and AHB
 - F. None of the Above

Aggressive Hive Defense and Stinging

7. Although the _____ does not attack unprovoked, it is very defensive of its colony. When compared to the EHB, it is much easier to provoke.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

8. The AHB responds quicker and in larger numbers when its colony is threatened. Once provoked, the AHB remains agitated for a longer period of time than does the _____.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

9. Disturbing an AHB colony may result in 6-10 times as many stings as European bees inflict. This phenomenon is attributed to the _____'s more acute sensitivity and response to the "alarm pheromone," a chemical odor that is released after stinging is initiated.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Excessive Swarming

10. The _____ will swarm more frequently than the EHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

11. Typically, an EHB colony swarms once every year or two; a(n) _____ colony may swarm 4-8 times a year.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

12. Generally, an AHB swarm is much smaller than a(n) _____ swarm; some aren't much larger than a coffee cup.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

13. Swarming reduces the number of bees in a colony, thus reducing the _____, resulting in diminished honey production.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

14. _____ at reducing swarming, such as dividing large colonies into smaller colonies and frequent harvesting of honey, add costs for beekeepers.

- A. Adds to the feral population
- B. Nest almost anywhere
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Abscending
- F. None of the Above

Excessive Absconding

15. While absconding is rare in the EHB, it's rather common with the AHB. Absconding not only results in loss of a managed colony but _____ competing with managed bees for nectar and pollen.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Absconding or Absconding
- F. None of the Above

Selection of Nesting Site

16. EHBs are very _____. They prefer hollow trees, wall voids or other cavities (about 10 gallons in size) well above the ground that are clean and dry.

- A. At living anywhere
- B. Good at swarming
- D. Particular in selecting nesting sites
- E. Excessive Absconding or Absconding
- F. None of the Above

17. The AHB will _____ that is protected from the weather. Selected sites are often much smaller, closer to the ground, and may not be as protected from the elements.

- A. Take days to choose a colony
- B. Take weeks to choose a queen
- C. Nest almost anyplace
- D. Not move anywhere
- E. All of the Above
- F. None of the Above

18. This _____ is thought by some to be due to greater competition resulting from the larger number of AHB swarms.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Absconding or Absconding
- F. None of the Above

Reproductive Capacity

19. Compared with the EHB, the AHB _____ of its nest to brood production and less to honey storage.

- A. Adds to the feral population
- B. Builds
- C. Chooses
- D. Devotes a greater percentage
- E. Excessive Absconds or Absconded
- F. None of the Above

20. The developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Larvae or Workers
- E. Queen or Queens
- F. None of the Above

Number of Feral Colonies

21. In areas where the _____ has become established, a noticeable increase in the number of feral honey bee colonies occurs. This is generally thought to be the result of higher reproductive capacity, increased swarming rate, and tendency to abscond.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Queen or Queens
- F. None of the Above

22. In much of the area where the _____ is now established, feral colonies were extremely rare, probably because the EHBs were not adapted to the tropical climate.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Drones
- E. Queen(s)
- F. None of the Above

23. This marked increase of _____ may not be as great in an area where feral bees are common.
- A. AHB
 - B. EHB
 - C. Feral colonies
 - D. Drones
 - E. Queen(s)
 - F. None of the Above

Robbing

24. _____ is a type of foraging behavior where bees take honey from other bee colonies. This often occurs when nectar is scarce or unavailable, or when some colonies are weak and others are strong.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

25. _____ weakens colonies and may spread diseases and parasites.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

Winter Survival

26. Since the _____ is tropical in nature, it may not be able to regulate its body temperature as efficiently as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

27. Studies indicate that the _____ does not form as efficient a cluster during cold weather as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Colony Takeover

28. Many researchers have reported that _____ swarms often take over EHB colonies, particularly colonies which do not have functional queens.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

29. _____ swarms will do the same. The importance of such takeovers is questionable.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

Mating Advantage

30. An AHB colony produces more drones than a(n) _____ colony of equal size.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids and All of the Above
- F. None of the Above

31. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

32. Similar behavior in areas where large numbers of _____ colonies are maintained is being studied.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Identification

33. Identifying the different races of honey bees and their _____ is very difficult.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

34. The _____ differ only slightly and overlap considerably among individuals.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

35. _____ is not only difficult but time-consuming and expensive.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

36. Rapid and _____ of AHB and EHB strains is very important for monitoring the presence and spread of bees through an area.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

37. Several techniques have been used to identify _____, though none are 100 percent effective.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

38. _____: This technique utilizes precise measurements of specific body parts. Computer-assisted measurements are made of 25 characters on 10 bees.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

39. _____ An average is determined and used to distinguish the EHB from the AHB. Variations of this technique include the Fast Africanized Bee Identification System (FABIS), in which only three characters are measured.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

40. _____ The FABIS II technique uses seven measurements.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
41. _____: The ELISA procedure for identifying the AHB uses electrophoresis and isoelectric focusing to identify specific proteins unique to the AHB. About 90 percent of all AHB contain at least one of these proteins. A sample of three bees can provide an accuracy of 99.9 percent.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
42. _____: DNA contains the molecular code for genetically inherited characters. Bee DNA can be extracted and used to identify the AHB.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above
43. _____: Other techniques for identifying different strains of the honey bee include cuticular hydrocarbons, flow cytometry, and the use of a portable audiometer.
- A. Other Sources D. ELISA Procedure for AHB Proteins
 B. Morphometrics E. Characteristics used for identification
 C. DNA Analysis F. None of the Above

What is Killing Honeybees?

44. The honeybees may have been especially vulnerable to the _____ epidemic.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above
45. When the honeybee _____ was sequenced a few years ago, researchers discovered fewer immune-system genes than you'd find in other insects.
- A. Genome D. Parasites
 B. Varroa E. Mites
 C. Larva F. None of the Above
46. This is despite the fact that the honeybee lives in _____, anywhere between 15,000 and 30,000 of them crammed into a hive the size of a filing cabinet.
- A. Genome D. Mites
 B. Parasites E. Cracks
 C. Varroa F. None of the Above
47. To make matters worse, a weakened hive often becomes the target of honey-raiders from healthier colonies, which only helps the _____ to spread.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above

48. It's possible that if the American honeybees had been left to their own devices, they would have died off in epic numbers and then evolved natural defenses against _____ (like more effective grooming), as they did in Asia.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasites
- E. Secondary Pesticide Targeting
- F. None of the Above

Biology of Varroa Mites

49. The Varroa mite (*Varroa jacobsoni*) is an external _____ of honey bees. It was first discovered in the U.S. in 1987.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasite
- E. Secondary Pesticide Targeting
- F. None of the Above

50. The Varroa _____ is a small, red brown mite measuring approximately 1 - 1.5 millimeters in length and width.

- A. Varroa
- B. Mite
- C. Larva
- D. Parasites
- E. Gene
- F. None of the Above

Mosquito Section

51. Inflammation of the brain, which can be caused by numerous viruses, including West Nile Virus endemic the normal presence of a disease or infectious agent among human beings within a geographic area.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Flavivirus
- F. None of the Above

52. A disease naturally present in certain human or animal populations.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

53. A disease naturally present in certain animal populations (sometimes used in contrast with "endemic").

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

54. A disease outbreak affecting certain human or animal populations.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

55. A disease outbreak affecting certain animal populations (sometimes used in contrast with "epidemic").

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Inflammation
- F. None of the Above

56. Agents biologic organism or chemical material that cause disease.

- A. Enzootic
- B. Encephalitis
- C. Endemic
- D. Epizootic
- E. Etiologic
- F. None of the Above

57. A subset of arboviruses (transmitted by arthropods); this family of viruses includes West Nile Virus, St. Louis Encephalitis and several others.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

58. Type of mosquito traps designed to attract pregnant female mosquitoes

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

59. A living organism that serves as a blood source for blood-feeding arthropods, or on which a parasite lives.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

60. The arthropod carrier of a parasitic organism.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

61. A system for minimizing the impact of vectors and pests by using a variety of control procedures, and decreasing the chemical input to the environment.

- A. Flavivirus
- B. Gravid Traps
- C. Host
- D. Intermediate Host
- E. IPM
- F. None of the Above

62. Immature mosquitoes; stage which hatches from the egg, prior to adult stage.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

63. A type of pesticide used to eradicate immature mosquitoes (larvae).

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

64. A type of pesticide used to kill adult mosquitoes.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

65. Native to a place; not imported; used to describe a disease transmitted by vectors that became infected from a local source.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

66. A type of larvicide; chemical that is used to prevent mosquito larvae from emerging and developing into adult mosquitoes.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

67. An insecticide made of bacteria whose infection kills insects; a substance produced by bacteria that is lethal to insects.
- A. Methoprene
 - B. Altosid
 - C. Suspend SC
 - D. Bacillus Sphaericus
 - E. Microbial insecticide
 - F. None of the Above
68. A location where mosquitoes lay eggs, usually in stagnant water with organic material.
- A. Larvae
 - B. Ponds
 - C. Lakes
 - D. Tree holes
 - E. Rafts
 - F. None of the Above
69. Brand name of methoprene, a type of larvicide.
- A. Methoprene
 - B. Altosid
 - C. Suspend SC
 - D. Bacillus Sphaericus
 - E. Microbial insecticide
 - F. None of the Above
70. A bacterium; type of biological pesticide used to eradicate mosquito larvae in water. Mosquito larvae die after ingesting this bacteria.
- A. Methoprene
 - B. Altosid
 - C. Suspend SC
 - D. Bacillus Sphaericus
 - E. Microbial insecticide
 - F. None of the Above
71. Blood serum collected from patients recently recovered from a disease, often used to test whether a person has had a specific infection.
- A. Methoprene
 - B. Altosid
 - C. Suspend SC
 - D. Convalescent Blood Sera
 - E. Microbial insecticide
 - F. None of the Above
72. A virus whose life cycle includes transmission by arthropods.
- A. Aseptic Meningitis
 - B. Mosquito Pools
 - C. Arthropod
 - D. Arbovirus
 - E. Spinal Meningitis
 - F. None of the Above
73. An invertebrate animal with jointed legs and a segmented body (includes flies, mosquitoes, ticks; also centipedes, scorpions, spiders etc.)
- A. Termite
 - B. Mosquito
 - C. Spider
 - D. Arthropod
 - E. Flying insects
 - F. None of the Above
74. Inflammation of the lining of the brain and spinal cord, not due to a bacterial infection.
- A. Aseptic Meningitis
 - B. Mosquito fever
 - C. Arthropod hives
 - D. Arbovirus
 - E. Spinal Meningitis
 - F. None of the Above
75. A group of mosquitoes collected in one area and combined at the laboratory for testing for the presence of West Nile and related viruses.
- A. Raft
 - B. Mosquito Pools
 - C. Nest
 - D. Arthropod Nesting
 - E. Flock
 - F. None of the Above
76. This chemical name **N,N-diethyl-meta-toluamide**, is the active ingredient in many insect repellent products.
- A. Malathion
 - B. Naled
 - C. Dursban
 - D. DEET
 - E. Suspend
 - F. None of the Above

77. Autopsy on an animal.
 A. Aseptic D. Arbovirus
 B. Necropsy E. Autopsy
 C. Neurology F. None of the Above
78. The study of the nervous system and its disorders.
 A. Research D. Nervous study
 B. Emboli E. Neurology
 C. Erotology F. None of the Above
79. The jointed feelers on each side of the mouth of some arthropods.
 A. Craw D. Outbreak
 B. Palpi E. Neurology
 C. Tabs F. None of the Above
80. Substance used to kill pests such as insects, mice and rats; insecticide is a form of pesticide.
 A. Toxins D. Pesticide
 B. Dusts E. All of the Above
 C. Sprays F. None of the Above
81. Blood Drawing
 A. Phlebotomy D. Vampire
 B. Tax collectors E. Ticks
 C. Politicians F. None of the Above
82. An unexpected increase in frequency or distribution of a disease.
 A. Epidemic D. Outbreak
 B. Dance fever E. Spreading
 C. Fever F. None of the Above
83. A period of rest or hibernation by which insects survive the winter
 A. Sleep D. Siesta
 B. Suspension E. Both A and D
 C. Overwintering F. None of the Above
84. The straw-like sucking mouthparts of some blood feeding arthropods.
 A. Proboscis D. Vactoube
 B. Resmethrin E. Tube
 C. Spike F. None of the Above
85. Brand name for larvicide *Bacillus thuringiensis* var. *israelensis* (BTI).
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
86. Brand name for larvicide *Bacillus sphaericus*.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
87. A synthetic pyrethroid pesticide used to eradicate adult mosquitoes in the home, lawn, garden and at industrial sites; active ingredient in the product **Scourge**.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above

88. A group of small bacteria that live inside tissue cells, and are carried by ticks, mites, fleas or lice.

- A. Vectolex
- B. Resmethrin
- C. Rickettsia
- D. Bacilli
- E. Germs
- F. None of the Above

89. A method of insecticide distribution in which a small portion of the compound is fragmented into extremely fine particles for aerial dispersal.

