AQUATIC PEST CONTROL

Study Questions to help you prepare for the TDA EXAM

INSTRUCTIONS: Have a highlighter and a colored pen handy. As you study through the text, look for the answers to the following questions and mark them in the book or on the sheet provided. Also, as you study through the text, ask yourself, "If I know this information, will I be a better applicator?" If you answer "YES" that information would also be a good question for the test. Make a note of it !
In addition to these study questions complete the practice questions in the manual on pages 18-19 and 24. There is a lot of concern about reading labels therefore, I would suggest calling up a couple of the commonly used Aquatic Labels from (www.greenbook.net) or getting copies of full labels from company representatives to use while working through our separate Label exercise. In order to allow for quick grading, most questions on the TDA Exam are in the form of Multiple Choice or True and False.

1. Name the first step in effective and efficient pest control work. (page 1)

2. How can you learn to identify a pest? (Common knowledge)

3. Is it possible for sunlight penetration into water to limit the depth at which plants can grow in water? (page 1)

4. Define eutrophication. (page 1)

5. Can nutrient enrichment (eutrophication) of water bodies be enhanced by domestic, agricultural, and industrial activities? (page 1)

6. Name a green primitive plant with no true leaves, stems or root systems. (page 1)

7. Name two types of water where algae are found. (page 1)

8. Name the type of algae that occurs as single cells suspended in water. (page 1)

9. Name three types of algae that may become pests in Texas water.

10. Define single cell algae and give examples.

11. Define filamentous algae and give examples.

12. Define branched algae and give examples.

13. Why are phytoplankton algae and microscopic animals, produced when a pond is fertilized properly, usually considered desirable? (page 1)

14. During daylight hours all plants, including algae, _____ oxygen _____ the water; during darkness, plants _____ oxygen _____ the water. (page 1)

15. How would the decomposition of many aquatic vascular weeds affect oxygen levels? (page 1, 15, 18)

16. Give an example of a situation that could severely reduce oxygen levels.

17. Are there any types of planktonic algae that release toxins that may cause fish to die? (page 1)

18. Are there ever any conditions when planktonic algae may cause objectionable taste or odor to water and make it undesirable for swimming or municipal use? (page 1)

19. Filamentous algae may also be called _____.

20. What is pond scum?

21. Name the type of algae that resembles vascular plants. (page 2)

22. List characteristics that would help you identify branched algae. (page 2)

23. Name a type of algae that has a musky odor and a crunchy or bristly texture.

Aquatic Plant Identification

24. Can the classification of vascular aquatic weed be based upon its location with reference to the water surface?

25. Define SUBMERSED aquatic plants and give examples. (page 3)

26. Define FLOATING aquatic plants and give examples. (page 7)

27. Define EMERSED (EMERGENT) aquatic plants and give examples. (page 10)

28. How would each of these aquatic plants be classified? (read the text and look at the drawing of each)
    a) pondweed
    b) hydrilla
    c) cattail
    d) coontail
    e) arrowleaf
    f) white water lily
    g) American lotus
    h) water hyacinth
    i) alligator weed
    j) duckweed
    k) black willow
    l) button bush or button willow
    m) American elodea
    n) filamentous algae
    o) water lettuce

29. What is the most efficient way of controlling American lotus? (page 10)

AQUATIC PLANT CONTROL METHODS

page 13 - 18

30. Define IPM or integrated control one methods. (page 1, 13-18)

31. Explain why the banks of ponds and ditches should be sloped to eliminate water depth that is less then three feet when building a pond . (page 13)

32. Is it possible to aid the spread of many aquatic weed species by using mechanical control methods? (page 13)

33. When comparing mechanical to chemical control, is mechanical control of aquatic weeds usually slower or faster and less costly or more costly than control with herbicides? (page 13)

34. It has been said that the use of fertilizer in a pond with an average depth of eight feet is more effective than in shallow water two feet or less. Explain why this would be true. (page 14)

35. What is Tilapia? (page 14)

36. How could a plant eating fish be useful for controlling aquatic weeds?

37. Name the agency that must give its approval before introducing any new species of fish to be used for biological weed control. (page 14)

38. Identify each of these agencies Texas Department of Agriculture, Texas Natural Resource Conservation Commission, formally Texas Water Commission, Texas Department of Health, and Texas Parks and Wildlife Department.

