

Aquatic Resource Contest Question Bank

1. Wetlands comprise about _____ of Pennsylvania's lands.
 - A. 5 percent
 - B. .5 percent
 - C. 8 percent
 - D. 10 percent
2. Which of the following characteristics are used to classify an area as a wetland?
 - A. High water table
 - B. Wet or hydric soils
 - C. To be able to support aquatic plants or hydrophytes
 - D. All the above are correct
3. Which of the following is not an endangered species in Pennsylvania?
 - A. Blanding's Turtle
 - B. American Bittern
 - C. Northern Water snake
 - D. King Rail
4. The term "endangered" means
 - A. The plant or animal is completely extinct
 - B. The plant or animal is nearly extinct
 - C. The plant or animal is protected by law
 - D. Both B and C are correct
5. The term "threatened" means
 - A. The plant or animal is not under the immediate threat of extinction
 - B. The plant or animal is under the immediate threat of extinction
 - C. The plant or animal is very susceptible to disease
 - D. None of the above are correct
6. The term "indeterminate" means
 - A. That the species was extinct at one time, but now is not
 - B. That a species maybe in danger
 - C. Information about the species is incomplete
 - D. B and C are both correct
 - E. A and C are both correct
7. Which of the following factor(s) explain species disappearance?
 - A. Too much inbreeding
 - B. Adaptability and inbreeding
 - C. Change is the only factor
 - D. Adaptability and change

8. Phytoplankton is an example of which type of aquatic plant?
- A. Emergent
 - B. Suspended
 - C. Riparian
 - D. Submerged
9. What group of pond plants are more of a problem in Pennsylvania ponds than any other single group of plants?
- A. Submerged plants
 - B. Emergent
 - C. Floaters
 - D. Filamentous algae
10. Rushes, sedges, and cattails belong to which group?
- A. Submerged plants
 - B. Emergent
 - C. Filamentous algae
 - D. Floaters
11. Algae may take the form of which of the following?
- A. Single-celled phytoplankton
 - B. Multi-celled filamentous
 - C. Plant-like musk grass
 - D. All of the above
12. The maximum size of a pond's watershed should not exceed how many acres of drainage area for every acre of pond in farmland?
- A. 5
 - B. 10
 - C. 15
 - D. 20
 - E. 25
13. Acid neutralizing capacity of a body of water is measured by a test called _____.
- A. Acidity
 - B. Neutralization
 - C. Alkalinity
 - D. Vulnerability

14. The Fish Commission has made the following stock pattern change(s) in some areas to combat the increased acidity in streams.
- A. Change from stocking acid sensitive rainbow trout to more acid tolerant brook trout
 - B. No pre-season stocking
 - C. Discontinue stocking altogether
 - D. All the above
15. Pennsylvania receives the most acid deposition of any state because:
- A. Pennsylvania is the third highest producer of the gases causing acid deposition
 - B. Pennsylvania is located downwind from the highest concentration of air pollution emitters
 - C. Neither A or B
 - D. Both A and B are reasons why Pennsylvania receives the most acid deposition
16. The most serious pollution problem in Pennsylvania comes from _____.
- A. Agriculture
 - B. Sewage
 - C. Coal Mining
 - D. Trash
17. Which is not a general characteristic of snakes?
- A. Warm-blooded animal
 - B. Considered a reptile
 - C. Sensitive to temperature around them
 - D. Unable to withstand extremes of hot or cold
 - E. All the above answers are characteristics of snakes
18. Which of the following is not a characteristic of the snake's tongue?
- A. Flexible
 - B. Blunt
 - C. Forked
 - D. None of the above are correct
19. Which of the following venomous species is not found in Pennsylvania?
- A. Copperhead
 - B. Massasauga Rattlesnake
 - C. Diamondback
 - D. Timber Rattlesnake

