Aquaculture CDE Test Bank

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Turbidity is
a. A measure of water clarity and light penetration
b. The levels of calcium and magnesium dissolved in the water
c. The -Log of the hydrogen ion concentration
d. The levels of carbonate buffer dissolved in the water

____ 2. The dissolved oxygen is at its lowest level in a lake or pond
a. at noon
b. at sunset
c. at midnight
d. at sunrise

____ 3. The limiting nutrients in Freshwater systems is
a. Nitrogen
b. Phosphorous
c. Potassium
d. Calcium

____ 4. The process of photosynthesis and respiration:
a. are responsible for daily fluctuations in the pH of a lake
b. are responsible for daily fluctuations in the DO of a lake
c. are performed by all plants and animals
d. all of the above are correct

____ 5. All of these processes are part of the nitrogen cycle except
a. Assimilation
b. Nitrification
c. Nitrogen fixation
d. Ammonification

____ 6. The state with the greatest diversity of Freshwater mollusks is
a. Alabama
b. Mississippi
c. Tennessee
d. Hawaii

____ 7. The state with the greatest freshwater fish diversity is
a. Alabama
b. Mississippi
c. Tennessee
d. Georgia

____ 8. The correct order for plankton from smallest to largest is
a. Macro-plankton, meso-plankton, micro-plankton, nano-plankton, pico-plankton
b. Pico-plankton, micro-plankton, nano-plankton, meso-plankton, macro-plankton
c. Nano-plankton, micro-plankton, meso-plankton, macro-plankton, pico-plankton
d. Pico-plankton, nano-plankton, micro--plankton, meso-plankton, macro-plankton

____ 9. The term nekton refers to organisms that.
a. Live in the water column and move around freely
b. Live on the bottom and do not move well
c. Live on the bottom and move around freely
d. Live near the shore in and out of the water

____ 10. The most accurate (true to life) indication of energy flow through the ecosystem is:
a. Food Chain
b. Food Pyramid
c. Food Web
d. Food Matrix

____ 11. The overall amount of energy flowing through an ecosystem that is available to the next trophic level.
   a. Increase by about 10% at each successive trophic level.
   b. Decrease by about 10% at each successive trophic level.
   c. Increase by about 90% at each successive trophic level.
   d. Decrease by about 90% at each successive trophic level.

____ 12. Ecology is best defined as:
   a. Organisms and how they interact with each other
   b. Organisms of the same species and how they interact with each other
   c. Organisms and how they interact with their environment
   d. The physical and chemical characteristics of lakes, ponds, and rivers.

____ 13. Which is true regarding the status of world wild caught fisheries:
   a. The weight of fish harvested from the oceans is relatively stable
   b. The numbers of large size, high value fishes caught has greatly decreased
   c. Aquaculture is required to meet world seafood demand
   d. Most fish species are currently regulated and are recovering

____ 14. Maximum sustainable yield is:
   a. The number of fish that can be harvested from the oceans.
   b. The number of fish that can be harvested from the oceans each year.
   c. The number of a particular fish that can be harvested from the oceans each year without decreasing the overall population.
   d. The number of a particular fish that can be harvested from the oceans each year that would allow for the fish population to increase.

____ 15. Commercial fishing as it is currently practiced is?
   a. As a whole less sustainable than aquaculture
   b. Less sustainable than aquaculture and environmentally damaging
   c. Is for the most part environmentally friendly
   d. Is for the most part environmentally damaging

____ 16. Which of the following is not a characteristics of a sustainable fisheries species.
   a. A fast growth rate
   b. An early reproductive age
   c. A high reproductive rate
   d. All of these are characteristics of a sustainable fisheries species

____ 17. Which of the following is an indication that a recreational pond is bass crowded?
   a. Large number of bull gill 3-5”
   b. Bass population contains only a few large individuals.
   c. Large numbers of similar sized LMB (less than 12 inches)
   d. Lots of very small bluegill less than 2”.