- A. Dusting
- B. Drift
- C. Fire
- D. Spray
- E. ULV
- F. None of the Above

90. An arthropod carrier of a disease producing organism. Usually used when part of the organism's natural life cycle takes place in the arthropod (= intermediate host).

- A. Vector-borne disease
- B. Vector
- C. Host
- D. Vector control
- E. Vector Control Mechanism
- F. None of the Above

91. Management of organisms that carry disease.

- A. Vector-borne disease
- B. Vector
- C. Host
- D. Vector control
- E. Vector Control Mechanism
- F. None of the Above

92. Instituted to control and reduce the vector population.

- A. Vector-borne disease
- B. Vector
- C. Host
- D. Vector control
- E. Vector Control Mechanism
- F. None of the Above

93. Monitoring of the vector population for presence of a disease.

- A. Vector-borne disease
- B. Vector
- C. Host
- D. Vector Surveillance
- E. Vector Control Mechanism
- F. None of the Above

94. A disease carried by arthropod intermediate hosts.

- A. Vector-borne disease
- B. Vector
- C. Host
- D. Vector control
- E. Vector Control Mechanism
- F. None of the Above

95. Of or relating to a virus.

- A. Viral Encephalitis
- B. Zoonosis
- C. Viral
- D. Death
- E. Virus
- F. None of the Above

96. Inflammation of the brain caused by a virus.

- A. Viral Encephalitis
- B. Fever
- C. Viral
- D. Death
- E. Bad headache
- F. None of the Above

97. A disease of animals that may be secondarily transmitted to man.

- A. Encephalitis
- B. Zoonosis
- C. Viral
- D. VD
- E. Herpes
- F. None of the Above

98. Areas of vegetation in bodies of salt water that may support the breeding of certain types of mosquitoes such as *Aedes sollicitans*.

- A. Swamps
- B. Lakes
- C. Rivers
- D. Salt Marsh
- E. All of the Above
- F. None of the Above

99. The testing of birds and other animals as an early warning system for the presence of virus (e.g. sentinel chickens).

- A. AIMS
- B. Bac-T
- C. Driving
- D. Pass or Fail
- E. Sentinel 'Guard'
- F. None of the Above

100. This means of, or relating to serum.

- A. Serologic
- B. Syrup
- C. Viral
- D. Anti-serum
- E. Antibodies
- F. None of the Above

Common Pest Cockroaches Management

101. _____ of Asian cockroaches is difficult due to their mobility and abundance of population sites.

- A. Typically treatment
- B. Control
- C. Tracking
- D. Management
- E. Numerous infestations
- F. None of the Above

102. Traditional treatments using _____ inside and around the perimeter of a structure are ineffective due to numerous infestations in mulched and wooded areas.

- A. Traps
- B. Control
- C. Dusts
- D. B and G
- E. Residual sprays
- F. None of the Above

103. Plus, adults enter homes through windows and doorways, avoiding areas typically treated for _____ of German cockroaches.

- A. Typically treated
- B. Control
- C. Susceptible
- D. Less attractive
- E. Numerous infestations
- F. None of the Above

104. Sodium vapor lamps for security lighting and yellow incandescent bulbs for porch lighting are both less attractive to adults and would thereby _____ of adult insects to lighting near buildings.

- A. Typically treated
- B. Control
- C. Susceptible
- D. Less attractive
- E. Reduce attraction
- F. None of the Above

105. Although Asian cockroaches are susceptible to all pesticides, toxic pelletized baits scattered outdoors have _____.

- A. Typically been treated
- B. Been controlled
- C. Been susceptible
- D. Are less attracted
- E. Provided the most reliable control
- F. None of the Above

106. The _____ for a pesticide or herbicide to enter the body are: inhalation, skin and eye contact, ingestion, and injection.

- A. Prevention techniques
- B. Basic cycle
- C. Basic routes
- D. Direction
- E. Methods
- F. None of the Above

107. The prevention of entry by one of these routes can be accomplished by control mechanisms such as engineering controls, personal protective equipment, and _____.

- A. Prevention
- B. Basic routes
- C. Safety
- D. Can be minimized
- E. Administrative controls
- F. None of the Above

108. Each route can be minimized by a variety of _____ depending on the hazard and operation.

- A. Prevention methods
- B. Basic routes
- C. Control measures
- D. Techniques
- E. Administrative controls
- F. None of the Above

Madagascan Giant Hissing Roaches

109. The cockroach family, to which Madagascan roaches belong, is among the most primitive of the winged insects. The nearest relatives to _____ include mantids, grass-hoppers, stick insects, and termites.

- A. Bees
- B. Cockroaches
- C. Winged insects
- D. Beetles
- E. Bed bugs
- F. None of the Above

110. There are at least 3,500 known species living today, in _____, most of which originate in the tropics.

- A. 500 genera
- B. 450 genera
- C. 400 genera
- D. On this planet
- E. USA
- F. None of the Above

111. As a group, cockroaches exhibit a _____ of sizes, colors, and habits.

- A. Diurnal
- B. Small diversity
- C. Commensally
- D. Wide diversity
- E. Cornucopia
- F. None of the Above

112. Although they have an infamous reputation as household pests, in reality only about half a dozen species (less than one percent of all known forms) have _____ with humans.

- A. Diurnal skills
- B. Exhibited hostility
- C. Made friends
- D. Negative associations
- E. Toxic relationships
- F. None of the Above

113. Many species are diurnal, some are _____, and others live in the ground or are wood-boring. Some, such as the Madagascan roach, do not have wings.

- A. Intellectual
- B. Semiaquatic
- C. Hostile
- D. Scavengers
- E. Toxic
- F. None of the Above

114. About a dozen or so species live _____ in the nests of ants, wasps, or termites.

- A. Diurnal
- B. Near and
- C. Commensally
- D. As scavengers outdoors near
- E. As friends
- F. None of the Above

115. There are also roach species that inhabit caves with bats or live in the desert. The majority of cockroaches in tropical countries exist as scavengers outdoors, feeding on vegetation and organic matter in _____.

- A. Their nests
- B. The tropics
- C. Dry areas
- D. Outdoors
- E. An apparently harmless fashion
- F. None of the Above

116. The toxicity of the Thailand and Middle-Asian cobra venoms as well as of their isolated components (_____ and some others) for cockroach *Gromphadorhina portentosa* was studied.

- A. Poisons
- B. Sugars
- C. Vapors
- D. Neurotoxins, cytotoxins, phospholipases
- E. Toxic
- F. None of the Above

117. It was found that, as compared to mammals, cockroaches are _____ to cobra venoms and their components.

- A. Diurnal
- B. More resistant
- C. Related
- D. Scavengers
- E. Toxic
- F. None of the Above

Cockroach Management Strategies

Prevention

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

- A. Entry and establishment
- B. Elimination
- C. Should not be left
- D. Avoid unnecessary control
- E. Developed resistance
- F. None of the Above

119. Caulking or puttying areas such as cracks and crevices around kitchen cabinets, bathtubs, water and plumbing pipes, cracks on floors and walls, and exterior windows and doors can eliminate most hiding places and_____.

- A. Cannot elevate growth
- B. Can eliminate
- C. Should not be left
- D. Help reduce the cockroach population
- E. Helps develop resistance
- F. None of the Above

120. Other structural modifications, such as weather stripping and pipe collars, also help to _____.

- A. Increase protection
- B. Can eliminate
- C. Kill the pests
- D. Avoid unnecessary growth
- E. Reduce cockroach entry and establishment
- F. None of the Above

Sanitation

121. Good housekeeping is the most important factor in preventing and _____.

- A. Cannot be forgotten
- B. Elimination
- C. Should not be left
- D. Controlling cockroach populations
- E. Reducing resistance
- F. None of the Above

122. Cockroaches _____, water and shelter. Do not allow food particles to remain on shelves or floors.

- A. Cannot live without food
- B. Can eliminate
- C. Storage areas should not be left
- D. Avoid unnecessary food stuffs
- E. Have developed resistance
- F. None of the Above

123. Dishes should not be left unwashed after a meal, particularly overnight. Clean areas under refrigerators, stoves, sinks and furniture regularly to remove bits of food that have accumulated. If pets are fed indoors, _____, especially overnight. Store pet food in tight containers, and clean litter boxes frequently.

- A. Use baits
- B. Use dusts
- C. Should not be left
- D. Avoid unnecessary food
- E. Teach pets to deal with the cockroaches
- F. None of the Above

Treatment Methods

133. The disadvantage is that the treatments need to be where the roaches are hiding. Cockroaches have been seen thriving less than a foot away from_____.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. A treated surface
- F. None of the Above

134. Their path of feeding and moving to and from shelter never crossed the_____. This enabled them to live virtually on top of treated areas and yet still survive.

- A. Crack and crevice or C/C
- B. Treated surfaces
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

Cracks and Crevice

135. When roaches began to build resistance to chemicals and manufacturers designed their products with less volatility, new packaging and treatment techniques became necessary. These new trends became known as "_____".

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

136. Basically, _____ means applying the chemical into the cracks and crevices suspected of harboring roaches.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

137. There are two types of products commonly used for this purpose: _____.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

138. In fact, a good pest control technician should be able to get roach control with nothing more than _____ if he or she knows where to do the application.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust
- E. Crusader Hand Duster
- F. None of the Above

139. _____ has solved many roach problems. Apply it in cracks and crevices, behind cabinets and major appliances, in wall voids and electric outlets.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

140. This requires a lot of work and this product can be messy to work with, but provides the _____ when used properly.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

141. Use a _____ for the application. Since dust can be messy to work with, aerosol products became popular throughout the 1980's.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

142. The professional line of products which is discussed are truly effective and not commonly available. Their _____ are effective because insects have not been able to build resistance.

- A. Crack and crevice or C/C
- B. Active ingredients
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

143. There are several stories of super roaches and the fact that "even the bugman" couldn't get rid of "my" roaches, but what it all boils down to is the _____ and the choice of product. If the products used are the ones as mentioned above and the treatment is thorough and complete, there is little chance of any roach surviving nor of re-infestation.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

144. Most insects, certainly roaches, cannot live where _____ has been applied. That being said, all you need to do is apply it wherever roaches want to be. This process of eliminating their nest sights eliminates their population.

- A. Crack and crevice or C/C
- B. Drione
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

145. The reason they appear to be "resistant" in most cases is that they are simply avoiding treated areas. This can happen when products are mixed at higher rates or when applicators fall victim to treating the same areas over and over again. The roaches which survive all these _____ are the ones which are going where the applicator has failed to treat.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Applications
- F. None of the Above

146. Today, these problems have been all but eliminated with the _____. These new methods are both safer and easier to do.

- A. Crack and crevice or C/C
- B. Latest treating methods
- C. Application method
- D. Dust and aerosol
- E. Crusader Hand Duster
- F. None of the Above

147. Although _____ has long been the main method to get roach control, baiting has become a legitimate method as new baits hit the market. These products have been tested and proven effective.