20. Pennsylvanians use most of the groundwater pumped each day for _____.
- A. Industry
 - B. Water Supply
 - C. Agriculture
 - D. Mining
21. Shock chlorinating the water system means...
- A. Testing the water system for the amount of chlorine
 - B. Checking the amount of chlorine after a sudden rain storm
 - C. Adding chlorine usually in the form of a household bleach to the water system and keeping it there overnight
 - D. Nothing at all
22. The converting of ammonium to nitrate is called _____.
- A. Nitrification
 - B. Transportation
 - C. Hydrologic
 - D. None of the above are correct
23. The state's drinking water standard for nitrate nitrogen is _____.
- A. 2 mg/l
 - B. 5 mg/l
 - C. 7 mg/l
 - D. 10 mg/l
24. To prevent nitrate contamination you should:
- A. Have a manure analysis to determine the amount of nutrients needed.
 - B. Don't apply nutrients in the winter to frozen ground
 - C. Avoid over applying manure on fields close to the barn
 - D. All the above are preventive measures of nitrate contamination
25. Which of the following is a way pesticides may be degraded?
- A. Chemical Reaction
 - B. Ultraviolet Light
 - C. Biochemical Degradation
 - D. All the above are correct
26. In the late 1980's the fish that has been researched and rehabilitated the most is _____.
- A. Grass Pickerel
 - B. Muskellunge
 - C. Yellow Perch
 - D. American Shad

27. Walleye is referred to as
- A. The “Allegheny Fish”
 - B. The “Delaware Killer”
 - C. The “Susquehanna Salmon”
 - D. The “Ohio Native”
28. Pennsylvania’s state fish is _____.
- A. Brown Trout
 - B. Brook Trout
 - C. Rainbow Trout
 - D. Lake trout
29. The largest (in length) Pennsylvania snake is the _____.
- A. Black Rat
 - B. Northern Copperhead
 - C. Northern Black Racer
 - D. Timber Rattlesnake
30. It is unlawful...
- A. To deposit litter
 - B. To fish in nursery waters
 - C. To use artificial light to take frogs at night
 - D. All the above
31. Which turtle is not endangered in PA?
- A. Bog
 - B. Mud
 - C. Red-bellied
 - D. Wood
32. Pennsylvania is one of the four states that contribute most to acid precipitation.
What place are we holding?
- A. First
 - B. Second
 - C. Third
 - D. Fourth
33. “Yellow boy” is a result of what type of water pollution?
- A. Radioactive waste
 - B. Petroleum products
 - C. Sewage
 - D. Coal mining

34. A groundwater contaminant commonly associated with agriculture is:
- A. Bacteria
 - B. Nitrates
 - C. Pesticides
 - D. All of the above
35. Radioactive waste is a major water pollutant because it can:
- A. Cause “Yellow boy”
 - B. Cause siltation
 - C. Destroy tissues in living organisms
 - D. Create excessive turbidity
36. Pennsylvania mountain streams are very susceptible to acid rain because:
- A. Of the altitude
 - B. The buffering capacity of the bedrock and soils are poor
 - C. The buffering capacity of the bedrock and soils are good
 - D. The water flows too slowly
37. The ‘Massasauga’ is listed as an endangered species of Pennsylvania because of:
- A. Forest Succession
 - B. Tropical rainforest destruction
 - C. Acid rain
 - D. Overpopulation of predators
38. The initials “PFD” represent:
- A. Pennsylvania Fish Department
 - B. Personal Flotation Device
 - C. Pennsylvania Federation For Ducks
 - D. Pan Fishing Delight
39. You can identify a poisonous snake by its:
- A. Nose
 - B. Mating call
 - C. Vertical slitted eye pupil
 - D. Double row of scales on tip of tail
40. The largemouth bass belongs with what other fish in the same family?
- A. Perch
 - B. Walleye
 - C. American shad
 - D. Sunfish

41. The preferred water temperature that separates coldwater and warm water species is:
- A. 60 degrees
 - B. 70 degrees
 - C. 80 degrees
 - D. None of the above
42. The milk snake got its name for what reason?
- A. Its milky white appearance
 - B. it was thought to have milked cows
 - C. It spits out a milky white colored saliva when frightened
 - D. None of the above
43. What powers the hydrologic cycle?
- A. Humans
 - B. Dams
 - C. Sunlight
 - D. Gravity
44. Pesticide contamination of groundwater can be prevented by:
- A. Reading and following label directions
 - B. Making sure application equipment is in good working order
 - C. Avoid mixing pesticides near sources of water
 - D. All of the above
45. Which aquatic insect is affected most severely by acid precipitation?
- A. Mayfly
 - B. Black Fly
 - C. Water strider
 - D. Mosquito
46. Which group of fish is found at the top of the food chain?
- A. Herbaceous
 - B. Predacious
 - C. Insectivorous
 - D. None of the above
47. Acid rain affects stream quality by:
- A. Raising the pH
 - B. Lowering the pH
 - C. Raising the temperature
 - D. Lowering the temperature