____ 18. Characteristics of a good recreational pond include all of the following except.
   a. Sides with a slope of 1:2 or 1:3
   b. Solid with 80% clay content
   c. Excellent compaction of pond bottom and levees
   d. A long flat shallow area of 36 inches depth for fish spawning

____ 19. All the following are potentially successful strategies for recreational ponds except?
   a. Largemouth Bass, Bream, and Catfish option
   b. Catfish only options

c. Hybrid Striped Bass only option
d. Trophy bass option

____ 20. Aquaculture began in the country of?
a. Japan
b. Thailand
c. China
d. Egypt

____ 21. Which country is not matched with the correct historical fact?
a. Ancient Hawaii - Aquaculture of Pacific Threadfin (Moi)
b. Ancient Egypt - Aquaculture of Tilapia
c. The USA - The first aquaculture business
d. Ancient China - The polyculture of carps

____ 22. Which statement is not a current issue of aquaculture sustainability?
a. Carnivorous species (such as shrimp, trout, and salmon) consume more biomass (in the form of fishmeal) than is generated by their aquaculture
b. Shrimp farms are built on mangroves
c. Pollution created by the offshore cage aquaculture of salmon
d. All of the above are current issues of aquaculture sustainability

____ 23. Homer Swingle's greatest contribution to aquaculture was:
a. He determined that Asia had the best environment for successful aquaculture
b. He determined that FW shrimp could be grown economically in the US
c. He determined that Catfish could be grown economically for profit in the US
d. He determined that Catfish and FW Shrimp could be grown economically for profit in the US

____ 24. The largest aquaculture producing nation is:
a. Japan
b. USA
c. Thailand
d. China

____ 25. All of the following species are aquacultured either commercially or for stock enhancement in the US except:
a. Shrimp
b. Red Drum
c. Oysters
d. Tuna

____ 26. Which is a reason why the US is not a more prominent world power in aquaculture?
a. The cost of land and labor in the US is higher than most countries
b. The lack of adequate water resources
c. The lack of knowledge and expertise
d. The lack of adequate infrastructure

____ 27. A good example of intensive aquaculture
a. Oyster ranching in the Gulf of Mexico
b. Indoor shrimp farming in a bio-floc production system
c. Crawfish farming Louisiana
d. Catfish farming in the Southeast United States.

____ 28. A good example of extensive aquaculture is:
a. Oyster ranching in the Gulf of Mexico
b. Indoor shrimp farming in a bio-floc production system
c. Live Rock farming in the Florida Keys
d. Oyster ranching and live rock farming are correct

____ 29. All of the following are warm-water species except:
a. Channel Catfish
b. Red Swamp Crawfish
c. Tilapia
d. Striped Bass

____ 30. All of the following states are matched with their primary aquaculture species except:
a. Arkansas and baitfish
b. Florida and tropical fish
c. Mississippi and catfish
d. Louisiana and oysters

____ 31. They symbol "ppt" or parts per thousand is the same as:
a. Milligrams of solute per liter of solvent
b. Grams of solute per liter of volume
c. Milligrams of solvent per liter of solute
d. Grams of solvent per liter of soluter

____ 32. Increasing water temperature to less than stress inducing levels:
a. Increases fish metabolism
b. Increases fish metabolism and increases growth rate.
c. Decreases feeding rate
d. Increase growth rate

____ 33. Alkalinity is a measure of
a. The amount of carbon in the water
b. The ability of water to resist pH changes
c. The amount of carbonate (CO^3) in the water
d. The amount of calcium and magnesium in the water

____ 34. Hardness is defined as:
a. The amount of sodium and potassium in the water
b. The amount of calcium and magnesium in the water
c. The amount of ammonia and nitrite in the water
d. The amount of carbonate (CO^3) in the water

____ 35. Settle-able solids refers to:
a. The solids that remain on filter paper after filtering a water sample
b. The solids that pass through the filter paper after filtering a water sample
c. The solids small enough to be chemically dissolved in the water
d. The large solids that settle out in still water after about 1 hour.

____ 36. Denitrification is
a. The chemical conversion of nitrate to nitrogen gas under anaerobic conditions
b. The chemical conversion of nitrate to nitrogen gas under aerobic conditions
c. The chemical conversion of ammonia to nitrate under aerobic conditions
d. The chemical conversion of nitrate to nitrogen to plant proteins

____ 37. Ammonium is produced by:
a. All of these answers are correct
b. Released in the urine of fish
c. Released from fish poop
d. Released from uneaten food

____ 38. All of the following are beneficial characteristics for an aquaculture species except:
a. Fast growing
b. Prolific breeding at a young age
c. Tolerant of poor water quality
d. Tolerant of high densities

