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CATEGORY A – PESTICIDE APPLICATIONS AND SAFETY

PRACTICE QUESTIONS

1. When wall voids and dead spaces must be treated from small openings, the most effective formulation to use would be:
 - A. Liquid residual spray.
 - B. Granules.
 - C. Wettable powder.
 - D. Dust.

2. The amount of drift increases as:
 - A. Nozzle size increases.
 - B. Droplet or particle size increases.
 - C. Wind speed increases.
 - D. Sprayer pressure decreases.

3. You are calibrating a sprayer. You find that your sprayer is putting out 2 gallons per minute of spray, and that it takes 20 minutes for you to spray an acre of land. How much spray per acre is your sprayer putting out?
 - A. 0.1 gallons per acre.
 - B. 10 gallons per acre.
 - C. 40 gallons per acre.
 - D. 160 gallons per acre.

4. You know that a tank full of pesticide will cover 5 acres of land. You wish to apply a pesticide at a rate of 4 pints per acre. How many pints of pesticide should be placed in the tank?
 - A. 0.80 pints.
 - B. 1.25 pints.
 - C. 10 pints.
 - D. 20 pints.

5. To clean a clogged nozzle, use:
 - A. Water or detergent and a soft brush.
 - B. A steel bristle brush.
 - C. A needle or pin.
 - D. Your mouth to blow it clear.

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6. Dusters should be cleaned periodically and emptied of their contents when stored because most insecticidal dusts:
 - A. Attract moisture, causing caking problems.
 - B. Breakdown quickly in storage.
 - C. Are highly corrosive, damaging the equipment.
 - D. Rapidly dry out, losing their effectiveness.

7. You wish to spray weeds at a dosage rate of 5 pounds of weed killer in 100 gallons of water per acre. How much weed killer will you need to spray 10 acres?
 - A. 2 pounds.
 - B. 5 pounds.
 - C. 50 pounds.
 - D. 500 pounds.

8. You can increase the application rate by decreasing the:
 - A. Pressure.
 - B. Tank capacity.
 - C. Ground speed.
 - D. Size of the nozzle orifice.

9. The adjustment of application equipment to apply a pesticide formulation at a desired application rate is called:
 - A. Dilution.
 - B. Formulation.
 - C. Preventive maintenance.
 - D. Calibration.

10. The best method of making major changes in the output rate of sprayers is to change the:
 - A. Pressure.
 - B. Ground speed.
 - C. Nozzle size.
 - D. Viscosity of the spray formulation.

11. If your sprayer's output rate is 4 gallons per minute and you treat 2000 square feet per minute, then your application rate is:
 - A. 1 gallon per 8000 square feet.
 - B. 2 gallons per 1000 square feet.
 - C. 4 gallons per 1000 square feet.
 - D. 8 gallons per 1000 square feet.

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12. The directions on an emulsifiable concentrate insecticide label say “Apply spray containing 10 tablespoons per gallons of water at a rate of 1 gallon to 1000 square feet.” How much spray should you mix to apply to an area that is 50 feet long and 30 feet wide?
- A. ½ gallon.
 - B. 1 gallon.
 - C. 1.5 gallons.
 - D. 3 gallons.
13. In the example above, how much concentrate should you use if you have to make 2 gallons of finished spray? Hint: 2 tablespoons (Tbs) = 1 fluid ounce (fl oz).
- A. 10 fl oz.
 - B. 10 Tbs.
 - C. 5 fl oz.
 - D. 15 Tbs.
14. A vehicle traveling at a rate of 12 miles per hour will travel how many feet in 30 seconds?
- A. 123 feet.
 - B. 528 feet.
 - C. 729 feet.
 - D. 450 feet.
15. Biological control means:
- A. The control of a pest by another organism.
 - B. The use of insect growth regulators.
 - C. The use botanical pesticides.
 - D. The use of any pesticides that are not synthetic.
16. Which of these LD₅₀ values represent the most toxic pesticides?
- A. 585 mg/kg
 - B. 320 mg/kg
 - C. 27 mg/kg
 - D. 6200 mg/kg
17. Systemic toxicants are:
- A. Now banned by EPA.
 - B. Used for both plants and animal pests.
 - C. All inert gases of some form.
 - D. Taken up only by the nervous system.