48. Water is used in nursery trout production must be rich in _____.
A. Nitrogen
B. Oxygen
C. Calcium
D. Carbon Dioxide
49. Spawning behavior is a response to change in _____.
A. Feed
B. Water level
C. Day length
D. None of the above
50. An example of an amphibian that spends its immature life cycle on dry land and adult period in water is the _____.
A. Red spotted newt (eft)
B. Spotted salamander
C. Virginia toad
D. Mud puppy
51. Which of the following is a predator of trout?
A. Giant water bug
B. Water snake
C. Kingfisher
D. All of the above
52. Which species of fish is not native to Pennsylvania?
A. Brown trout
B. Brook Trout
C. Bullhead catfish
D. Black nosed dace

53. Which is the largest predatory fish in Pennsylvania?
- A. Northern pike
 - B. Pickerel
 - C. Muskellunge
 - D. American shad
54. Which species listed below is considered a warm water fish?
- A. Black bass
 - B. Brook trout
 - C. Brown trout
 - D. None of the above
55. What structural difference is present in trout and catfish that is not present in most other fish?
- A. Pectoral fin
 - B. Dorsal fin
 - C. Spiny barbs on ventral surface
 - D. Adipose fin
56. Catfish lack _____.
- A. Fins
 - B. Scales
 - C. Redds
 - D. All of the above
57. The bullhead is a member of the _____ family.
- A. Catfish
 - B. Bass
 - C. Sunfish
 - D. Wallegap
58. Optimum trout habitat would include _____.
- A. Slow moving warm water
 - B. Fast moving warm water
 - C. Fast moving cool water
 - A. Slow moving cool water
59. Which of the following species is truly native to Pennsylvania?
- a. Brown trout
 - b. Brook Trout
 - c. Palomino Trout
 - d. Rainbow trout

60. Which of the following are considered examples of wetlands?
- Bogs
 - Rocky shores
 - Sloughs
 - All of the above
61. What is the cost of a fishing license without a trout / salmon stamp?
- \$17.00
 - \$21.00
 - \$22.00
 - \$31.00
62. Which of the following reduces the dissolved oxygen concentration of a pond?
- Organism decomposition
 - Cloudy days
 - Night
 - All of the above
63. Which of our venomous snakes do not possess rattles?
- Massasauga
 - Copperhead
 - Timber rattlesnake
 - None of the above
64. Which of the following factors influence how water behaves in the water cycle?
- Time of year
 - Vegetation
 - Land Use
 - All of the above
65. The six major water systems in Pennsylvania are:
- Allegheny, Ohio, Delaware, Potomac, Erie and Susquehanna
 - Allegheny, Delaware, Monongahela, Ohio, Susquehanna and Youghigheny
 - Susquehanna, Ohio, Delaware, Potomac, Erie and Genesee
 - Allegheny, Delaware, Lehigh, Ohio, Potomac, and Susquehanna
66. Which of the six major river systems in Pennsylvania drains the largest watershed?
- Allegheny
 - Delaware
 - Ohio
 - Susquehanna

67. Which of Pennsylvania's six major river systems has the distinction of flowing from the south to the north?
- Allegheny
 - Genesee
 - Ohio
 - Potomac
68. Rank these species in order from the species requiring the most dissolved oxygen to the species requiring the least dissolved oxygen.
- Trout, bass and bluegills, carp and catfish
 - Bass and bluegills, trout, carp and catfish
 - Carp and catfish, trout, bass and bluegills
 - The dissolved oxygen requirements for the above species are virtually the same
69. Rank these species in order from the one needing the coldest water to the one needing the warmest water for ideal habitat conditions.
- Brown trout, Brook trout, smallmouth bass, largemouth bass, tilapia
 - Brook trout, brown trout, largemouth bass, smallmouth bass, tilapia
 - Brook trout, brown trout, smallmouth bass, largemouth bass, tilapia
 - There is no difference in the water temperature requirements for any of the species listed above.
70. Name a county that contains parts of three of the six major watersheds in Pennsylvania.
- Bucks
 - Delaware
 - Lehigh
 - Potter
 - Susquehanna
71. What is the relationship between water temperature and dissolved oxygen level?
- The colder the water the less dissolved oxygen it will hold
 - The colder the water the more dissolved oxygen it will hold
 - The warmer the water the more dissolved oxygen it will hold
 - There is no relationship between water temperature and dissolved oxygen level
72. The single largest pollutant to Pennsylvania's waters by volume is:
- Acid mine drainage
 - Nitrates
 - Siltation
 - Phosphates