- A. Crack and crevice or C/C
- B. Drione Dust
- C. Application method
- D. Dust and aerosol
- E. Spraying
- F. None of the Above

Residual Sprays

148. These formulations are oil-based or water-based emulsions and water-based suspensions (_____). They are available in ready-to-use pressurized containers or non-pressurized containers with built-in spray pumps.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

149. _____ also can be purchased as concentrates to mix with water before applying with a compressed-air sprayer, plunger-type sprayer or paint brush.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

150. Be careful when using _____; they may stain, dull or damage certain floor tiles, linoleum, painted surfaces, plaster, plastics, houseplants, carpets and carpet backing.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

151. _____ can create a fire hazard when used near an open flame (pilot lights, gas stoves, furnaces). Water emulsions may stain wallpaper, light-colored carpets, draperies or other materials.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

152. They can short out electrical circuits, and are inferior to _____ on impervious surfaces such as glass or metal.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

153. _____ must be frequently agitated in the spray tank, but they leave the most active residues, especially on porous surfaces such as unpainted wood, mortar or concrete block.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

154. _____ are generally easy and fast to apply. The spray should wet or dampen the treated surface; do not allow spray to puddle or run off. When treating for cockroaches, pay particular attention to cracks and crevices. Exposed surfaces, especially those used to prepare foods, should usually not be treated with sprays.

- A. Residual sprays
- B. Wettable powders
- C. Dusts
- D. Oil-based insecticides
- E. Oil-based sprays
- F. None of the Above

WHAT EMPLOYERS MUST DO FOR BOTH WORKERS AND HANDLERS

155. Some _____ protections that employers must provide are nearly the same whether the employees are workers or handlers.

- A. Worker Protection Standard or WPS
- B. Restricted-entry intervals or REIs
- C. Pesticide-related ordinances
- D. EPA registration number
- E. Personal
- F. None of the Above

What Information Must Be Displayed?

156. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, _____, and active ingredient(s) of the pesticide, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

- A. Worker Protection Standard or WPS
- B. Pesticide-related ordinances
- C. EPA registration number
- D. Restricted-entry intervals or REIs
- E. Personal
- F. None of the Above

157. _____, which must include the name, telephone number and address of the nearest emergency medical facility.

- A. Worker Protection Standard or WPS
- B. Restricted-entry intervals or REIs
- C. Emergency information
- D. EPA registration number
- E. Agricultural Use Requirements
- F. None of the Above

158. A pesticide safety poster, which must be either the _____ safety poster developed by EPA or an equivalent poster that contains the concepts listed in Criteria for Pesticide Safety Poster.

- A. Worker
- B. Restricted-entry intervals or REIs
- C. Pesticide-related ordinances
- D. Worker Protection Standard or WPS
- E. EPA registration Requirements
- F. None of the Above

Where Must the Information Be Displayed?

159. Display the required information together in a central location on your agricultural establishment where it is readily accessible and can be easily seen and read by _____.

- A. Worker Protection Standard or WPS
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Workers or handlers
- E. EPA registration Requirements
- F. None of the Above

Timing of Displaying Application Information

160. If _____ are on your establishment at the start of an application, display the required pesticide-specific information before the application takes place.

- A. EPA registration number
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

161. If _____ are not on your establishment at the start of an application, display pesticide-specific information no later than the beginning of their first work period.

- A. Workers or handlers
- B. Appropriately trained Workers
- C. Nursery workers
- D. Only handlers
- E. EPA registration Requirements
- F. None of the Above

162. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the restricted-entry interval expires.

- A. Appropriately trained Workers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

163. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the end of the application, if there is no restricted-entry interval for the pesticide.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Supervisors
- F. None of the Above

Other Responsibilities

164. Inform _____ where the information is located.

- A. Supervisors
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

165. Allow _____ free, unhampered access to the information.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Crop handlers
- F. None of the Above

166. Be sure that the poster, _____, and application information remain legible during the time they are posted.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Crop handlers
- F. None of the Above

167. Promptly inform _____ if there is any change in the information on emergency medical facilities and update the emergency information listed with the poster.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Supervisors
- D. Workers
- E. Only handlers
- F. None of the Above

Restrictions During Applications

168. In areas being treated with pesticides, allow entry only to _____.

- A. Workers or handlers
- B. Supervisors
- C. Appropriately trained and equipped handlers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

169. Keep nursery workers at least 100 feet away from nursery areas being treated.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

170. Allow _____ to be in a greenhouse during a pesticide application, until labeling-listed air concentration level is met or, if no such level, until after 2 hours of ventilation with fans. (Also see nursery restrictions and greenhouse restrictions)

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Supervisors
- F. None of the Above

171. Restricted-Entry Intervals (REIs) During any REI, do not allow _____ to enter a treated area and contact anything treated with the pesticide to which the REI applies. (Also see early entry by workers)

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Workers
- D. Only handlers
- E. Nursery workers
- F. None of the Above

Notice About Applications

172. _____ and post treated areas if the pesticide labeling requires.

- A. Provide to handlers
- B. Enter the establishment
- C. Call or e-mail
- D. Just before application
- E. Orally warn workers
- F. None of the Above

173. Otherwise, either _____ or post entrances to treated areas. Tell workers which method is in effect.

- A. Provide to handlers
- B. Enter the establishment
- C. Orally warn workers
- D. Just before application
- E. Identify
- F. None of the Above

Posted Warning Signs

174. Post legible 14" x 16" WPS-design signs just before application; keep posted during REI; remove _____ and within 3 days after the end of the REI.

- A. Posters
- B. Before workers enter
- C. After orally warning workers
- D. Just before application
- E. All of the Above
- F. None of the Above

175. Post signs _____ at all entrances to treated areas, including entrances from labor camps.
- A. Provided to handlers
 - B. And then enter the establishment
 - C. And then orally warn workers
 - D. Just before application
 - E. So they can be seen
 - F. None of the Above

Oral Warnings

176. Before each application, _____ who are on the establishment (in a manner they can understand): location and description of treated area, REI, and not to enter during REI.
- A. Provide to handlers
 - B. Tell workers
 - C. Orally warn workers with signage
 - D. Just before application tell employees
 - E. So they can be seen
 - F. None of the Above

177. Workers who enter the establishment after application starts _____ at the start of their work period.
- A. Must be provided to handlers
 - B. Must carefully enter the establishment
 - C. Just before application
 - D. Tell employees
 - E. Must receive the same warning
 - F. None of the Above

DECONTAMINATION SUPPLIES BASIC RESPONSIBILITIES

178. Handler employers _____ for washing off pesticides and pesticide residues are provided to handlers while they are doing handling tasks.
- A. Must inform the workers to wash
 - B. Enter the establishment
 - C. Must orally warn workers
 - D. Must make sure that decontamination supplies
 - E. Must receive the same warning
 - F. None of the Above

179. Worker employers must make sure that decontamination supplies for washing off pesticide residues are provided to workers who are working in a (n) _____ and are doing tasks that involve contact with anything that has been treated with the pesticide, including soil, water, or surfaces of plants.
- A. Located together
 - B. Pesticide-treated area
 - C. Guidelines
 - D. Nearest point
 - E. Safe Zone
 - F. None of the Above

SPECIFIC DUTIES

180. For workers, until 30 days after the end of any _____ for that area. If there is no restricted-entry interval, until 30 days after the end of any application in that area.
- A. Located together
 - B. Restricted-entry interval
 - C. Guidelines
 - D. Nearest point
 - E. Safe Zone
 - F. None of the Above

Exception

181. When the only pesticides used in the treated area are products with a restricted-entry interval of 4 hours or less, the decontamination supplies must be provided until 7 days after the end of the _____.
- A. Located together
 - B. Safe Zone
 - C. Guidelines
 - D. Nearest point
 - E. Restricted-entry interval
 - F. None of the Above

182. When products have no _____ listed on the label, the decontamination supplies must be provided until 30 days after the end of any application in that area.
- A. MSDS
 - B. Guidelines
 - C. Nearest point
 - D. Restricted-entry interval
 - E. Decontamination supply requirements
 - F. None of the Above

183. For early-entry workers who will contact anything that has been treated with the pesticide, the _____ are different.

- A. Rules
- B. Restricted-entry interval
- C. Decontamination supply requirements
- D. Nearest point
- E. All of the Above
- F. None of the Above

184. Pilot's fresh air supply--Filtered air for the pilot to breathe is necessary because it is nearly impossible for the pilot to avoid flying back through some of the _____ passes. If a filtered-air helmet is not available, the pilot should at least wear an approved respirator.

- A. ULV
- B. Agricultural flying
- C. Oils
- D. Swath of previous flight
- E. Over spray
- F. None of the Above

185. Fuselage features--Enclosed fuselages should be fitted with cleanout panels for the regular removal of _____. Spray pumps, filters, and control valves should be easily accessible for maintenance and repair.

- A. Corrosive sprays and dusts
- B. Cleanout panels
- C. Oils
- D. Adjuvants
- E. All of the Above
- F. None of the Above

186. Maintenance--The seasonal use of agricultural aircraft might suggest a pattern of inspection and repair during the _____.

- A. Crop spraying season
- B. Agricultural flying period
- C. Maintenance period
- D. Idle, off-season periods
- E. All of the Above
- F. None of the Above

187. The critical demands of _____ call for all the regular maintenance checks at all required intervals to ensure that the aircraft is in first class order at all times.

- A. Rotary wing aircraft
- B. Agricultural aircraft
- C. Crop spraying season
- D. Maintenance and repair
- E. Agricultural flying
- F. None of the Above

188. Two of the more important advantages of fixed wing aircraft are a _____ and a large payload capacity per dollar invested. Maneuverability is adequate, though not equal to the Rotary wing aircraft.

- A. Not a factor
- B. Low overhead
- C. Agricultural flying
- D. Maintenance and repair
- E. High speed of application
- F. None of the Above

189. One of the limitations of _____ equipment is the necessity of a designated landing area, which may not always be in close proximity to the application area.

- A. Fixed wing
- B. Agricultural aircraft
- C. Agricultural flying
- D. Rotary wing
- E. All of the Above
- F. None of the Above

190. Rotary wing aircraft offers the advantages of extreme maneuverability and speed variation, and may be operated in almost _____. Pilots of these crafts must also be competent, alert, and have knowledge of the area and the limitations of their crafts.

- A. Weather
- B. Agricultural application
- C. Agricultural setting
- D. Agricultural flying
- E. Any local area
- F. None of the Above

191. Rotary wing flying puts a special demand on the pilot to perform _____, hovering and landing, since this type aircraft is more expensive to operate per unit of flying time than fixed wing aircraft.

- A. Agricultural flying
- B. Agricultural crop dusting
- C. Fueling
- D. Agricultural setting
- E. Application with minimum time loss in turns
- F. None of the Above

192. _____, or additive compounds, aid in the mixing, application or effectiveness of pesticides.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

193. One class of _____, compatibility agents, allow uniform mixing of compounds that would normally separate.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

194. Other types of adjuvants include spreaders, stickers, and _____. There are nearly as many adjuvants as there are pesticides, and they provide a choice for every need.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

195. Some adjuvants are added during pesticide manufacture and are, thus, part of the _____.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

196. Other adjuvants are added just before application. To decide when to use an adjuvant, READ THE LABEL. It will state when a particular _____ is needed, whether or not one should be added or when one is already present.

- A. Adjuvant
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

197. _____ assist application or pesticide activity without being toxic to pests. However, many of these chemicals can present hazards to the applicators.

- A. Oils
- B. Surfactants
- C. Synergists
- D. Adjuvants
- E. Surface active agents
- F. None of the Above

198. The EPA has not required manufacturers to perform the same type of research and reporting on _____ that is required for pesticide registration.

- A. Oils
- B. Surfactants
- C. Synergists
- D. Adjuvants
- E. Surface active agents
- F. None of the Above

199. Regulations are continually updated to protect the health of applicators and review and registration of _____ may be required in the future.