____ 39. Which species is not matched with its most common production method?
a. Catfish - semi intensive pond aquaculture
b. Trout - raceway flow-through aquaculture
c. Oysters - semi-intensive pond aquaculture

d. Shrimp - semi-intensive pond aquaculture

____ 40. Pond aquaculture is
a. Less expensive (long term) and less risky than recirculating aquaculture systems
b. More expensive (long term) and riskier that recirculating aquaculture systems
c. Uses the most water of the primary aquaculture production systems
d. Less expensive (long term), less risky and uses the more water than recirculating aquaculture systems

____ 41. Flow through raceway aquaculture (for example Trout Culture in Idaho):
a. Is low animal density aquaculture
b. Requires more water volume per fish than other forms of aquaculture
c. Releases high quality water back into rivers and streams
d. Requires more land than pond aquaculture

____ 42. All of the following are true of recirculating aquaculture systems except:
a. Power outages are problematic
b. It uses more space and water than other types of systems
c. It is technically the most difficult type of aquaculture
d. It is the riskiest type of aquaculture

____ 43. The most economically viable form of large-scale aquaculture in the world is:
a. Recirculating aquaculture
b. Pond aquaculture
c. Offshore cage aquaculture
d. Flow through raceway aquaculture

____ 44. The symbol "ppm" or parts per million is the
a. milligrams of solute per liter of solvent
b. grams of solute per liter of solvent
c. milligrams of solvent per liter of solute
d. milligrams of solvent per liter of solute

____ 45. Decreasing water temperature to less than desirable levels:
a. Increase metabolism
b. Decreases feeding rate
c. Decrease feeding rates and the rate of development.
d. Decreases the rate of development

____ 46. Buffering is
a. the amount of carbon in the water
b. The ability of water to resist pH change
c. The amount of ammonia and nitrite in the water
d. The amount of calcium and magnesium in the water

____ 47. On the average, how much feed is required to produce a pound of gain in fish?
a. 1 pound
b. 1.5 pounds
c. 2 pounds
d. 2.5 pounds

____ 48. The dogfish is an example of a
a. Jawless fish
b. Agnatha fish
c. Osteichthyes fish
d. Cartilaginous fish

____ 49. The _____ of a fish removes oxygen from the water and forces it through its gills -
a. Nervous System
b. Digestive System
c. Respiratory System
d. Excretory System

____ 50. Conveys sensation impulses to a fish's brain.

a. Nervous System
b. Circulatory System
c. Respiratory System
d. Sensory System

____ 51. Breaks down the food a fish consumes
a. Digestive System
b. Sensory System
c. Circulatory System
d. Excretory System

____ 52. The _____ consists of intestines and kidneys and it filters waste from the blood.
a. Digestive System
b. Excretory System
c. Circulatory System
d. Respiratory System

____ 53. The _____ is a lateral line for balance.
a. Digestive System
b. Circulatory System
c. Nervous System
d. Sensory System

____ 54. The _____ consists of testes, ovaries, produces sperm and egg for the next generation.
a. Digestive System
b. Sensory System
c. Reproductive System
d. Nervous System

____ 55. The _____ consists of a heart, veins, and arteries.

a. Digestive System
b. Respiratory System
c. Circulatory System
d. Nervous System

____ 56. What is the name of the flap that covers the gills?
a. operculum
b. gill raker
c. cartilage flap
d. gill filaments

____ 57. Which class of fish has a bony skeleton?
a. Osteichthyes
b. Chondrichthyes
c. Cartilaginous
d. Agnatha

____ 58. When fish excrete their waste, what toxic byproduct is produced?
a. nitrogen
b. ammonia
c. nitrites
d. nitrates

____ 59. After the ammonia is in the tank, which bacteria start to change it to something less toxic?
a. nitrogen bacteria
b. Nitrosomas bacteria
c. Nitrobacter bacteria
d. ammonia bacteria

____ 60. How is toxic nitrites are changed into something safer by:
a. Nitrosomas bacteria
b. Nitrobacter bacteria
c. bactorsoma bacteria
d. rhizobium bacteria

____ 61. What is one way to lower the amount of nitrates in your tank?
a. do a partial water change
b. add more fish
c. remove fish
d. lower the water temperature

____ 62. What is the Golden Rule for tank maintenance?
a. Remove all bacteria
b. Do NOT overfeed
c. Change out ALL of the water once a week

d. Use a light

____ 63. The activated carbon, found inside the blue filter cartridge, performs what kind of filtration?
a. Chemical
b. Mechanical
c. Biological
d. All answers are correct