73. Which fish are most closely related to the true sunfishes?
- Largemouth and smallmouth bass
 - Carp and catfish
 - Yellow perch and walleye
 - Brook and rainbow trout
74. Which of our trout species was originally imported from Europe?
- Brook Trout
 - Brown trout
 - Lake trout
 - Rainbow trout
75. Which trout is known for being the most acrobatic fighter and also comes from the drainages of the westerns U.S.?
- Brook trout
 - Brown trout
 - Lake trout
 - Rainbow trout
76. A fish that is born in fresh water and goes to the ocean to grow to maturity before returning to freshwater to spawn is referred to as:
- Anadramous
 - Catadramous
 - Hydrophilic
 - Sawntaneous
77. Which of following are indices of higher water quality?
- Leeches, sow bugs, black fly larvae
 - Caddisfly, mayfly, stonefly
 - Mosquito, rat tailed maggot, whirligig beetle
 - All of the above are indices of high water quality
78. If you see a fish that has an adipose fin and has no scales what family is it in?
- Catfish
 - Salmon
 - Sunfish
 - Trout
79. If you see a fish that has an adipose fin and has a dark gray or blackish color to the inside of its mouth and gums, what family is it in?
- Catfish
 - Salmon
 - Sunfish
 - Trout

80. How many more times acidic is a stream with a pH of 8 than a stream with a pH of 6?
- 2 times
 - 100 times
 - Can't tell
 - Actually it is less acidic
81. Which trout species would thrive best in water with a pH of 5.8?
- Brook trout
 - Brown trout
 - Rainbow trout
 - All would do equally well
82. Which bass is more suited to the pools and riffles common to large streams or rivers than the habitat of a pond or lake?
- Largemouth bass
 - Smallmouth bass
 - Both are equally well suited
 - Neither are well suited to this habitat
83. Which river supplies the highest % of the Chesapeake Bay's Freshwater?
- James
 - Potomac
 - Susquehanna
 - York
84. Which invasive species is known for clogging large irrigation pipes in lake Erie?
- Freshwater clam
 - Common hogsucker
 - Common pipeclogger
 - Zebra mussel
85. Place the four major dams found on the lower Susquehanna in order from southernmost to northernmost.
- Safe Harbor, Holtwood, Hoover, Pymatuning
 - Conowingo, Safe Harbor, Holtwood, York Haven
 - Holtwood, Conowingo, York Haven, Safe Harbor
 - Conowingo, Holtwood, Safe Harbor, York Haven
86. What species of fish has been the major target of restoration efforts on the Susquehanna River including fish lifts to help them navigate the dams?
- American Shad
 - Atlantic Salmon
 - Chinook Salmon
 - Hybrid striped bass

87. The tiger muskie is a hybrid between which two species:
- Muskellunge and walleye
 - Northern pike and yellow perch
 - Muskellunge and northern pike
 - None of these yields a tiger muskie
88. The term used to describe the tendency of fish to assume the temperature of their surroundings is known as:
- Endothermic
 - Warm blooded
 - Ectothermic
 - None of the above is correct
89. Approximately how many miles of streams and rivers are found in Pennsylvania?
- 53,000
 - 83,000
 - 103,000
 - 183,000
90. Pennsylvania is currently home to about 24 different families of fish that comprise _____ different species.
- 60
 - 72
 - 140
 - 160
91. Sea Lamprey is found in which two of Pennsylvania's major watersheds?
- Erie and Ohio
 - Erie and Delaware
 - Susquehanna and Delaware
 - Potomac and Susquehanna
92. Which species found in the Delaware River watershed is endangered and is known for having 5 rows of bony plates on the outside of their body?
- Bowfin
 - Alligator gar
 - Lake sturgeon
 - Atlantic Sturgeon
93. Which species of fish found in Pennsylvania is the only catadromous fish found in North America?
- Chinook Salmon
 - Pacific Salmon
 - American Shad
 - American Eel