- A. Oils
- B. Surfactants
- C. Synergists
- D. Adjuvants
- E. Surface active agents
- F. None of the Above

200. _____ agents are adjuvants that help reduce the risk of drift. Pesticide drift is off-target spray deposit and off-target damage.
- A. Application rates D. Surface active agents
 B. Drift control E. Surface tension
 C. Penetrating agents F. None of the Above

Termite Section

General Treatment Guidelines

201. Insecticide barriers _____ during: Pre-construction (during construction).
- A. Requires additional treatment D. Include a Continuous insecticide barrier
 B. Are generally established E. B and D
 C. Require termite activity and treatment procedures F. None of the Above

202. Insecticide barriers are generally established during: Post-construction (existing building). In an existing building, termite treatments may involve any of the following: a) _____, and b) use of an insecticide for treating the soil, foundation, and wood.
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treated E. All of the Above
 C. Distribution of insecticide F. None of the Above

203. In most cases, an untrained homeowner or building manager should not attempt a _____.
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatment E. All of the Above
 C. Distribution of insecticide F. None of the Above

204. _____ should be performed by professional pest control operators (PCOs), that is right!
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatment E. All of the Above
 C. Distribution of insecticide F. None of the Above

205. _____ requires special tools such as hammer drills, sub-slab injectors, rodding devices, high pressure pumps, a power supply, protective equipment.
- A. Mechanical alterations D. Termite treatment(s)
 B. Contact treatments E. B and D
 C. Distribution of insecticide F. None of the Above

Caution

206. Do not apply insecticides when soil is frozen or water-soaked (saturated). Frozen or saturated soil will not permit _____ for even distribution of insecticide.
- A. Mechanical alterations D. Termite treatment(s)
 B. Adequate absorption E. All of the Above
 C. Distribution of insecticide F. None of the Above

207. Do not permit humans and pets to _____ surfaces until dry.
- A. Walk on D. Adsorption
 B. Contact treated E. All of the Above
 C. Distribute of insecticide F. None of the Above

208. Before _____ for termite control, always read, understand and follow all label directions.
- A. Applying mechanical alterations D. Applying termite treatment(s)
 B. Using insecticides E. All of the Above except A
 C. Distribution of insecticide F. None of the Above

209. Keep all _____, out of reach of children and do not contaminate food, feed and water.
- A. Mechanical alterations
 - B. Distribution of insecticide
 - C. A and B
 - D. Pesticides in original containers
 - E. Termite treatment(s)
 - F. None of the Above

Pre-Construction Treatment

210. Horizontal Barriers: In general, treat the footing trench with _____ before pouring cement footings.

- A. Diluted insecticide
- B. Insecticide
- C. A and D
- D. Establishing a chemical barrier
- E. Penetrating spray
- F. None of the Above

211. After grading is completed, _____ to areas before pouring slab floors, slab-supported porches, patios, carports, and entrance platforms at the rate of 1 gallon per 10 square feet.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. A and D
- D. Establish a chemical barrier
- E. Penetrating spray
- F. None of the Above

212. Vertical Barriers: _____ in areas such as around the bases of foundations, plumbing, utility entrances, and backfilled soil against foundation walls.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Penetrating spray
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

213. Treat crawl space areas either by _____.

- A. Applying diluted insecticide
- B. Applying insecticides
- C. Rodding or trenching procedures
- D. Establishing a chemical barrier
- E. All but C
- F. None of the Above

214. To _____ in soil, apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. After treatment, cover the crawl space area with a layer of untreated soil or polyethylene sheeting.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Produce a vertical barrier
- E. All of the Above
- F. None of the Above

Post-Construction Treatment

215. Do not _____ until locations of radiant heat pipes, water pipes, sewer lines, and electrical conduits are identified.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

216. Buildings requiring treatment generally fall into three categories: a) building on slab construction, b) building with crawl space, and c) building with a basement. There is a common belief that termites _____ slab foundations.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

217. Termites _____ solid concrete but they can enter through cracks as small as 1/64 of an inch.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

Building on Slab

218. _____ in a building on a slab is especially difficult and hazardous. In this type of construction, heat ducts (pipes) are buried in the concrete and serious damage can occur when they are accidentally drilled for holes to inject insecticide solutions.

- A. Injecting insecticide
- B. Drilling
- C. Controlling termite infestation
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

219. Treat the exterior of the foundation by _____ about 6 inches wide along the outside of the foundation.

- A. Injecting the insecticide
- B. Drilling
- C. Digging a narrow and shallow trench
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

220. _____ to the trench and soil at the rate of 4 gallons per 10 linear feet.

- A. Inject insecticide or Injecting the insecticide
- B. Drilling
- C. Applying the diluted insecticide
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

221. _____ with a thin layer of untreated soil. For an inside barrier, drill slab and space holes about 1 foot apart and 6 inches from the wall.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Cover treated soil in the trench
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

222. Using a subslab injector, inject insecticide through holes at the rate of 4 gallons per 10 linear feet. After application, _____ with mortar or any other special compound.

- A. Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Plug all holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Applications

223. Building With a Basement and Crawl Space

Basement: For an interior vertical barrier, _____ and space holes about one foot apart.

- A. Inject insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. A and B
- F. None of the Above

224. _____ may be required along the foundation walls, along one side of partition walls, along both sides of load-bearing wall, around sewer pipes, floor drains, conduits, and any crack in the basement floor.

- A. Inject insecticide
- B. Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above except D
- F. None of the Above

225. Using a sub-slab injector, _____ at the rate of 4 gallons per 10 linear feet. For an insecticide barrier around the exterior of foundation walls, apply an insecticide by rodding and/or trenching.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

226. The rod holes should be spaced 1 to 1 1/2 feet apart to _____ barrier. If a trench is necessary, it should not be wider than 6 inches.

- A. Inject insecticide or Inject the insecticide
- B. Provide a continuous chemical
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

227. _____ using rodding technique at the rate of 4 gallons per 10 linear feet. Cover the trench with untreated soil.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Crawl Spaces

228. _____ by rodding and/or trenching procedures. A shallow trench should not be wider than 6 inches.

- A. Inject insecticide
- B. Establish vertical barriers
- C. Drill and rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

229. _____ about 1 to 1 1/2 feet apart. Apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth.

- A. Inject the insecticide
- B. Space rod holes
- C. B and D
- D. Drill the floor slab or Drilling
- E. Broadcast insecticide spray
- F. None of the Above

230. Do not treat soil in crawl space area with a(n) _____.

- A. Insecticide
- B. Fungicide
- C. Pesticide
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Hollow Masonry Units of the Foundation Walls

231. Treat through _____ to provide a continuous chemical barrier at the top of the footing.

- A. Masonry voids
- B. Debris
- C. All holes
- D. Such situations
- E. All but D
- F. None of the Above

232. When treatment is necessary, access holes must be drilled through _____ below the sill plate, as close as possible to the footing.

- A. Mortar joints
- B. Other debris
- C. All holes
- D. Such situations
- E. C and D
- F. None of the Above

233. Apply insecticide at the rate of 2 gallons per 10 linear feet. Plug _____ with mortar or any other special compound.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above except C
- F. None of the Above

Bath Traps

234. Soil may require insecticide treatment if it is exposed beneath and around plumbing/waste pipe entrances through a _____.

- A. Masonry voids
- B. Other debris
- C. Concrete slab
- D. Such situations
- E. B and C
- F. None of the Above

235. Remove _____ or excavated soil and treat the soil by rodding or flooding with an insecticide solution.

- A. Masonry voids
- B. Any wood
- C. A and B
- D. Other debris
- E. Such situations
- F. None of the Above

236. Treatment Near Ponds, Wells, Cisterns, and Faulty _____, Around Pipes or Utility Lines Insecticide applications through rodding is discouraged in excavated soil.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Foundation walls
- E. All of the Above
- F. None of the Above

237. The suggested procedure is to make a trench and remove the excavated _____ or similar material.

- A. Soil sheeting
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

238. Treat the _____ with insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. Mix the soil with insecticide and replace it in the trench.

- A. Masonry voids
- B. Excavated soil
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

239. Cover the _____ with a thin layer of untreated soil. In the case of wells, ponds, and cisterns, if a rodding technique is necessary, the distance between the treated area and the water source should be 50 feet or more.

- A. Masonry voids
- B. Treated soil
- C. All holes
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

240. Wood Treatment In addition to soil treatment, it may be necessary to treat infested wood with insecticide spray or injection. Applications are made to inaccessible areas by drilling and then _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Injecting the insecticide solution
- E. All of the Above
- F. None of the Above

241. _____ must be limited to wood in attics, crawl spaces and unfinished basements or similar unoccupied areas.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Graded or sloped away
- E. B and C
- F. None of the Above

242. Treatment of Secondary Subterranean Termite Colony Apply insecticide to infested wood and void spaces with a _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Graded or sloped away
- E. All of the Above
- F. None of the Above

Prevention

243. Preventive practices are a(n) _____.

- A. Form of crack and crevice injector
- B. Critical aspect of termite management
- C. A and B only
- D. Form of broadcast spraying
- E. Graded or sloped away
- F. None of the Above

244. _____ of subterranean termite infestation of wooden structures centers upon disrupting their ability to locate moisture, food (wood), and shelter.

- A. Crack and crevice injecting
- B. Broadcast spraying
- C. Prevention
- D. Grading or sloping away
- E. All of the Above
- F. None of the Above

245. Avoid moisture accumulation near the foundation, which provides water _____.

- A. And this is a bad sign
- B. For Nursery
- C. Needed for termite survival
- D. And needs to be sloped away
- E. All of the Above
- F. None of the Above

246. Divert water _____ with properly functioning downspouts, gutters, and splash blocks.

- A. To sewer
- B. After broadcast spraying
- C. Quickly
- D. Away from the foundation
- E. A and C
- F. None of the Above

247. Soil needs to be _____ away from the foundation in order for surface water to drain away from the building.

- A. Sprayed
- B. Drained
- C. Prevented
- D. Graded or sloped away
- E. A and C
- F. None of the Above

Soil Barrier Termiticides

248. _____ rely on creating a chemical barrier in the soil that is toxic to termites when they come into contact with it.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Such treatments during preconstruction
- E. All of the Above except B
- F. None of the Above

249. Many also have _____ which causes the termites to avoid treated soil. To achieve termite control for long periods of time, such termiticides must be applied as a continuous barrier in the soil next to and under the foundation. If there are untreated gaps in the soil, termites may circumvent the chemical treatment.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Dangers
- E. All of the Above
- F. None of the Above

250. Such treatments during preconstruction can provide for more _____. Once a home is constructed, the chemical has to be injected through drill holes and trenching around the foundation, which can result in less accurate coverage.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Uniform coverage
- E. All of the Above
- F. None of the Above

You are finished with your assignment, please fax or e-mail a copy of your driver's license and the Answer Key and Registration form. Always call us the next day to ensure we received all your information.

Our e-mail is info@tlch2o.com our fax number is (928) 468-0675

Advanced Pest Control Assignment #4 For Students Names R-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.

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 E, you will pick assignment number 1, if your last name begins with the letter F to L, you are to complete assignment number 2 and if your last name begins with the letter M-Q, you will pick assignment number 3 and if your last name begins with the letter R-Z, you will pick assignment number 4.

Multiple Choice, Please select one answer and mark it on the answer key. The answer must come from the course text. (s) Means answer can be plural or singular.