____ 64. How does bacteria affect Dissolved Oxygen (DO) in water bodies?
a. increase DO through decomposition
b. decrease DO through decomposition
c. DO stays the same
d. bacteria multiply DO by 8

____ 65. Colder water.....
a. holds MORE dissolved oxygen
b. holds LESS dissolved oxygen
c. holds the same dissolved oxygen as warm water
d. temperature does not effect DO

____ 66. How does low Dissolved Oxygen levels affect organisms?
a. Organisms go through more cellular respiration
b. Organisms eat more
c. Organisms decrease their metabolism to survive on lower amounts of DO.
d. Organisms may die or have to leave if levels get too low

____ 67. What can REMOVE dissolved oxygen from the water?
a. cellular respiration
b. decomposition
c. warming waters
d. all answer are correct

____ 68. What can add dissolved oxygen to the water?
a. Diffusion from the air above
b. All answer choices are correct
c. Photosynthesis
d. Wave and Wind Action

____ 69. What is a good range of DO for Lake Lipsey?
a. 0-6 ppm
b. 1-4 ppm
c. 4-6 ppm
d. all answers are correct

____ 70. Which of the following adds DO to a body of water?
a. increasing temperature and decreasing aeration
b. decreasing temperature and increasing aeration
c. increasing temperature and increasing aeration
d. decreasing temperature and decreasing aeration

____ 71. Why are certain types of aquacultures considered to be high-risk?
a. Pens are difficult for fish to get out of to visit the wild.
b. Pens are difficult for fish to get out of to visit the wild.
c. Waste accumulates in the water
d. The pens are too sealed off from the open ocean and other fish

____ 72. ____ requires no extra feeding or aeration.
a. intensive aquaculture
b. investment aquaculture
c. intervention aquaculture
d. extensive aquaculture

____ 73. _____ uses high stocking rates.
a. intensive aquaculture
b. intensive aquaculture
c. artificial aquaculture
d. extensive aquaculture

____ 74. A(n) _____ system is one in which the water is pumped in at one place and removed at another.
a. open system
b. closed system
c. mixed system
d. integrated system

____ 75. The fish produce waste called _____ which is converted by bacteria into _____ which is then converted into _____ that can be used by the plants.
a. nitrites, ammonia, nitrates
b. ammonia, nitrites, nitrates
c. nitrites, nitrates, ammonia
d. nitrates, nitrites, ammonia

____ 76. Chemical and physical process of delivering oxygen to cells or tissues.
a. Breathing
b. Osmosis
c. Respiration
d. Mitochondria

____ 77. Which of the following is the correct equation for PHOTOSYNTHESIS?
a. light + carbon dioxide + water --> glucose + oxygen
b. carbon dioxide + sugar + water --> oxygen + light
c. oxygen + light + water --> carbon dioxide + sugar
d. carbon dioxide + oxygen + water --> Light+ Sugar

____ 78. How does a fish breathe?
a. Water enters through the nares and passes over the gill filaments where oxygen is removed and diffuses into the blood stream and is distributed to the body by the heart.
b. Water enters through the mouth and passes over the gill filaments where oxygen is removed and diffuses into the blood stream and is distributed to the body by the heart.
c. Water enters through the nares and passes over the gill filaments where oxygen is removed and moves into the blood stream via osmosis and is distributed to the body by the heart.
d. Water enters through the mouth and passes over the gill filaments where oxygen is removed and moves into the blood stream via osmosis and is distributed to the body by the heart.

____ 79. The swim bladder of a fish is a sac filled with:
a. oil
b. gas
c. water
d. seminal fluid

____ 80. How many chambers are in the heart of a bony fish?
a. 1
b. 2
c. 3
d. 4

____ 81. Cartilaginous fishes that have long, eel-like bodies, no scales, no appendages, and no jaws
a. Superclass Agnatha
b. Class Osteichthyes
c. Class Chondrichthyes
d. Superclass Gnathostomata

____ 82. Cartilaginous fishes that include sharks, skates, and rays
a. Superclass Agnatha
b. Class Osteichthyes
c. Class Chondrichthyes
d. Superclass Gnathostomata

____ 83. Bony fishes that include perch, trout, catfish, salmon, seahorses
a. Superclass Agnatha
b. Class Osteichthyes
c. Class Chondrichthyes
d. Superclass Gnathostomata