94. The term used to describe the knobby protrusions on a fish's head sometimes known as pearl organs is properly referred to as a:
- Horn
 - Otolith
 - Tubercle
 - Pharyngeal arches
95. When you test for the degree of clarity or opaqueness of water usually resulting from sediment after a rainstorm you are testing the _____ of the water.
- Turbidity
 - Cloudiness
 - Clarity quotient
 - Mudification
96. The proper name for the tail of a fish is the _____.
- Operculum
 - Axillary fin
 - Caudal fin
 - Lamellae
97. The hooked jaw, comprised of cartilage, which is acquired by mature male trout and salmon especially at spawning time is called the _____.
- Pelagic hook
 - Maxillary area
 - Kype
 - Snout
98. A species of fish that feeds more readily during the day than at night is said to be a _____ feeder.
- Extirpated
 - Diurnal
 - Nocturnal
 - Voracious
99. A problem where an excess of organic material builds up at the bottom of a body of water, decomposing and increasing nutrient levels while decreasing dissolved oxygen is called
- Nitrogen fixing
 - Nitrification
 - Eutrophication
 - Phospo-nitrolosis

100. The liquid substance produced by the male fish, which contains the sperm to fertilize eggs, is called?
- Milt
 - Milk
 - Aquatic spermazoan
 - Roe
101. The mouth of a river where its fresh water empties in and mixes with salt water and that is effected by tides is known as:
- An estuary
 - A confluence
 - A delta
 - A tidal basin
102. Which of these Pennsylvania poisonous snakes is considered to be endangered?
- Garter
 - Massasauga
 - Timber rattler
 - Water moccasin
103. Which of these turtles is endangered?
- Bog
 - Map
 - Snapping
 - Stinkpot
104. Which of these fish is endangered?
- Warmouth
 - Long ear sunfish
 - Atlantic Sturgeon
 - All of these
105. Which family of amphibian has a member, which is easily identified by the five distinct lines running down its back?
- Frog
 - Salamander
 - Skink
 - Toad

106. Acid Precipitation is defined as anything that falls below the pH level of normal rainwater. What is the pH of “normal precipitation” and the average rainfall in Pennsylvania?
- Normal 7 average PA 5.5
 - Normal 5.6 average PA 4.3
 - Normal 6.0 average PA 5.0
 - Normal 8.0 average PA 4.0
107. What do all of Pennsylvania’s native venomous snakes possess?
- An indentation or pit on each side of the head between the eye and nostril
 - A vertically elliptical eye pupil
 - A single row of scales on the underside of the tail
 - All of the above
108. Which of the following is not considered an endangered species in Pennsylvania?
- Lake sturgeon
 - Red spotted newt
 - Coastal plain leopard frog
 - Eastern Massasauga
109. Which of the following is considered a threatened species in Pennsylvania?
- Rough green snake
 - Spotted salamander
 - American Shad
 - Snapping turtle
110. Which of the following snakes are not native to Pennsylvania?
- Black racer
 - Black Rat
 - Eastern garter
 - Corn
111. My pond is covered with green slime or stringy ‘moss’. What is it?
- Algae
 - Skunk cabbage
 - Duckweed
 - Hydrilla
112. What emergent plant can cause a lot of problems?
- Rushes
 - Water cress
 - Cattail
 - White water lily

113. What floating plants can cause a lot of problems?
- Water shield
 - Water cress
 - Jewelweed
 - Arrowhead
114. The largemouth bass belongs with what other fish in the same family?
- Perch
 - Walleye
 - American Shad
 - Green Sunfish
115. Which of the following is not considered an ANS (Aquatic Nuisance species)?
- Zebra Mussel
 - Algae
 - Hydrilla
 - Red-eared slider
116. Normal PA rainfall has a pH that is considered _____.
- Neutral
 - Acidic
 - Basic
117. You are sampling a stream in western Pennsylvania and find the rocks and substrate to be orange-colored. The pH of the stream is less than 5.0 and you find no critter. What is likely to be the type of pollution found in this stream?
- Acid Rain
 - Abandoned mine drainage
 - Pesticide runoff from surrounding farms
 - Discharge from a local sewage plant
118. Which of the following is not an anadromous fish that migrates to PA waters?
- Blueback herring
 - Striped bass
 - American Eel
 - American Shad
119. Acid neutralizing capacity of a body of water is measured by a test called _____.
- Acidity
 - Neutralization
 - Alkalinity
 - Vulnerability