Common Pest Cockroaches

Dusts

1. _____ sometimes suffices as the only treatment for cockroaches, but is most often a supplemental treatment.
A. Residual sprays D. Oil-based
B. Wettable powders E. Insecticide dust
C. Dusts F. None of the Above
2. _____ generally have longer residual action than sprays, but are ineffective if they become damp.
A. Residual sprays D. Oil-based
B. Wettable powders E. Baits
C. Dusts F. None of the Above
3. Dusts are useful in cockroach control because they can be placed deep in cracks, crevices and wall voids; under refrigerators and furniture; around pipes, tunnels and conduits; on very smooth or very rough surfaces; and in other places not treatable with _____.
A. Residual sprays D. Oil-based
B. Wettable powders E. Other formulations
C. Dusts F. None of the Above
4. Do not use dusts for treating large surfaces because they leave unsightly deposits. Also, cockroaches avoid _____ and will not walk through thick layers of the material.
A. Residual sprays D. Oil-based
B. Wettable powders E. Baits
C. Heavy deposits F. None of the Above

5. Use light pressure on the application device to minimize the amount of dust in living areas. Apply _____ as light, even residues that are barely visible.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Oil-based
 - E. Baits
 - F. None of the Above

Baits

6. Several cockroach _____ are sold in ready-to use containers. They also can be made using a combination of food attractants and a toxicant. If cockroaches will not feed on the bait, the insecticide has no effect.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Oil-based
 - E. Baits
 - F. None of the Above
7. Thus, it is important not to contaminate stored _____ with organic solvents, other insecticides, fungicides and fertilizers.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Oil-based
 - E. Bait
 - F. None of the Above
8. Baits are usually long lasting and often work well in areas that cannot be effectively sprayed or dusted. _____ are often most useful when used in conjunction with a residual spray or dust.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Oil-based
 - E. Baits
 - F. None of the Above
9. _____ give best results in buildings where there are few alternative food supplies.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Oil-based
 - E. Baits
 - F. None of the Above
10. Always use a sufficient number of _____ to adequately treat an area where cockroaches are to be controlled. Examine the bait containers frequently to ensure they remain fresh and the bait is not depleted.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Bait containers
 - E. Baits
 - F. None of the Above
11. Baits have always been available, but roaches seemed to be indifferent to them. Although some roaches would feed and die, it was not likely that you would be able to _____ with baits alone. Now, we have products like Maxforce and Avert. These materials are deadly for roaches.
- A. Residual sprays
 - B. Wettable powders
 - C. Dusts
 - D. Control infestations
 - E. Baits
 - F. None of the Above
12. If you spray several properties or apartments and intend on doing a lot of baiting you should consider getting the _____. It uses the same Maxforce Gel in smaller cartridges which are loaded in the gun allowing for precise controlled applications and placements.
- A. Maxforce Bait Gun
 - B. Wettable powders
 - C. Dusts
 - D. Oil-based
 - E. Baits
 - F. None of the Above

13. They have been formulated with attractants which roaches cannot resist. You should be able to get complete control in homes, apartments and townhouses without having to do any _____. The advantage of these products is that you are able to apply them with a minimum of preparation.

- A. Spraying
- B. Wettable powders
- C. Dusts
- D. Oil-based
- E. Baits
- F. None of the Above

14. If you are careful, you should be able to apply Maxforce without having to remove anything from cabinets. _____ comes in an aerosol can which enables you to deliver the bait deep in wall voids where the roaches are hiding. The amazing thing about these products is that roaches love them to death.

- A. Spray
- B. Avert
- C. Dusts
- D. Maxforce
- E. Aerosol insecticides
- F. None of the Above

15. In fact, roaches will ignore bait placements that have been made over treated surfaces, so make sure to apply Maxforce or Avert where you are certain _____ has been applied. In general, make your placements about 2 – 3 feet apart.

- A. Spray
- B. Avert
- C. No residual pesticide
- D. Maxforce
- E. Aerosol insecticides
- F. None of the Above

16. In the average cabinet, you will need to make 6-8 placements with Maxforce. Since Maxforce comes out like toothpaste, it is difficult to penetrate voids with it. Use _____ for these hard to penetrate nest sites.

- A. Spray
- B. Avert
- C. Dusts
- D. Maxforce
- E. Aerosol insecticides
- F. None of the Above

17. Avert is a different flavor than _____ and when the two are used together, you will get the quickest results. This is achieved because you are offering the insects a variety of food.

- A. Spray
- B. Avert
- C. Dusts
- D. Maxforce
- E. Aerosol insecticides
- F. None of the Above

18. By having _____, the roaches are more likely to find one of the products. Since roaches will change their diet, having an option ensures they will find one if they don't like the other.

- A. Spray
- B. Avert
- C. Dusts
- D. Maxforce
- E. Aerosol insecticides
- F. None of the Above

Aerosols

19. Aerosol insecticides may or may not have _____.

- A. Spray power
- B. Residual activity
- C. Dusts
- D. Maxforce
- E. Aerosol insecticides strength
- F. None of the Above

20. A non-residual spray alone may not provide a high degree of control, but when used with a _____, a high degree of control can be achieved.

- A. Spray
- B. Avert
- C. Dusts
- D. Residual spray or dust
- E. Aerosol insecticides
- F. None of the Above

21. _____ are useful for determining the location and extent of a cockroach infestation. Small amounts of pesticide applied to hidden areas and shelters force cockroaches to evacuate and move across previously treated surfaces.

- A. Sprays
- B. Avert
- C. Dusts
- D. Non-residual aerosols
- E. Aerosol insecticides
- F. None of the Above

22. Residual aerosols should be used in the same manner as other types of _____.

- A. Sprays
- B. Residual sprays
- C. Dusts
- D. Residual aerosols
- E. Aerosol insecticides
- F. None of the Above

Inorganic insecticides

23. Boric acid and powders of _____ and diatomaceous earth are examples of inorganic insecticides that can be used effectively for cockroach control in homes.

- A. Silica aero gel
- B. Chemicals
- C. Boric acid
- D. Non-residual aerosols
- E. Aerosol insecticides
- F. None of the Above

24. These _____ to humans and pets, and retain their effectiveness long after initial application. Usually, a longer period of time is required to achieve control, but reapplications are greatly reduced.

- A. Silica aero gel is safe
- B. Chemicals
- C. Boric acid is safe
- D. Non-residual aerosols are safe
- E. Chemicals are low in toxicity
- F. None of the Above

25. Apply boric acid, silica aero gel or _____ in a light film to cracks and crevices and other cockroach hiding places. Avoid applications to moist or damp areas, especially when using silica aero gel or diatomaceous earth.

- A. Silica aero gel
- B. Diatomaceous earth
- C. Boric acid
- D. Non-residual aerosols
- E. Aerosol insecticides
- F. None of the Above

26. If cockroaches become established, _____ may be needed in combination with good sanitary practices.

- A. Silica aero gel
- B. Chemical control
- C. Boric acid
- D. Non-residual aerosols
- E. Aerosol insecticides
- F. None of the Above

Insect Growth Regulators

27. Some synthetic _____ mimic natural hormones found in insects. When applied to cockroaches during their early developmental stages, they cause nymphs to molt into sterile adults.

- A. Compounds
- B. Chemicals
- C. Boric acid
- D. Insect growth regulators or (IGRs)
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

28. _____ have low human toxicity, but have long residual effectiveness.

- A. Silica aero gel
- B. Chemicals
- C. Boric acid
- D. Insect growth regulators or (IGRs)
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

29. For best results they must be applied along with residual insecticides to eliminate existing adults or other non-susceptible stages. Over-all population reduction with _____ usually takes several months.

- A. Silica aero gel
- B. Chemicals
- C. Boric acid
- D. Insect growth regulators or (IGRs)
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

Trapping

30. Several types of _____ are commercially available. Traps capture roaches, and are a good monitoring device. While the traps can be useful to reduce light infestations, they do not effectively control heavy cockroach infestations.

- A. Silica aero gel
- B. Chemicals
- C. Boric acid
- D. Insect growth regulators or (IGRs)
- E. Cockroach traps
- F. None of the Above

31. Place _____ against a vertical surface, preferably a corner, where cockroaches are usually found. They are most effective when placed under sinks, in cabinets, near the kitchen stove or refrigerator, in basement corners or near floor drains.

- A. Silica aero gel
- B. Chemicals
- C. Boric acid
- D. Insect growth regulators or (IGRs)
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

Roach Traps

32. Regardless of the treatment method you choose, another tool which can be a great help when treating roach infestations is the _____.

- A. Silica aero gel
- B. Chemicals
- C. Use of Roach Traps
- D. Insect growth regulators or (IGRs)
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

33. These rely on _____ to attract all types of roaches but they work particularly well for German and several of the large roach species.

- A. Silica aero gel
- B. Chemicals
- C. Boric acid
- D. Roach pheromones
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

34. Place them where roaches have been seen. The _____ will attract males ready to reproduce, females in search of nest sights (the odors emitted signal a roach gathering place or nest) and young roaches which are looking for a colony to mix and mingle.

- A. Silica aero gel
- B. Chemical
- C. Pheromones
- D. Insect growth regulators or (IGRs)
- E. Monitoring device(s) or Trap(s)
- F. None of the Above

Life Cycle

35. All roaches have _____ in their life cycle -- egg, nymph (young) and adult.

- A. Ootheca
- B. Imago
- C. Pedipalps
- D. Internode
- E. Three stages
- F. None of the Above

36. 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
- B. Imago
- C. Pedipalps
- D. Internode
- E. Three stages
- F. None of the Above

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

Live Everywhere

38. Cockroaches can be present in almost any _____. They move quickly and are especially active at night.

- A. Home
- B. Inside household goods
- C. Business
- D. Place inhabited by humans
- E. Area
- F. None of the Above

39. 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
- B. Breed in cracks and crevices
- C. Die in cracks and crevices
- D. Molt in cracks and crevices
- E. Hide in cracks and crevices
- F. None of the Above

40. They _____ in food and beverage boxes, grocery sacks, animal food and other household goods.

- A. Cause allergens
- B. Love to eat
- C. Are especially active at night
- D. Reject pesticides
- E. Can be carried into structures
- F. None of the Above

41. 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
- B. Book bindings
- C. Bait Gel
- D. Vegetables
- E. Starchy foods and meat products
- F. None of the Above

42. 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

43. 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

44. All but the _____ cockroach are introduced species to North America.

- A. Asian
- B. American
- C. Madeira
- D. German
- E. Oriental
- F. None of the Above

Damage

45. 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)
- B. Organisms
- C. Repulsive odor
- D. Germs
- E. Pathogen(s)
- F. None of the Above

Allergy

46. 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
- B. Mutations
- C. Allergic reactions
- D. Considerable psychological or emotional distress
- E. Disease
- F. None of the Above

Anxiety

47. The _____ of cockroaches can cause considerable psychological or emotional distress in some individuals.

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

48. Cockroaches usually do not bite, but their heavy leg spines _____.

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

Scientific Classification

49. Cockroaches make up the order Blattodea, which contains _____.

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

50. The American cockroach is _____, and the Oriental cockroach is *Blatta orientalis*, both in the family Blattidae.

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

51. The German cockroach, *Blatella germanica*, the Asian cockroach, _____, and the brownbanded cockroach, *Supella longipalpa*, are in the family Blattellidae.

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

Differences between Africanized and European Bees

52. _____ make large, fairly permanent colonies; Africanized bees make smaller colonies that reproduce (swarm) often. The table outlines some differences between the two bee types.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

53. _____ usually nest in hollow trees or in wall voids of houses.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

54. Africanized bees nest in these places and in unusual places, such as old tires, tin cans, other trash and _____. These types of nest sites increase the chance of human encounters with Africanized bees, especially in urban settings.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Potential Range of Africanized Bees in the United States

55. As Africanized bees expand into temperate areas, their _____ are less advantageous.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Characteristics of the AHB

56. A number of _____ have been identified in the AHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Aggressive Hive Defense and Stinging

57. Although the _____ does not attack unprovoked, it is very defensive of its colony. When compared to the EHB, it is much easier to provoke.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

58. The AHB responds quicker and in larger numbers when its colony is threatened. Once provoked, the AHB remains agitated for a longer period of time than does the _____.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

59. Disturbing an AHB colony may result in 6-10 times as many stings as European bees inflict. This phenomenon is attributed to the _____'s more acute sensitivity and response to the "alarm pheromone," a chemical odor that is released after stinging is initiated.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

Excessive Swarming

60. The _____ will swarm more frequently than the EHB.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

61. Typically, an EHB colony swarms once every year or two; a(n) _____ colony may swarm 4-8 times a year.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

62. Generally, an AHB swarm is much smaller than a(n) _____ swarm; some aren't much larger than a coffee cup.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

63. Swarming reduces the number of bees in a colony, thus reducing the _____, resulting in diminished honey production.

- A. EHB
- B. Killer Bee
- C. AHB
- D. Wasps and similar meat eating bees
- E. Both EHB and AHB
- F. None of the Above

64. Management practices directed at reducing swarming, such as dividing large colonies into smaller colonies and _____ of honey, add costs for beekeepers.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Excessive Abscending

65. While absconding is rare in the EHB, it's rather common with the AHB. Abscending not only results in loss of a managed colony but _____ competing with managed bees for nectar and pollen.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Selection of Nesting Site

66. EHBs are very _____. They prefer hollow trees, wall voids or other cavities (about 10 gallons in size) well above the ground that are clean and dry.