____ 84. Considered "modern" bony fish, these fish are fish most familiar to us; include catfish, trout, swordfish, salmon
a. chondrosteans
b. chondrosteans
c. teleosts
d. lungfish

____ 85. Fish that have fins on lobe-like stalks that extend outward from the body; most have two lungs and can breathe air
a. chondrosteans
b. gars
c. teleosts
d. lungfish

____ 86. What involves the farming of aquatic species under controlled conditions?
a. Fisheries Management
b. Aquaculture
c. Biotechnology
d. Conservation

____ 87. Organisms kept in enclosures to monitor and control environmental factors is...
a. Intensive aquaculture
b. Intensive management
c. Extensive aquaculture
d. Extensive management

____ 88. Rearing organisms in a natural situation is...
a. Intensive aquaculture
b. Intensive management
c. Extensive aquaculture
d. Extensive management

____ 89. What is the most common form of Aquaculture?
a. Pond Culture
b. Raceways
c. Recirculatory Systems
d. Cage Culture

____ 90. A solution has a pH of 7.0. What would happen to the pH if H ions were added?
a. pH would go up
b. pH would stay the same
c. pH would go down
d. None of these answers are correct

____ 91. What is pH?
a. A measure of how much water something can hold.
b. A measure of the amount solute a solvent can hold.
c. A measure of hydrogen ion concentration of a solution.
d. A measure of ion concentration in solution.

____ 92. Water has a neutral because
a. it has more H+ ions than OH-
b. it does not produce any ions
c. it has more OH- ions than H+
d. it has an equal amount of H+ and OH- in solution

____ 93. A pH of 3 is how many times more acidic than a pH of 5?
a. 2
b. 10
c. 20
d. 100

____ 94. Which of the following performs biological filtration?
a. All answer choices are correct
b. Performed by living organisms
c. Nitrifying bacteria
d. Plants

____ 95. NH3 is the chemical formula for which nitrogen compound?
a. Ammonia
b. Nitrite
c. Nitrate
d. Nitrogen

____ 96. NO3 is the chemical formula for which compound in the nitrogen cycle?
a. Ammonia
b. Nitrite
c. Nitrate
d. Nitrogen

____ 97. When you determine the size of the tank/aquarium, why do you have to divide by 231 after calculating the LxHxW?
a. Convert inches over to liters
b. Convert inches cubed to gallons
c. Convert inches to gallons
d. None of the answers are correct

____ 98. Suspended solids refers to:
a. The solids that remain on filter paper ater filtering a water sample
b. The solids that pass through the filter paper after filtering a water sample
c. The solids small enough to be chemically dissolved in the water
d. The small solids that remain afloat in still water after about an 1 hour

____ 99. The first species to be involved in aquaculture?
a. Trout
b. Catfish
c. Carp
d. Tilapia

____ 100. What is the scientific name for Channel Catfish?
a. Ictaluarus punctatus
b. Procambus clarkii
c. Oncorhynchus mykiss
d. Procambus zonangulas

____ 101. Mussels attached to any substrate by a threadlike ____.
a. Fiber
b. Fibrula
c. Byssus
d. Strand of muscle tissue

____ 102. What are the three phases of culture technology for prawns?
a. Incubation, Nursery, Finishing
b. Hatchery, Nursery, Grow out
c. Fertilization, Hatchery, Grow out
d. Birthing, Grow out, Finishing

____ 103. Spat is another term for ____.
a. Clam
b. Mussel
c. Oyster
d. Prawn

____ 104. Another name for live snails is ____.
a. Escargot
b. Emas
c. Snailius livius
d. Caviar

____ 105. What is another name for Enteria Speticemia?
a. Ich
b. Brown Blood
c. Hole in Head Disease
d. Acidosis

____ 106. What disease gives fish a cotton-like or fur-like appearance?
a. Anchor Worms
b. Hole in Head Disease
c. Dropsy
d. Saprolegnia fungus

____ 107. Which of these diseases is cause by a parasitic protozoon?
a. Hemorrhagic Septicemia
b. Acidosis
c. Brown Blood
d. Whirling Disease

____ 108. A Secchi disk is used to measure ____.

a. Turbidity
b. Dissolved Oxygen
c. Salinity
d. Nitrogen Pollution

____ 109. Trout grow best in water temperatures of ____.
a. 30 degrees to 48 degrees F
b. 50 degrees to 68 degrees
c. 40 degrees to 58 degrees
d. 60 degrees to 78 degrees