120. Which of the following statements is true about fish?
- Shad belong to the trout and salmon family
 - Darters belong to the minnow family
 - Suckers belong to the minnow family
 - Bass belong to the sunfish family
121. Which of the following is considered a diving duck?
- Common merganser
 - Black Duck
 - Mallard
 - Pintail
122. Normal rainfall has a pH of _____.
- 4.3
 - 5.6
 - 7.0
 - 8.2
123. Aluminum, iron and manganese are common metals deposited from abandoned mines. If large amounts settle on the stream bottom what color would they appear as?
- Aluminum (yellow), Iron (white) and Manganese (black)
 - Aluminum (white), iron (yellow), and Manganese (black)
 - Aluminum (black), iron (white) and Manganese (yellow)
 - None of the above
124. Which of the following trees does not have an alternate leaf arrangement?
- Black gum
 - Elm
 - Sycamore
 - Maple
125. The nutria closely resembles which of the following?
- Muskrat
 - Beaver
 - Otter
 - Mole
126. Blackfly, Dragonfly and gill snail are classified in which class of aquatic insects?
- Pollution Intolerant (class I)
 - Facultative (class II)
 - Pollution Tolerant (Class III)

127. The life cycle of the mayfly is?
- Egg, larva, pupa, adult
 - Egg, nymph, and adult
 - None of the above
128. The average precipitation PA receives each year is?
- 41 inches
 - 25 inches
 - 75 inches
 - 114 inches
129. Which of the following are listed on PA's endangered species list?
- Bog turtle
 - New Jersey chorus frog
 - Massasauga rattlesnake
 - All of the above
130. Which of the following are required to classify an area as a wetland?
- Must support water-tolerant (hydrophytic) plants
 - Presence of saturated (hydric) soils
 - The presence of water at some point in the year
 - All of the above
131. The term "indigenous" means
- The plant or animal is not under the immediate threat of extinction
 - The plant or animal is under the immediate threat of extinction
 - The plant or animal occurs naturally; is native
 - None the above are correct
132. TRUE or FALSE Today wetlands are being protected because of their economic benefits to society.
133. TRUE or FALSE Pennsylvania's wetlands are protected by the federal laws under the jurisdiction of the U.S. Army Corps of Engineers and the Environmental Protection Agency.
134. TRUE or FALSE Algae are always a single-celled plant.
135. TRUE or FALSE A plankton bloom occurs when phytoplankton population becomes dense.
136. TRUE or FALSE The amount of phytoplankton algae is governed by the clearness of the water.

137. TRUE or FALSE Fragmentation is one type of filamentous algae reproduction.
138. TRUE or FALSE Raking is always the method recommended for controlling algae.
139. TRUE or FALSE One of the most important functions of the submerged plants is to provide cover for the small fish.
140. TRUE or FALSE The type of algae which forms a fur-like coating on stones or other objects are known as musk grass algae.
141. TRUE or FALSE All algae should be removed from a pond to have a good fish population.
142. TRUE or FALSE When chemically controlling algae you must obtain a joint annual permit through the Pennsylvania Fish Commission and the Department of Environmental Resources prior to application.
143. TRUE or FALSE Water supply is the most important factor when you begin or maintain a pond.
144. TRUE or FALSE If the watershed is primarily under laid by sandstones or igneous rocks such as granite or basalt, then the region will have high acid neutralizing capacity.
145. TRUE or FALSE Fossil fuel burning contributes to acid rain.
146. TRUE or FALSE One third of the 4800+ miles of stocked trout streams in Pennsylvania are considered vulnerable according to international standards.
147. TRUE or FALSE Majority of fresh water fish live in waters with a pH of 6.0 to 8.5 and alkalinity range of 10 to 200 milligrams per liter.
148. TRUE or FALSE Young snakes will shed their skins once each fall during the first two years.
149. TRUE or FALSE Each rattle segment of a rattlesnake indicates one year of growth.

150. TRUE or FALSE All of Pennsylvania's venomous snakes can be identified by a small opening on either side of the head between nostril and eye, a slit-shaped eye pupil, and a single row of scales under the tail for most of its length.
151. TRUE or FALSE Groundwater in every aquifer was once surface water.
152. TRUE or FALSE A well-structured soil with plenty of connected spore spaces will soak up small amounts of water and a large amount of runoff.
153. TRUE or FALSE Groundwater influences the depth of water in a stream.
154. TRUE or FALSE Pesticides use is an example of nonpoint-source pollution.
155. TRUE or FALSE Gastrointestinal ailments are the most common illnesses associated with water-borne bacteria among humans.
156. TRUE or FALSE Bacteria in the intestines of sick people or animals can't be excreted along with fecal waste; the bacteria just eventually disappears.
False – Bacteria in the intestines of sick people or animals can be excreted along with fecal waste
157. TRUE or FALSE It is sage if the absorption area of a septic system is located only slightly above the water table.
158. TRUE or FALSE You should have your water tested at least once a year to determine whether the water supply is free of bacteria.
159. TRUE or FALSE A sinkhole provides a direct connection between surface water and groundwater.
160. TRUE or FALSE Nitrate is a water-soluble.
161. TRUE or FALSE The suggested maximum level of nitrate nitrogen in water for livestock is 10 mg/l.
162. TRUE or FALSE The length of time a pesticide lasts in the environment is called its persistence.
163. TRUE or FALSE Half-life gives an indication of the mobility of a pesticide.
False – Half-life gives an indication of the persistence of a pesticide.