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18. Selective herbicides:
- A. Are completely safe, because they act only on the target pest species.
 - B. Are completely safe only if there has been no rain during the past 6 hours.
 - C. Should never be used along rights-of-way.
 - D. If misused, can kill desirable plants as well as targeted species.
19. Wettable powders are:
- A. Materials to which an emulsifying agent has been added.
 - B. Are powders that can withstand washing off after application.
 - C. Are finely ground powders.
 - D. Are powders which do not need agitation after wash has been added.
20. Granules:
- A. Always consist of pure pesticides.
 - B. Are especially useful in aquatic habitats.
 - C. Consist of spores of microbial products such as Bti.
 - D. Can never be delivered by air.
21. The following pesticide is an organophosphate:
- A. DDT.
 - B. Diazinon.
 - C. Methoxychlor.
 - D. Permethrin.
22. Only the following can be considered a microbial pesticide:
- A. Mosquitofish.
 - B. *Bacillus thuringiensis*.
 - C. *Plasmodium falciparum*.
 - D. The *Varroa* mite of honey bees.
23. The following type of pesticide would be most likely to be used as a mosquito adulticide:
- A. Stomach poison.
 - B. Contact poison.
 - C. Systemic toxicant.
 - D. Petroleum oil.
24. The following type of pesticide would be least likely to be used to control mosquito larvae:
- A. Stomach poison.
 - B. Microbial pesticide.
 - C. Aerosol insecticide.
 - D. Petroleum oil.

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25. There is a legal requirement to read the label on a pesticide container:
- A. Only when a new pesticide is introduced to the market.
 - B. Only when new equipment is used for a particular pesticide.
 - C. Only when a new employee is trained.
 - D. Each time a pesticide is applied.
26. You should read the label on a pesticide container:
- A. Only if it is a restricted pesticide.
 - B. Before you dispose of the pesticide or its empty container.
 - C. Only if you are a certified applicator.
 - D. Less than 24 hours after the application of any pesticide.
27. On a pesticide label, the word "Warning" applies to:
- A. Category I chemicals.
 - B. Category II chemicals.
 - C. Category III chemicals.
 - D. Only chemicals which must be kept out of the reach of children.
28. On a pesticide label, the word "Caution" applies to:
- A. Category I chemicals.
 - B. Category II chemicals.
 - C. Category III chemicals.
 - D. Only chemicals which must be kept out of the reach of children.
29. A skull and crossbones on a pesticide label means the material:
- A. Is a category I chemical.
 - B. Is a category III chemical.
 - C. Cannot be used for mosquito control operations.
 - D. Cannot be used in or around aquatic habitats.
30. The term "MSDS" means:
- A. Mean survival dose standard.
 - B. Mean safety dose standard.
 - C. Material safety dose standard.
 - D. Material safety data sheet.
31. Pesticide residue tolerances apply to:
- A. Raw agricultural commodities.
 - B. Canned, frozen, and otherwise processed foods
 - C. Fruit and nut crops only.
 - D. Agricultural commodities that are hand-picked (as opposed to machine picked).

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32. An EPA registration number on a label means:
- A. The material is endorsed by the U.S. Environmental Protection Agency.
 - B. Registration of the material is pending with the U.S. Environmental Protection Agency.
 - C. The material may be used in environmentally sensitive areas.
 - D. The material is registered with the U.S. Environmental Protection Agency.
33. Brand names of pesticides:
- A. Are usually the most prominent part of a pesticide label.
 - B. Cannot be used on labels – the common name is required.
 - C. Are not authorized for use in interstate commerce.
 - D. Can be used on a label only if accompanied by a disclaimer.
34. Which of the following type of information is not usually found on a pesticide label?
- A. The EPA registration number.
 - B. The cost of the active ingredient on a per acre basis.
 - C. The name and address of the manufacturer.
 - D. The statement: "Keep out of the reach of children".
35. Most poisons work by:
- A. Dissolving vital tissues.
 - B. Changing the rate of various body functions.
 - C. Clogging major arteries or veins.
 - D. Lowering the pH of the blood.
36. NOEL means:
- A. No outward effects left.
 - B. No observable extensive lesions.
 - C. No ordinary effects line.
 - D. No observable effect level.
37. LD₅₀ is the:
- A. Legal dose which by law cannot exceed 50%.
 - B. Period of time it takes for 50% of a given chemical to leave the body.
 - C. Dose that will kill 50% of a group of test subjects.
 - D. Symbol for the 50 isotope of lead (which happens to coincide with 50% mortality).
38. Carcinogenesis refers to the:
- A. Production of tumors.
 - B. Production of birth defects.
 - C. Suppression of the immune system.
 - D. All of the above.