____ 110. The process of adding oxygen to a pond or raceway is called ____.
a. Bubbling
b. Bio-filtration
c. Acidifying
d. Aeration

____ 111. What is the most cultured crustacean in the U.S.?
a. Snails
b. Clams
c. Oysters
d. Shrimp

____ 112. What is the meaning of hemorrhage?
a. Internal bleeding of blood vessels
b. Color reduction in fish
c. Rotting of fins
d. A bacterial disease

____ 113. Which one of these is a fungal disease?
a. Branchiomycosis (Gill rot)
b. Columnaris disease
c. WSSV disease
d. Motile aeromonas septicaemia

____ 114. What is the name of this condition?

a. Hemorrhage
b. Loss of pigmentation
c. Exophthalmos
d. Dropsy

____ 115. When observed under microscope gram positive bacteria looks like:
a. Red or pinkish color
b. Purple color
c. Yellow color
d. White color

____ 116. Which of the following is the most significant limiting factor in the practice of aquaculture?
a. pH
b. Dissolved Oxygen
c. Salinity
d. Nitrogen

____ 117. What is the source of TAN?
a. Air and Biomedia
b. Food
c. Plants
d. Feces and Urine

____ 118. At what level of unionized ammonia do your fish DIE
a. 0.5
b. 1.0
c. 2.0
d. 3.0

____ 119. This is the end product of the nitrification process
a. Nitrite
b. Nitrate
c. Carbon Dioxide
d. Ammonium

____ 120. What causes brown blood disease?
a. Excessive Nitrates
b. Excessive Nitrites
c. Excessive Heat
d. Excessive Ammonia

____ 121. Why are high levels of CO2 harmful to fish?
a. Increase of bacteria in water
b. Brown Blood Disease
c. Feeding Increase
d. Suffocation

____ 122. The ability to resist changes in pH
a. Alkalinity
b. Hardness
c. pH
d. Nitrification

____ 123. Besides Lime this common chemical easily impacts alkalinity
a. Sugars
b. Sodium Thiosulfate
c. Ammonia
d. Baking Soda

____ 124. A pH above 7 is said to be
a. Acidic
b. Basic
c. Neutral
d. Poor for fish

____ 125. What is the purpose of biomedia in a RAS system
a. Break down non soluble waste
b. Break down waste
c. Break down ammonia and nitrite
d. Fish Feeding

____ 126. The waste from fish to feed the plants. What does the plants breakdown and use as food?
a. Ammonia
b. Salt
c. Nitrite
d. Nitrate

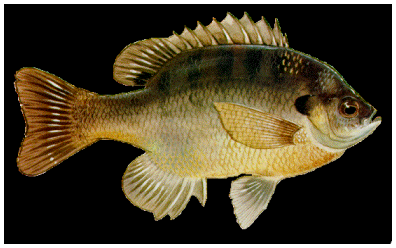
____ 127. When the temperature is raised in the system your must plan to increase
a. Lighting
b. Feedings
c. Water Flow
d. Filtration

____ 128. What kind of fish is this?

a. Bluegill
b. Crappie
c. Black Crappie
d. Smallmouth bass

____ 129. What fish is this?
a. Brown Trout
b. Brook Trout
c. Rainbow Trout
d. Lake Trout

____ 130. What kind of fish is this?



a. Pumpkinseed
b. Bluefish
c. Sunfish
d. Rock Bass

____ 131. What kingdom are fish in?
a. Animalia
b. Fishes
c. Aves
d. Mammalia

____ 132. What phylum are fish in?
a. Mammalia
b. Invertebrates
c. Chordata
d. Amphibians

____ 133. Taking a net and dragging it across a pond
a. Drag Net
b. Seine
c. Skimmer net
d. Cast Net

____ 134. On the average, how much feed is required to produce a pound of gain in fish?
a. 0.5 lbs.
b. 1.0 lbs.
c. 2.0 lbs.
d. 2.5 lbs.