164. TRUE or FALSE Poorly absorbed and soluble pesticides have the greatest mobility.
165. TRUE or FALSE The greater the organic content of a soil, the less absorption ability the soil has.
False – The greater the organic content of a soil, the more absorption ability the soil has.
166. TRUE or FALSE Soft rayed fish, such as trout, have an adipose fin.
167. TRUE or FALSE The large mouth bass is a member of the sunfish family.
168. TRUE or FALSE Chain Pickerel is abundant in the southeast part of the state.
169. TRUE or FALSE The Yellow Perch has horizontal yellow stripes and is a member of the pan fish family.
170. TRUE or FALSE A current PA fishing license is valid from January 1 through December 31.
171. TRUE or FALSE Siltation is a major cause of water pollution in PA.
172. TRUE or FALSE Salamanders are members of the reptile family.
False – Salamanders are members of the amphibian family.
173. TRUE or FALSE An irregular shaped pond will provide cover and food for a larger population than a circular pond.
174. TRUE or FALSE Automobile exhaust contributes to acid rain.
175. TRUE or FALSE The Pa Game commission is responsible for enforcing laws concerning reptiles and amphibians in PA.
176. TRUE or FALSE The Salmon and American Eel are examples of fish that spawn in PA rivers.
177. TRUE or FALSE Brook Trout are able to survive in warmer water than other trout species.
178. TRUE or FALSE Catfish survive best in a fast moving, cold winter environment.
179. TRUE or FALSE Sunfish and black bass are in the same family.
180. TRUE or FALSE Snapping turtles are on the endangered species list in PA.

181. TRUE or FALSE The PA fish and boat commission enforces the laws concerning migratory waterfowl in PA.
182. TRUE or FALSE Trout can not survive in water affected by acid rain because of the pH of the water is above 8.0.
183. TRUE or FALSE Pennsylvania's official state fish is the rainbow trout.
184. TRUE or FALSE The pike family is noted as game fish because of their voracious appetite and fondness of live as well as artificial bait.
185. TRUE or FALSE Because of different environmental and heredity factors, fish of the same species may range in color from very light to black.
186. TRUE or FALSE Wild trout lay their eggs in gravel depressions called redds.
187. TRUE or FALSE Filamentous algae is toxic to mammals, including humans.
188. TRUE or FALSE Preventing excess nutrients from entering a waterway is the best way to control aquatic plants.
189. TRUE or FALSE PA has 1600 miles of streams.
190. TRUE or FALSE PA annual precipitation is 60 – 75 inches.
191. TRUE or FALSE Most fish live in water with a pH of 6.0 – 8.5.
192. TRUE or FALSE Normal rainfall has a pH of 5.6.
193. TRUE or FALSE Salamanders are members of the reptile family.
194. TRUE or FALSE Cottonmouth or water Moccasins are found in Pennsylvania.
195. TRUE or FALSE You can tell the age of a timber rattlesnake by counting its rattles.
196. TRUE or FALSE There are federal regulations that mandates that turtles sold at pet stores should have a shell length greater than four inches.
197. TRUE or FALSE Warm water hold more dissolved oxygen than cold water.

198. TRUE or FALSE Threatened, Endangered and candidate fish make up 34% of the 159 fish species that live in Pennsylvania's water.
199. TRUE or FALSE PA has three fish species that are listed on the federal endangered species list. They are: Shortnose sturgeon, Hickory shad and spotted gar.
200. TRUE or FALSE Anadromous fish of PA include: American Shad, Herring, Striped Bass and Atlantic Sturgeon.
201. TRUE or FALSE Normal Rainfall is more acidic than PA rainfall.
202. TRUE or FALSE A typical PA food chain would be: Phytoplankton, Zooplankton, Dragonfly, Bluegill, Largemouth bass and snapping turtle.
203. TRUE or FALSE You should have your water tested at least once a year to determine whether the water supply is free of bacteria.
204. TRUE or FALSE Groundwater influences the depth of water in a stream.
205. TRUE or FALSE Pesticides use is an example of non-point-source pollution.
206. TRUE or FALSE The type of algae which forms a fur-like coating on stones or other objects are known as muskgrass algae.
207. TRUE or FALSE One of the most important functions of the submerged plants are to provide cover for the small fish.
208. TRUE or FALSE A trout / salmon stamp costs \$5.00.