39. Can herbicides be used to kill algae since algae have no true leaves?

40. What are herbicides used to kill primarily algae called? (page 14)

41. Recommendations for chemical treatment is usually made based on _____ for the control of submersed weeds and algae. (page 15)

42. For which type of aquatic weed would the surface area need to be determined when making the treatment? (page 15)

43. Chemical control of floating aquatic plants is normally achieved by which method?

44. Which type of aquatic weed would be best controlled by each of the following types of treatment? [a) total water treatment b) surface spraying c) granular application d) injection of herbicides below the water surface]

45. Explain why weed control on the bottom of a pond or lake is usually best accomplished with the use of granular herbicides. (page 15)

46. Is the control of aquatic weeds more difficult in static waters or in flowing waters? (page 16)

47. Can a herbicides ever be used in an aquatic applications if the label does not directly mention that type of application? (page 17)

48. Name the Department that sets regulations that prohibit the movement of *Hydrilla* within Texas.(page 17, 4)

49. Some chemical weed control methods may be restricted due to projected water usage. Special care must be taken when water will be used for each of the following: a) potable water b) irrigation water c) production water d) swimming beach areas. Give reasons why this is true.

50. Which of the following agencies [a) Texas Water Quality Board b) Texas Department of Health Resources c) Texas Parks and Wildlife Department d) the local water using agency] must approve the application of chemicals to a public water supply?

51. List the best times of the year to apply herbicides to control aquatic vegetation is. (page 18)

AQUATIC ANIMAL CONTROL

page 20 - 24

52. Name is the first step in control of an aquatic animal.

53. List three different methods that may be used to accomplish aquatic animal control. (page 20)

54. List examples of each of the following control methods, mechanical, cultural, and biological.

55. List three different pest fish (scientific and common names where possible). (page 20)

56. For each of the followinf fish, list if they are pest, predator, protected, or game fish. [a) *Micropterus salmoides* (largemouth bass) b) *Ictalurus melas* (black bullhead) c) *Roccus chrysops* (white bass)

57. List three predator fish (scientific and common names where possible). (page 20)

58. List a protected game fish (scientific and common names where possible). (page 20)

59. Name the agency that an individual who wishes to apply a fish toxicant to a public water supply must first check with to get approval. (page 20)

60. List way(s) by which pest fish may be controlled <u>without</u> the use of chemicals (*i.e.* non-chemical control methods). (page 21)

61. Name two chemicals used to control fish.

62. Antimycin is a chemical used to selectively kill what type of fish? (page 21)

63. Is rotenone used to kill fish selectively or non-selectively? (page 21)

64. List four environmental factors that may limit the effectiveness of fish toxicants. (page 21)

65. Is this statement True or False? Physical or chemical conditions that may limit the effectiveness of fish toxicants include temperature, pH and hardness, turbidity and sunlight.

66. Name a chemical that is used to neutralize rotenone in water.

67. What is Potassium permanganate? Is it a fish toxicant? (page 21)

68. Tell how turtles and water snakes are most effectively controlled. (page 21)

69. Describe physical methods for controlling snakes and turtles.

70. Is there a chemical method for controlling snakes and turtles?

71. Name the most effective and legal control for water snakes.

72. Name the animal described. A large, stocky rodent resembling a large rat. They have webs between the inner four toes of their hind feet, but not between the fourth and fifth or outer toe. They may gnaw the bark on woody plants near the water. (page 22)

73. Name the animal described. A scaly-tailed rodent. The adults weigh about 2 pounds. Their hind feet are partially webbed. (page 23)

74. Name the animal whose presence is easily determined by their prominent gnaw marks and dam constructing activities. (page 23)

75. Know characteristics of each of the following which is discussed in the manual: nutria, rat, beaver, weasel, and muskrat.

76. Are there chemicals registered for control of the above mammals? (page 23)

77. Are aquatic birds protected by state and federal laws? (page 24)

Use the Label Exercise

Practice Calibration Problems