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39. Mutagenesis refers to the:
- A. Production of tumors.
 - B. Suppression of the immune system.
 - C. Change in genetic structure.
 - D. None of the above.
40. Acute toxicity is:
- A. A toxic effect of short duration.
 - B. A toxic effect which is fatal.
 - C. A toxic effect which lasts a long time.
 - D. An effect which occurs immediately.
41. Teratogenesis is:
- A. The production of nodules.
 - B. The production of tumors.
 - C. The production of fibrous growth.
 - D. The production of birth defects.
42. Primary irritant dermatitis (PID):
- A. Can occur from exposure to a number of pesticides.
 - B. Is caused only by solvents, not pesticides themselves.
 - C. Is caused only by secondary infections after pesticide exposure.
 - D. Results only in allergic individuals.
43. Subchronic toxicity refers to:
- A. Effects which occur after chronic effects have appeared.
 - B. Effects which cannot be detected.
 - C. Effects which occur later than acute effects but before chronic effects.
 - D. Effects which occur beneath the surface of the skin.
44. TD_{50} is:
- A. The dose which will kill 50% of a group of test animals.
 - B. The dose which will kill 50% of humans exposed.
 - C. The dose which will have some adverse effects on 50% of a group of test subjects.
 - D. The time it takes to kill 50% of a group of test subjects.
45. If you believe you have been exposed to a pesticide on your skin, you should:
- A. Contact a physician before you do anything else.
 - B. Notify your supervisor before you do anything else.
 - C. Report a hazardous spill before you do anything else.
 - D. Wash before you do anything else.

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46. The most common route of poisoning by pesticides in humans is:
- A. Through the dermal route.
 - B. Through the respiratory route.
 - C. Through the oral route.
 - D. Through the eyes.
47. Organophosphates poison by:
- A. Interfering with oxygen transport (by combining with heme molecules).
 - B. Massive tissue destruction.
 - C. Interfering with proper nerve functioning.
 - D. Causing hemorrhaging.
48. A common symptom of severe organophosphate poisoning is:
- A. A rapidly spreading rash.
 - B. Profuse bleeding from the gums.
 - C. Muscle twitching.
 - D. Cuts and scratches which take a long time to heal.
49. Pyrethroid insecticides:
- A. Are all extremely toxic.
 - B. Are all extremely non-toxic.
 - C. Vary in toxicity.
 - D. Are natural products, and thus probably safe.
50. The most common factor associate with pesticide poisoning via the oral route is:
- A. The use of outdated, illegal products.
 - B. The use of pesticides designed to control pests occurring on human bodies, such as lice.
 - C. Seepage of pesticides into drinking water supply systems.
 - D. The transfers of pesticides into unmarked containers from their original containers.
51. Never transport pesticides in:
- A. Passenger compartments of vehicles.
 - B. Unmarked vehicles of any kind.
 - C. Vehicles that are not approved for public highway use.
 - D. Pickup trucks that do not have covered cargo beds.