Match the type of contaminant with its effect on aquatic resources:

- | | |
|----------------------------------|--|
| <u>B</u> 209. Sediment | A. Traces are necessary for life; when ionized in solution becomes toxic to aquatic organisms if discharged in large amounts |
| <u>C</u> 210. Heat | B. Causes loss of habitat and smothering effect |
| <u>A</u> 211. Metal Ions | C. Lessens the capability of water to hold dissolved oxygen |
| <u>E</u> 212. Color | D. Very destructive to gills and skin of the fish and cause suffocation particularly of eggs and young |
| <u>D</u> 213. Petroleum Products | E. Tends to block out sunlight stopping the Process of photosynthesis necessary for plant life |

Match each type of trout with the following characteristics:

- | | |
|------------------------------|--|
| <u>C</u> 214. Lake Trout | A. Non-native to Pennsylvania, originated From Pacific coast of the U.S. |
| <u>E</u> 215. Palomino Trout | B. Native to Pennsylvania, white edges on lower fins |
| <u>A</u> 216. Rainbow Trout | C. Deeply forked tail |
| <u>D</u> 217. Brown Trout | D. Non-native to Pennsylvania, originated From Europe |
| <u>B</u> 218. Brook Trout | E. Hybrid |

Match the industry with its associated water contamination:

- | | |
|-------------------------------|---------------------------------------|
| <u>A</u> 219. Car Wash | A. Silt and detergents |
| <u>B</u> 220. Power Plant | B. Heated water and chlorine |
| <u>E</u> 221. Milk Plant | C. Blood and fats |
| <u>C</u> 222. Slaughter House | D. Metal ions and brine |
| <u>D</u> 223. Gas or Oil Well | E. Caustic washing compounds and whey |

Matching

- | | | |
|----------|-----------------------|--|
| <u>E</u> | 224. Abiotic factors | A. The amount of calcium/magnesium
In water |
| <u>F</u> | 225. Phosphates | B. Buffering ability of water to absorb
Hydrogen ions |
| <u>A</u> | 226. Hardness | C. Plants/animals living in the water |
| <u>C</u> | 227. Biotic factors | D. Amount of free oxygen that can be used
by aquatic animals |
| <u>B</u> | 228. Alkalinity | E. Non-living components pertaining to
water, (i.e. temperature, volume,
hardness) |
| <u>D</u> | 229. Dissolved oxygen | |

Match the following definitions with the correct word.

- | | | |
|-------|----------------------|-------------------------------------|
| _____ | 230. Biotic factors | a. Running water |
| _____ | 231. Abiotic factors | b. Standing water |
| _____ | 232. Lentic | c. Non-living factors of water |
| _____ | 233. Lotic | d. Living things found in the water |
| _____ | 234. Littoral | e. Land and water interface |

ANSWERS: 230. D 231. C 232. B 233. A 234. E

Match the following definitions with the correct term.

- | | | |
|-------|--|-----------------|
| _____ | 235. Fins on the back of a fish; may be divided into parts | a) Adipose fin |
| _____ | 236. Fins on either side of the body, below and often
behind the pectoral fins | b) Dorsal fin |
| _____ | 237. Single fin on underside of fish between the vent
and tail | c) Anal Fin |
| _____ | 238. Small, fleshy fin on the back and near the tail of
salmon and catfish | d) Pectoral Fin |
| _____ | 239. Uppermost fins on either side of the body and
usually just behind the gill | e) Pelvic Fin |

ANSWERS: 235. B 236. E 237. C 238. A 239. D

Match the following definitions with the correct term.

- | | | |
|-------|---|------------------|
| _____ | 240. Feeding on both animal and plant life | a. Anadromous |
| _____ | 241. Feeding on fishes | b. Catadromous |
| _____ | 242. Feeding on insects | c. Insectovorous |
| _____ | 243. Fishes living in freshwater streams, but
which return to the ocean to spawn | d. Omnivorous |
| _____ | 244. Fishes living in the ocean but which enter
freshwater streams to spawn | e. Piscivorous |

ANSWERS: 240. D 241. E 242. C 243. B 244. A