- A. At living anywhere
- B. Good at swarming
- C. Selective
- D. Particular in selecting nesting sites
- E. Excessive Abscending or Absconding
- F. None of the Above

67. The AHB will _____ that is protected from the weather. Selected sites are often much smaller, closer to the ground, and may not be as protected from the elements.

- A. Take days to choose a colony
- B. Take weeks to choose a queen
- C. Nest almost anyplace
- D. Not move anywhere
- E. All of the Above
- F. None of the Above

68. This _____ is thought by some to be due to greater competition resulting from the larger number of AHB swarms.

- A. Adds to the feral population
- B. Nest almost anyplace
- C. Lack of selectivity
- D. Directed at reducing swarming
- E. Excessive Abscending or Absconding
- F. None of the Above

Reproductive Capacity

69. Compared with the EHB, the AHB _____ of its nest to brood production and less to honey storage.

- A. Adds to the feral population
- B. Builds
- C. Chooses
- D. Devotes a greater percentage
- E. Excessive Absconds or Absconded
- F. None of the Above

70. The developmental period of the _____ is shorter than that of the EHB, it's able to produce more bees in less time.
- A. AHB
 - B. EHB
 - C. Feral colonies
 - D. Larvae or Workers
 - E. Queen or Queens
 - F. None of the Above

Number of Feral Colonies

71. In areas where the _____ has become established, a noticeable increase in the number of feral honey bee colonies occurs. This is generally thought to be the result of higher reproductive capacity, increased swarming rate, and tendency to abscond.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Queen or Queens
- F. None of the Above

72. In much of the area where the _____ is now established, feral colonies were extremely rare, probably because the EHBs were not adapted to the tropical climate.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Drones
- E. Queen(s)
- F. None of the Above

73. This marked increase of _____ may not be as great in an area where feral bees are common.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Drones
- E. Queen(s)
- F. None of the Above

Robbing

74. _____ is a type of foraging behavior where bees take honey from other bee colonies. This often occurs when nectar is scarce or unavailable, or when some colonies are weak and others are strong.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

75. _____ weakens colonies and may spread diseases and parasites.

- A. Absconding
- B. Feral colonies
- C. Gathering
- D. Forging
- E. Robbing
- F. None of the Above

Winter Survival

76. Since the _____ is tropical in nature, it may not be able to regulate its body temperature as efficiently as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

77. Studies indicate that the _____ does not form as efficient a cluster during cold weather as the EHB.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Colony Takeover

78. Many researchers have reported that _____ swarms often take over EHB colonies, particularly colonies which do not have functional queens.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

79. _____ swarms will do the same. The importance of such takeovers is questionable.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. All of the Above
- F. None of the Above

Mating Advantage

80. An AHB colony produces more drones than a(n) _____ colony of equal size.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids and All of the Above
- F. None of the Above

81. In areas where the AHB has become established, the _____ queens appear to mate with AHB drones at a much higher frequency than with EHB drones.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

82. Similar behavior in areas where large numbers of _____ colonies are maintained is being studied.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

Identification

83. Identifying the different races of honey bees and their _____ is very difficult.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

84. The _____ differ only slightly and overlap considerably among individuals.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

85. _____ is not only difficult but time-consuming and expensive.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

86. Rapid and _____ of AHB and EHB strains is very important for monitoring the presence and spread of bees through an area.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Accurate identification
- E. Characteristics used for identification
- F. None of the Above

87. Several techniques have been used to identify _____, though none are 100 percent effective.

- A. AHB
- B. EHB
- C. Feral colonies
- D. Workers
- E. Hybrids
- F. None of the Above

88. _____: This technique utilizes precise measurements of specific body parts. Computer-assisted measurements are made of 25 characters on 10 bees.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

89. _____ An average is determined and used to distinguish the EHB from the AHB. Variations of this technique include the Fast Africanized Bee Identification System (FABIS), in which only three characters are measured.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

90. _____ The FABIS II technique uses seven measurements.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

91. _____: The ELISA procedure for identifying the AHB uses electrophoresis and isoelectric focusing to identify specific proteins unique to the AHB. About 90 percent of all AHB contain at least one of these proteins. A sample of three bees can provide an accuracy of 99.9 percent.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

92. _____: DNA contains the molecular code for genetically inherited characters. Bee DNA can be extracted and used to identify the AHB.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

93. _____: Other techniques for identifying different strains of the honey bee include cuticular hydrocarbons, flow cytometry, and the use of a portable audiometer.

- A. Other Sources
- B. Morphometrics
- C. DNA Analysis
- D. ELISA Procedure for AHB Proteins
- E. Characteristics used for identification
- F. None of the Above

What is Killing Honeybees?

94. The honeybees may have been especially vulnerable to the _____ epidemic.

- A. Varroa
- B. Mites
- C. Wasps
- D. Parasites
- E. Secondary Pesticide Targeting
- F. None of the Above

95. When the honeybee _____ was sequenced a few years ago, researchers discovered fewer immune-system genes than you'd find in other insects.
- A. Genome D. Parasites
 B. Varroa E. Mites
 C. Larva F. None of the Above
96. This is despite the fact that the honeybee lives in _____, anywhere between 15,000 and 30,000 of them crammed into a hive the size of a filing cabinet.
- A. Genome D. Mites
 B. Parasites E. Cracks
 C. Varroa F. None of the Above
97. To make matters worse, a weakened hive often becomes the target of honey-raiders from healthier colonies, which only helps the _____ to spread.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above
98. It's possible that if the American honeybees had been left to their own devices, they would have died off in epic numbers and then evolved natural defenses against _____ (like more effective grooming), as they did in Asia.
- A. Varroa D. Parasites
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above

Biology of Varroa Mites

99. The Varroa mite (*Varroa jacobsoni*) is an external _____ of honey bees. It was first discovered in the U.S. in 1987.
- A. Varroa D. Parasite
 B. Mites E. Secondary Pesticide Targeting
 C. Wasps F. None of the Above
100. The Varroa _____ is a small, red brown mite measuring approximately 1 - 1.5 millimeters in length and width.
- A. Varroa D. Parasites
 B. Mite E. Gene
 C. Larva F. None of the Above

Mosquito Section

101. Inflammation of the brain, which can be caused by numerous viruses, including West Nile Virus endemic the normal presence of a disease or infectious agent among human beings within a geographic area.
- A. Enzootic D. Epizootic
 B. Encephalitis E. Flavivirus
 C. Endemic F. None of the Above
102. A disease naturally present in certain human or animal populations.
- A. Enzootic D. Epizootic
 B. Encephalitis E. Inflammation
 C. Endemic F. None of the Above
103. A disease naturally present in certain animal populations (sometimes used in contrast with "endemic").
- A. Enzootic D. Epizootic
 B. Encephalitis E. Inflammation
 C. Endemic F. None of the Above

104. A disease outbreak affecting certain human or animal populations.
 A. Enzootic D. Epizootic
 B. Encephalitis E. Inflammation
 C. Endemic F. None of the Above
105. A disease outbreak affecting certain animal populations (sometimes used in contrast with "epidemic").
 A. Enzootic D. Epizootic
 B. Encephalitis E. Inflammation
 C. Endemic F. None of the Above
106. Agents biologic organism or chemical material that cause disease.
 A. Enzootic D. Epizootic
 B. Encephalitis E. Etiologic
 C. Endemic F. None of the Above
107. A subset of arboviruses (transmitted by arthropods); this family of viruses includes West Nile Virus, St. Louis Encephalitis and several others.
 A. Flavivirus D. Intermediate Host
 B. Gravid Traps E. IPM
 C. Host F. None of the Above
108. Type of mosquito traps designed to attract pregnant female mosquitoes
 A. Flavivirus D. Intermediate Host
 B. Gravid Traps E. IPM
 C. Host F. None of the Above
109. A living organism that serves as a blood source for blood-feeding arthropods, or on which a parasite lives.
 A. Flavivirus D. Intermediate Host
 B. Gravid Traps E. IPM
 C. Host F. None of the Above
110. The arthropod carrier of a parasitic organism.
 A. Flavivirus D. Intermediate Host
 B. Gravid Traps E. IPM
 C. Host F. None of the Above
111. A system for minimizing the impact of vectors and pests by using a variety of control procedures, and decreasing the chemical input to the environment.
 A. Flavivirus D. Intermediate Host
 B. Gravid Traps E. IPM
 C. Host F. None of the Above
112. Immature mosquitoes; stage which hatches from the egg, prior to adult stage.
 A. Larvae D. Larvicide
 B. Autochthonous E. Alante
 C. Adulticide F. None of the Above
113. A type of pesticide used to eradicate immature mosquitoes (larvae).
 A. Larvae D. Larvicide
 B. Autochthonous E. Alante
 C. Adulticide F. None of the Above

114. A type of pesticide used to kill adult mosquitoes.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

115. Native to a place; not imported; used to describe a disease transmitted by vectors that became infected from a local source.

- A. Larvae
- B. Autochthonous
- C. Adulticide
- D. Larvicide
- E. Alante
- F. None of the Above

116. A type of larvicide; chemical that is used to prevent mosquito larvae from emerging and developing into adult mosquitoes.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

117. An insecticide made of bacteria whose infection kills insects; a substance produced by bacteria that is lethal to insects.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

118. A location where mosquitoes lay eggs, usually in stagnant water with organic material.

- A. Larvae
- B. Ponds
- C. Lakes
- D. Tree holes
- E. Rafts
- F. None of the Above

119. Brand name of methoprene, a type of larvicide.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

120. A bacterium; type of biological pesticide used to eradicate mosquito larvae in water.

Mosquito larvae die after ingesting this bacteria.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Bacillus Sphaericus
- E. Microbial insecticide
- F. None of the Above

121. Blood serum collected from patients recently recovered from a disease, often used to test whether a person has had a specific infection.

- A. Methoprene
- B. Altosid
- C. Suspend SC
- D. Convalescent Blood Sera
- E. Microbial insecticide
- F. None of the Above

122. A virus whose life cycle includes transmission by arthropods.

- A. Aseptic Meningitis
- B. Mosquito Pools
- C. Arthropod
- D. Arbovirus
- E. Spinal Meningitis
- F. None of the Above

123. An invertebrate animal with jointed legs and a segmented body (includes flies, mosquitoes, ticks; also centipedes, scorpions, spiders etc.)

- A. Termite
- B. Mosquito
- C. Spider
- D. Arthropod
- E. Flying insects
- F. None of the Above

124. Inflammation of the lining of the brain and spinal cord, not due to a bacterial infection.

- A. Aseptic Meningitis
- B. Mosquito fever
- C. Arthropod hives
- D. Arbovirus
- E. Spinal Meningitis
- F. None of the Above

125. A group of mosquitoes collected in one area and combined at the laboratory for testing for the presence of West Nile and related viruses.