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52. Instructions for the proper equipment and protective clothing needed for mixing pesticides are found:
- A. On the label of the pesticide container.
 - B. In EPA directives, which must be posted in all storage areas.
 - C. In the Federal Register, under FIFRA.
 - D. In the Code of Federal Regulations, or CFR.
53. All pesticide spills must be reported to:
- A. The U.S. Coast and Geodetic Survey.
 - B. The board of county commissioners.
 - C. The FBI.
 - D. The agricultural commissioner or local health department.
54. Mist blowers are characterized by:
- A. Low air velocity and high spray volume.
 - B. High air velocity and high spray volume.
 - C. High air velocity and low spray volume.
 - D. Low air velocity and low spray volume.
55. High pressure, or “hydraulic” sprayers are characterized by:
- A. Low pressure and high spray volume.
 - B. High pressure and high spray volume.
 - C. High pressure and low spray volume.
 - D. Low pressure and low spray volume.
56. A tolerance is:
- A. The amount of pesticide cattle can eat without having any poisonous effect.
 - B. The amount of pesticide people can eat without getting sick.
 - C. The legally permissible residue of pesticide 24 hours after spraying.
 - D. The legally permissible limit of pesticide on a crop at harvest.
57. The primary disadvantage of brass nozzles is:
- A. Their relatively high cost.
 - B. Their tendency to form chemical complexes with certain pesticides.
 - C. Their tendency to wear out in a relatively short period of time.
 - D. All of the above.
58. Characteristics of plastic spray nozzles include:
- A. Well suited for high pressures.
 - B. Highly resistant to solvents.
 - C. Low costs.
 - D. Resistance to wear.

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59. Which statement is true?
- A. Pesticide labels will always list all possible mixtures permitted.
 - B. Pesticide labels do not cover mixing of different pesticides.
 - C. It is all right to mix compatible pesticides for certain purposes.
 - D. Mixing of different pesticides should be avoided if at all possible.
60. You are calibrating a sprayer. You find that your sprayer is putting out 4 gallons per minute of spray, and that it takes 15 minutes for you to spray an acre of land. How much spray per acre is your sprayer putting out?
- A. 0.27 gallons per acre.
 - B. 3.75 gallons per acre.
 - C. 60 gallons per acre.
 - D. 240 gallons per acre.
61. You know that a tank full of pesticides will cover 6 acres of land. You wish to apply a pesticide at a rate of 2 pints per acre. How many pints of pesticide should be placed in the tank?
- A. 3 pints.
 - B. 8 pints.
 - C. 12 pints.
 - D. 24 pints.
62. One advantage of granular pesticides is:
- A. Low cost.
 - B. They usually do not have to be mixed.
 - C. They can be applied with almost any piece of equipment.
 - D. All of the above.
63. Pesticide tanks, when filled with pesticides must be labeled with:
- A. The EPA registration number of the pesticide.
 - B. The person or agency owning the tank.
 - C. Any precautionary statements.
 - D. All of the above.
64. The type of pesticide formulation most likely to cause drift is:
- A. Dust.
 - B. ULV spray.
 - C. Large volume spray.
 - D. Granules.

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65. Pesticide resistance occurs because:
- A. Excessive spraying causes irritation to resistant populations.
 - B. Pesticides are applied at many times their recommended doses.
 - C. Excessive exposure to a pesticide selects against susceptible individuals, leaving resistant individuals.
 - D. Of the gradual shift from adult control to larval control in insects in general.
66. Cross-resistance is:
- A. When resistance can not be reversed.
 - B. Resistance which occurs in both larvae and adults of a given pest species.
 - C. Resistance which occurs in one pest species after spraying for a different species.
 - D. Resistance in a pest population to chemically related pesticides.
67. Soil pollution from pesticide applications can result in:
- A. Contamination of water supplies.
 - B. Phytotoxicity.
 - C. Illegal residues in crops.
 - D. All of the above.
68. Atmospheric pollution from pesticide application is most likely to occur with:
- A. Improperly maintained equipment.
 - B. Spraying at night.
 - C. Illegal use of water soluble packets.
 - D. Granules.
69. Bio-concentration means:
- A. The accumulation of pesticides in plant or animal tissues.
 - B. The use of microbial insecticides.
 - C. The use of pesticides derived from living organisms.
 - D. The crowding of animals to make pesticide treatment more efficient.
70. Adverse environmental effects can best be avoided by:
- A. Not using synthetic organic pesticides.
 - B. Reading and following the pesticide label.
 - C. Using only pesticides with short residual effects.
 - D. All of the above.

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71. Synergism is:
- A. Two organisms of different species living together.
 - B. Two organisms of the same species living together.
 - C. Spontaneous combustion caused by mixing two pesticides.
 - D. When two chemicals used in combination are more effective than either one used alone.
72. Potentiation is:
- A. A desirable effect of mixing two or more pesticides.
 - B. Is the same as synergism.
 - C. Is an undesirable effect of mixing two or more pesticides.
 - D. Is the passing of an electric current through a pesticide solution.