- A. Raft
- B. Mosquito Pools
- C. Nest
- D. Arthropod Nesting
- E. Flock
- F. None of the Above

126. This chemical name **N,N-diethyl-meta-toluamide**, is the active ingredient in many insect repellent products.

- A. Malathion
- B. Naled
- C. Dursban
- D. DEET
- E. Suspend
- F. None of the Above

127. Autopsy on an animal.

- A. Aseptic
- B. Necropsy
- C. Neurology
- D. Arbovirus
- E. Autopsy
- F. None of the Above

128. The study of the nervous system and its disorders.

- A. Research
- B. Emboli
- C. Erotology
- D. Nervous study
- E. Neurology
- F. None of the Above

129. The jointed feelers on each side of the mouth of some arthropods.

- A. Craw
- B. Palpi
- C. Tabs
- D. Outbreak
- E. Neurology
- F. None of the Above

130. Substance used to kill pests such as insects, mice and rats; insecticide is a form of pesticide.

- A. Toxins
- B. Dusts
- C. Sprays
- D. Pesticide
- E. All of the Above
- F. None of the Above

131. Blood Drawing

- A. Phlebotomy
- B. Tax collectors
- C. Politicians
- D. Vampire
- E. Ticks
- F. None of the Above

132. An unexpected increase in frequency or distribution of a disease.

- A. Epidemic
- B. Dance fever
- C. Fever
- D. Outbreak
- E. Spreading
- F. None of the Above

133. A period of rest or hibernation by which insects survive the winter

- A. Sleep
- B. Suspension
- C. Overwintering
- D. Siesta
- E. Both A and D
- F. None of the Above

134. The straw-like sucking mouthparts of some blood feeding arthropods.
 A. Proboscis D. Vactoube
 B. Resmethrin E. Tube
 C. Spike F. None of the Above
135. Brand name for larvicide *Bacillus thuringiensis* var. *israelensis* (BTI).
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
136. Brand name for larvicide *Bacillus sphaericus*.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
137. A synthetic pyrethroid pesticide used to eradicate adult mosquitoes in the home, lawn, garden and at industrial sites; active ingredient in the product **Scourge**.
 A. Vectolex D. Vectobac
 B. Resmethrin E. Scourge
 C. Rickettsia F. None of the Above
138. A group of small bacteria that live inside tissue cells, and are carried by ticks, mites, fleas or lice.
 A. Vectolex D. Bacilli
 B. Resmethrin E. Germs
 C. Rickettsia F. None of the Above
139. A method of insecticide distribution in which a small portion of the compound is fragmented into extremely fine particles for aerial dispersal.
 A. Dusting D. Spray
 B. Drift E. ULV
 C. Fire F. None of the Above
140. An arthropod carrier of a disease producing organism. Usually used when part of the organism's natural life cycle takes place in the arthropod (= intermediate host).
 A. Vector-borne disease D. Vector control
 B. Vector E. Vector Control Mechanism
 C. Host F. None of the Above
141. Management of organisms that carry disease.
 A. Vector-borne disease D. Vector control
 B. Vector E. Vector Control Mechanism
 C. Host F. None of the Above
142. Instituted to control and reduce the vector population.
 A. Vector-borne disease D. Vector control
 B. Vector E. Vector Control Mechanism
 C. Host F. None of the Above
143. Monitoring of the vector population for presence of a disease.
 A. Vector-borne disease D. Vector Surveillance
 B. Vector E. Vector Control Mechanism
 C. Host F. None of the Above

144. A disease carried by arthropod intermediate hosts.

- A. Vector-borne disease
- B. Vector
- C. Host
- D. Vector control
- E. Vector Control Mechanism
- F. None of the Above

145. Of or relating to a virus.

- A. Viral Encephalitis
- B. Zoonosis
- C. Viral
- D. Death
- E. Virus
- F. None of the Above

146. Inflammation of the brain caused by a virus.

- A. Viral Encephalitis
- B. Fever
- C. Viral
- D. Death
- E. Bad headache
- F. None of the Above

147. A disease of animals that may be secondarily transmitted to man.

- A. Encephalitis
- B. Zoonosis
- C. Viral
- D. VD
- E. Herpes
- F. None of the Above

148. Areas of vegetation in bodies of salt water that may support the breeding of certain types of mosquitoes such as *Aedes sollicitans*.

- A. Swamps
- B. Lakes
- C. Rivers
- D. Salt Marsh
- E. All of the Above
- F. None of the Above

149. The testing of birds and other animals as an early warning system for the presence of virus (e.g. sentinel chickens).

- A. AIMS
- B. Bac-T
- C. Driving
- D. Pass or Fail
- E. Sentinel 'Guard'
- F. None of the Above

150. This means of, or relating to serum.

- A. Serologic
- B. Syrup
- C. Viral
- D. Anti-serum
- E. Antibodies
- F. None of the Above

WHAT EMPLOYERS MUST DO FOR BOTH WORKERS AND HANDLERS

151. Some _____ protections that employers must provide are nearly the same whether the employees are workers or handlers.

- A. Worker Protection Standard or WPS
- B. Restricted-entry intervals or REIs
- C. Pesticide-related ordinances
- D. EPA registration number
- E. Personal
- F. None of the Above

What Information Must Be Displayed?

152. The following three types of information must be displayed at a central location before a pesticide is applied: Pesticide-specific application information, which must include: the location and description of the area to be treated, product name, _____, and active ingredient(s) of the pesticide, time and date the pesticide is scheduled to be applied, and restricted-entry interval for the pesticide.

- A. Worker Protection Standard or WPS
- B. Pesticide-related ordinances
- C. EPA registration number
- D. Restricted-entry intervals or REIs
- E. Personal
- F. None of the Above

153. _____, which must include the name, telephone number and address of the nearest emergency medical facility.

- A. Worker Protection Standard or WPS
- B. Restricted-entry intervals or REIs
- C. Emergency information
- D. EPA registration number
- E. Agricultural Use Requirements
- F. None of the Above

154. A pesticide safety poster, which must be either the _____ safety poster developed by EPA or an equivalent poster that contains the concepts listed in Criteria for Pesticide Safety Poster.

- A. Worker
- B. Restricted-entry intervals or REIs
- C. Pesticide-related ordinances
- D. Worker Protection Standard or WPS
- E. EPA registration Requirements
- F. None of the Above

Where Must the Information Be Displayed?

155. Display the required information together in a central location on your agricultural establishment where it is readily accessible and can be easily seen and read by _____.

- A. Worker Protection Standard or WPS
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Workers or handlers
- E. EPA registration Requirements
- F. None of the Above

Timing of Displaying Application Information

156. If _____ are on your establishment at the start of an application, display the required pesticide-specific information before the application takes place.

- A. EPA registration number
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

157. If _____ are not on your establishment at the start of an application, display pesticide-specific information no later than the beginning of their first work period.

- A. Workers or handlers
- B. Appropriately trained Workers
- C. Nursery workers
- D. Only handlers
- E. EPA registration Requirements
- F. None of the Above

158. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the restricted-entry interval expires.

- A. Appropriately trained Workers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

159. Continue to display pesticide-specific information when _____ are on your establishment until at least 30 days after the end of the application, if there is no restricted-entry interval for the pesticide.

- A. Workers or handlers
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Supervisors
- F. None of the Above

Other Responsibilities

160. Inform _____ where the information is located.

- A. Supervisors
- B. Appropriately trained and equipped handlers
- C. Nursery workers
- D. Only handlers
- E. Workers or handlers
- F. None of the Above

Posted Warning Signs

170. Post legible 14" x 16" WPS-design signs just before application; keep posted during REI; remove _____ and within 3 days after the end of the REI.

- A. Posters
- B. Before workers enter
- C. After orally warning workers
- D. Just before application
- E. All of the Above
- F. None of the Above

171. Post signs _____ at all entrances to treated areas, including entrances from labor camps.

- A. Provided to handlers
- B. And then enter the establishment
- C. And then orally warn workers
- D. Just before application
- E. So they can be seen
- F. None of the Above

Oral Warnings

172. Before each application, _____ who are on the establishment (in a manner they can understand): location and description of treated area, REI, and not to enter during REI.

- A. Provide to handlers
- B. Tell workers
- C. Orally warn workers with signage
- D. Just before application tell employees
- E. So they can be seen
- F. None of the Above

173. Workers who enter the establishment after application starts _____ at the start of their work period.

- A. Must be provided to handlers
- B. Must carefully enter the establishment
- C. Just before application
- D. Tell employees
- E. Must receive the same warning
- F. None of the Above

DECONTAMINATION SUPPLIES BASIC RESPONSIBILITIES

174. Handler employers _____ for washing off pesticides and pesticide residues are provided to handlers while they are doing handling tasks.

- A. Must inform the workers to wash
- B. Enter the establishment
- C. Must orally warn workers
- D. Must make sure that decontamination supplies
- E. Must receive the same warning
- F. None of the Above

175. Worker employers must make sure that decontamination supplies for washing off pesticide residues are provided to workers who are working in a (n) _____ and are doing tasks that involve contact with anything that has been treated with the pesticide, including soil, water, or surfaces of plants.

- A. Located together
- B. Pesticide-treated area
- C. Guidelines
- D. Nearest point
- E. Safe Zone
- F. None of the Above

SPECIFIC DUTIES

176. For workers, until 30 days after the end of any _____ for that area. If there is no restricted-entry interval, until 30 days after the end of any application in that area.

- A. Located together
- B. Restricted-entry interval
- C. Guidelines
- D. Nearest point
- E. Safe Zone
- F. None of the Above

Exception

177. When the only pesticides used in the treated area are products with a restricted-entry interval of 4 hours or less, the decontamination supplies must be provided until 7 days after the end of the _____.

- A. Located together
- B. Safe Zone
- C. Guidelines
- D. Nearest point
- E. Restricted-entry interval
- F. None of the Above

178. When products have no _____ listed on the label, the decontamination supplies must be provided until 30 days after the end of any application in that area.

- A. MSDS
- B. Guidelines
- C. Nearest point
- D. Restricted-entry interval
- E. Decontamination supply requirements
- F. None of the Above

179. For early-entry workers who will contact anything that has been treated with the pesticide, the _____ are different.

- A. Rules
- B. Restricted-entry interval
- C. Decontamination supply requirements
- D. Nearest point
- E. All of the Above
- F. None of the Above

180. Pilot's fresh air supply--Filtered air for the pilot to breathe is necessary because it is nearly impossible for the pilot to avoid flying back through some of the _____ passes. If a filtered-air helmet is not available, the pilot should at least wear an approved respirator.

- A. ULV
- B. Agricultural flying
- C. Oils
- D. Swath of previous flight
- E. Over spray
- F. None of the Above

181. Fuselage features--Enclosed fuselages should be fitted with cleanout panels for the regular removal of _____. Spray pumps, filters, and control valves should be easily accessible for maintenance and repair.

- A. Corrosive sprays and dusts
- B. Cleanout panels
- C. Oils
- D. Adjuvants
- E. All of the Above
- F. None of the Above

182. Maintenance--The seasonal use of agricultural aircraft might suggest a pattern of inspection and repair during the _____.

- A. Crop spraying season
- B. Agricultural flying period
- C. Maintenance period
- D. Idle, off-season periods
- E. All of the Above
- F. None of the Above

183. The critical demands of _____ call for all the regular maintenance checks at all required intervals to ensure that the aircraft is in first class order at all times.

- A. Rotary wing aircraft
- B. Agricultural aircraft
- C. Crop spraying season
- D. Maintenance and repair
- E. Agricultural flying
- F. None of the Above

184. Two of the more important advantages of fixed wing aircraft are a _____ and a large payload capacity per dollar invested. Maneuverability is adequate, though not equal to the Rotary wing aircraft.

- A. Not a factor
- B. Low overhead
- C. Agricultural flying
- D. Maintenance and repair
- E. High speed of application
- F. None of the Above

185. One of the limitations of _____ equipment is the necessity of a designated landing area, which may not always be in close proximity to the application area.

- A. Fixed wing
- B. Agricultural aircraft
- C. Agricultural flying
- D. Rotary wing
- E. All of the Above
- F. None of the Above

186. Rotary wing aircraft offers the advantages of extreme maneuverability and speed variation, and may be operated in almost _____. Pilots of these crafts must also be competent, alert, and have knowledge of the area and the limitations of their crafts.

- A. Weather
- B. Agricultural application
- C. Agricultural setting
- D. Agricultural flying
- E. Any local area
- F. None of the Above

187. Rotary wing flying puts a special demand on the pilot to perform _____, hovering and landing, since this type aircraft is more expensive to operate per unit of flying time than fixed wing aircraft.

- A. Agricultural flying
- B. Agricultural crop dusting
- C. Fueling
- D. Agricultural setting
- E. Application with minimum time loss in turns
- F. None of the Above

188. _____, or additive compounds, aid in the mixing, application or effectiveness of pesticides.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

189. One class of _____, compatibility agents, allow uniform mixing of compounds that would normally separate.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

190. Other types of adjuvants include spreaders, stickers, and _____. There are nearly as many adjuvants as there are pesticides, and they provide a choice for every need.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

191. Some adjuvants are added during pesticide manufacture and are, thus, part of the _____.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

192. Other adjuvants are added just before application. To decide when to use an adjuvant, READ THE LABEL. It will state when a particular _____ is needed, whether or not one should be added or when one is already present.

- A. Adjuvant
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

193. _____ assist application or pesticide activity without being toxic to pests. However, many of these chemicals can present hazards to the applicators.

- A. Oils
- B. Surfactants
- C. Synergists
- D. Adjuvants
- E. Surface active agents
- F. None of the Above

194. Many, but not all, adjuvants function as surfactants, or _____.

- A. Adjuvants
- B. Surfactants
- C. Synergists
- D. Surface active agents
- E. All of the Above
- F. None of the Above

204. _____ should be performed by professional pest control operators (PCOs), that is right!

- A. Mechanical alterations
- B. Contact treatment
- C. Distribution of insecticide
- D. Termite treatment(s)
- E. All of the Above
- F. None of the Above

205. _____ requires special tools such as hammer drills, sub-slab injectors, rodding devices, high pressure pumps, a power supply, protective equipment.

- A. Mechanical alterations
- B. Contact treatments
- C. Distribution of insecticide
- D. Termite treatment(s)
- E. B and D
- F. None of the Above

Caution

206. Do not apply insecticides when soil is frozen or water-soaked (saturated). Frozen or saturated soil will not permit _____ for even distribution of insecticide.

- A. Mechanical alterations
- B. Adequate absorption
- C. Distribution of insecticide
- D. Termite treatment(s)
- E. All of the Above
- F. None of the Above

207. Do not permit humans and pets to _____ surfaces until dry.

- A. Walk on
- B. Contact treated
- C. Distribute of insecticide
- D. Adsorption
- E. All of the Above
- F. None of the Above

208. Before _____ for termite control, always read, understand and follow all label directions.

- A. Applying mechanical alterations
- B. Using insecticides
- C. Distribution of insecticide
- D. Applying termite treatment(s)
- E. All of the Above except A
- F. None of the Above

209. Keep all _____, out of reach of children and do not contaminate food, feed and water.

- A. Mechanical alterations
- B. Distribution of insecticide
- C. A and B
- D. Pesticides in original containers
- E. Termite treatment(s)
- F. None of the Above

Pre-Construction Treatment

210. Horizontal Barriers: In general, treat the footing trench with _____ before pouring cement footings.

- A. Diluted insecticide
- B. Insecticide
- C. A and D
- D. Establishing a chemical barrier
- E. Penetrating spray
- F. None of the Above

211. After grading is completed, _____ to areas before pouring slab floors, slab-supported porches, patios, carports, and entrance platforms at the rate of 1 gallon per 10 square feet.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. A and D
- D. Establish a chemical barrier
- E. Penetrating spray
- F. None of the Above

212. Vertical Barriers: _____ in areas such as around the bases of foundations, plumbing, utility entrances, and backfilled soil against foundation walls.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Penetrating spray
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

213. Treat crawl space areas either by _____.

- A. Applying diluted insecticide
- B. Applying insecticides
- C. Rodding or trenching procedures
- D. Establishing a chemical barrier
- E. All but C
- F. None of the Above

214. To _____ in soil, apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. After treatment, cover the crawl space area with a layer of untreated soil or polyethylene sheeting.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Produce a vertical barrier
- E. All of the Above
- F. None of the Above

Post-Construction Treatment

215. Do not _____ until locations of radiant heat pipes, water pipes, sewer lines, and electrical conduits are identified.

- A. Apply diluted insecticide
- B. Apply insecticides
- C. Rod or trench
- D. Establish a chemical barrier
- E. All of the Above
- F. None of the Above

216. Buildings requiring treatment generally fall into three categories: a) building on slab construction, b) building with crawl space, and c) building with a basement. There is a common belief that termites _____ slab foundations.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

217. Termites _____ solid concrete but they can enter through cracks as small as 1/64 of an inch.

- A. Will not eat
- B. Will not crawl on to
- C. Cannot destroy
- D. Cannot penetrate
- E. All of the Above
- F. None of the Above

Building on Slab

218. _____ in a building on a slab is especially difficult and hazardous. In this type of construction, heat ducts (pipes) are buried in the concrete and serious damage can occur when they are accidentally drilled for holes to inject insecticide solutions.

- A. Injecting insecticide
- B. Drilling
- C. Controlling termite infestation
- D. Broadcast insecticide spraying
- E. None of the Above

219. Treat the exterior of the foundation by _____ about 6 inches wide along the outside of the foundation.

- A. Injecting the insecticide
- B. Drilling
- C. Digging a narrow and shallow trench
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

220. _____ to the trench and soil at the rate of 4 gallons per 10 linear feet.

- A. Inject insecticide or Injecting the insecticide
- B. Drilling
- C. Applying the diluted insecticide
- D. Broadcast insecticide spraying
- E. All of the Above
- F. None of the Above

221. _____ with a thin layer of untreated soil. For an inside barrier, drill slab and space holes about 1 foot apart and 6 inches from the wall.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Cover treated soil in the trench
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

222. Using a subslab injector, inject insecticide through holes at the rate of 4 gallons per 10 linear feet. After application, _____ with mortar or any other special compound.

- A. Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Plug all holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Applications

223. Building with a Basement and Crawl Space

Basement: For an interior vertical barrier, _____ and space holes about one foot apart.

- A. Inject insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. A and B
- F. None of the Above

224. _____ may be required along the foundation walls, along one side of partition walls, along both sides of load-bearing wall, around sewer pipes, floor drains, conduits, and any crack in the basement floor.

- A. Inject insecticide
- B. Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above except D
- F. None of the Above

225. Using a sub-slab injector, _____ at the rate of 4 gallons per 10 linear feet. For an insecticide barrier around the exterior of foundation walls, apply an insecticide by rodding and/or trenching.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

226. The rod holes should be spaced 1 to 1 1/2 feet apart to _____ barrier. If a trench is necessary, it should not be wider than 6 inches.

- A. Inject insecticide or Inject the insecticide
- B. Provide a continuous chemical
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

227. _____ using rodding technique at the rate of 4 gallons per 10 linear feet. Cover the trench with untreated soil.

- A. Inject insecticide or Inject the insecticide
- B. Drill the floor slab or Drilling
- C. Space rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Crawl Spaces

228. _____ by rodding and/or trenching procedures. A shallow trench should not be wider than 6 inches.

- A. Inject insecticide
- B. Establish vertical barriers
- C. Drill and rod holes
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

229. _____ about 1 to 1 1/2 feet apart. Apply insecticide at the rate of 4 gallons per 10 linear feet per foot of depth.

- A. Inject the insecticide
- B. Space rod holes
- C. B and D
- D. Drill the floor slab or Drilling
- E. Broadcast insecticide spray
- F. None of the Above

230. Do not treat soil in crawl space area with a(n) _____.

- A. Insecticide
- B. Fungicide
- C. Pesticide
- D. Broadcast insecticide spray
- E. All of the Above
- F. None of the Above

Hollow Masonry Units of the Foundation Walls

231. Treat through _____ to provide a continuous chemical barrier at the top of the footing.

- A. Masonry voids
- B. Debris
- C. All holes
- D. Such situations
- E. All but D
- F. None of the Above

232. When treatment is necessary, access holes must be drilled through _____ below the sill plate, as close as possible to the footing.

- A. Mortar joints
- B. Other debris
- C. All holes
- D. Such situations
- E. C and D
- F. None of the Above

233. Apply insecticide at the rate of 2 gallons per 10 linear feet. Plug _____ with mortar or any other special compound.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above except C
- F. None of the Above

Bath Traps

234. Soil may require insecticide treatment if it is exposed beneath and around plumbing/waste pipe entrances through a _____.

- A. Masonry voids
- B. Other debris
- C. Concrete slab
- D. Such situations
- E. B and C
- F. None of the Above

235. Remove _____ or excavated soil and treat the soil by rodding or flooding with an insecticide solution.

- A. Masonry voids
- B. Any wood
- C. A and B
- D. Other debris
- E. Such situations
- F. None of the Above

236. Treatment Near Ponds, Wells, Cisterns, and Faulty _____, Around Pipes or Utility Lines Insecticide applications through rodding is discouraged in excavated soil.

- A. Masonry voids
- B. Other debris
- C. All holes
- D. Foundation walls
- E. All of the Above
- F. None of the Above

237. The suggested procedure is to make a trench and remove the excavated _____ or similar material.

- A. Soil sheeting
- B. Other debris
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

238. Treat the _____ with insecticide at the rate of 4 gallons per 10 linear feet per foot of depth. Mix the soil with insecticide and replace it in the trench.

- A. Masonry voids
- B. Excavated soil
- C. All holes
- D. Such situations
- E. All of the Above
- F. None of the Above

239. Cover the _____ with a thin layer of untreated soil. In the case of wells, ponds, and cisterns, if a rodding technique is necessary, the distance between the treated area and the water source should be 50 feet or more.

- A. Masonry voids
- B. Treated soil
- C. All holes
- D. Broadcast insecticide spraying
- E. B and C
- F. None of the Above

240. Wood Treatment In addition to soil treatment, it may be necessary to treat infested wood with insecticide spray or injection. Applications are made to inaccessible areas by drilling and then _____.

- A. Crack and crevice injector
- B. Broadcast spray
- C. Prevention
- D. Injecting the insecticide solution
- E. All of the Above
- F. None of the Above

241. _____ must be limited to wood in attics, crawl spaces and unfinished basements or similar unoccupied areas.
- A. Crack and crevice injector
 - B. Broadcast spray
 - C. Prevention
 - D. Graded or sloped away
 - E. B and C
 - F. None of the Above

242. Treatment of Secondary Subterranean Termite Colony Apply insecticide to infested wood and void spaces with a _____.
- A. Crack and crevice injector
 - B. Broadcast spray
 - C. Prevention
 - D. Graded or sloped away
 - E. All of the Above
 - F. None of the Above

Prevention

243. Preventive practices are a(n) _____.
- A. Form of crack and crevice injector
 - B. Critical aspect of termite management
 - C. A and B only
 - D. Form of broadcast spraying
 - E. Graded or sloped away
 - F. None of the Above

244. _____ of subterranean termite infestation of wooden structures centers upon disrupting their ability to locate moisture, food (wood), and shelter.
- A. Crack and crevice injecting
 - B. Broadcast spraying
 - C. Prevention
 - D. Grading or sloping away
 - E. All of the Above
 - F. None of the Above

245. Avoid moisture accumulation near the foundation, which provides water _____.
- A. And this is a bad sign
 - B. For Nursery
 - C. Needed for termite survival
 - D. And needs to be sloped away
 - E. All of the Above
 - F. None of the Above

246. Divert water _____ with properly functioning downspouts, gutters, and splash blocks.
- A. To sewer
 - B. After broadcast spraying
 - C. Quickly
 - D. Away from the foundation
 - E. A and C
 - F. None of the Above

247. Soil needs to be _____ away from the foundation in order for surface water to drain away from the building.
- A. Sprayed
 - B. Drained
 - C. Prevented
 - D. Graded or sloped away
 - E. A and C
 - F. None of the Above

Soil Barrier Termiticides

248. _____ rely on creating a chemical barrier in the soil that is toxic to termites when they come into contact with it.
- A. Effective termite control
 - B. Repellent characteristics
 - C. Conventional soil treatments
 - D. Such treatments during preconstruction
 - E. All of the Above except B
 - F. None of the Above

249. Many also have _____ which causes the termites to avoid treated soil. To achieve termite control for long periods of time, such termiticides must be applied as a continuous barrier in the soil next to and under the foundation. If there are untreated gaps in the soil, termites may circumvent the chemical treatment.
- A. Effective termite control
 - B. Repellent characteristics
 - C. Conventional soil treatments
 - D. Dangers
 - E. All of the Above
 - F. None of the Above

250. Such treatments during preconstruction can provide for more _____. Once a home is constructed, the chemical has to be injected through drill holes and trenching around the foundation, which can result in less accurate coverage.

- A. Effective termite control
- B. Repellent characteristics
- C. Conventional soil treatments
- D. Uniform coverage
- E. All of the Above
- F. None of the Above

You are finished with your assignment, please fax or e-mail a copy of your driver's license and the Answer Key and Registration form. Always call us the next day to ensure we received all your information.

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