____ 135. _____ Is the greatest competitor with fish for dissolved oxygen in pond water.
a. Protist
b. Fungi
c. Virus
d. Bacteria

____ 136. List two ways oxygen gets into the water
a. Diffusion and Osmosis
b. Diffusion and Respiration
c. Diffusion and Photosynthesis
d. Photosynthesis and Osmosis

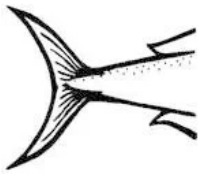
____ 137. What is the name of this fish scale?

a. Ganoid
b. Cycloid
c. Placoid
d. Ctenoid

____ 138. What is the name of this fish scale?

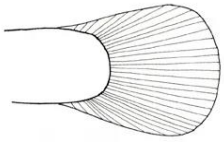
a. Placoid
b. Cycloid
c. Placoid
d. Ctenoid

____ 139. What is the shape of this caudal fin?



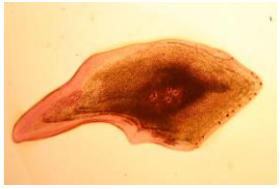
a. Forked
b. Rounded
c. Lunate
d. Emarginate

____ 140. What is the shape of this caudal fin?



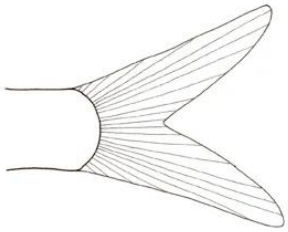
a. Forked
b. Rounded
c. Lunate
d. Emarginate

____ 141. What is the name of this fish scale?



a. Ganoid
b. Cycloid
c. Placoid
d. Ctenoid

____ 142. What is the shape of this caudal fin?



a. Forked
b. Rounded
c. Lunate
d. Emarginate

____ 143. Most fish are covered with _____, which are thin, bony plates that provide protection
a. Skin
b. Scales
c. Slime
d. Barbels

____ 144. Located on the ventral surface behind the anus, and used for stabilizing for swimming
a. Dorsal
b. Anal
c. Dorsal
d. Caudal

____ 145. Another name for operculum is
a. Gill Cover
b. Gonadipodium
c. Lateral Line
d. Gill filaments

____ 146. A fish that has an upturn mouth will feed at the
a. Bottom
b. Top
c. Mid
d. All over

____ 147. Torpedo like shape that allows a fish to be a swift swimmer
a. round
b. oblong
c. square
d. fusiform

____ 148. Term used to describe reproduction when eggs are laid outside the female's body.
a. placental
b. viviparous
c. ovoviviparous
d. oviparous

____ 149. In the life cycle of a fish when a male fish changes to a female
a. protogyny
b. spawning
c. protandry
d. morphology

____ 150. Pigment cells in the skin of a fish
a. epidermis
b. placoid
c. cycloid
d. chromatophores

____ 151. Tool used in identification and classification, that uses paired statements to ID organisms
a. taxonomy
b. dichotomous key
c. morphology
d. diffusion

____ 152. Ability to float or sink is referred to as._____
a. regulator
b. density
c. buoyancy
d. swim bladder

____ 153. Protective covering on the eye of a shark
a. nictitating membrane
b. Ampullae of Lorenzini
c. lateral line
d. dermal denticle

____ 154. Structures that look like whiskers that aid catfish in finding food
a. dermal denticles
b. spiracles
c. cartilage
d. barbels

____ 155. Type of reproduction when females bears live young with a placenta
a. viviparous
b. ovoviviparous
c. oviparous
d. spiracle

____ 156. Type of reproduction involving internal young attached to yolk sacs
a. oviparous
c. ovoviviparous

b. viviparous
d. placental

____ 157. Movement of dissolved oxygen from the water into the blood at the gills of a fish
a. absorption
c. transport
b. diffusion
d. osmosis

____ 158. When females swim upstream to lay eggs and males follow to fertilize them
a. buoyancy
c. spawning
b. protogyny
d. breeding

____ 159. Saltwater (marine) ecosystems make up _____ of all water on earth.
a. 3%
c. 97%
b. 50%
d. 100%

____ 160. Freshwater ecosystems make up _____ of all water on Earth.
a. 3%
c. 97%
b. 50%
d. 100%

____ 161. Most of earth's freshwater is located in _____.
a. gulfs, seas, and oceans
c. lakes, rivers, and seas
b. ponds, seas, and bays
d. glaciers, lakes, and rivers

____ 162. What is aquaculture?
a. The study of saltwater and freshwater organisms for use in medicine
b. The breeding of land plants and animals to be used as fish feed
c. The manufacturing of aquatic organisms into feed and fertilizer
d. The breeding, raising and harvesting of both fresh and saltwater organisms

____ 163. Fresh and saltwater mix in
a. rivers
c. streams
b. lakes
d. brackish water

____ 164. What is a production facility that recycles water?
a. tank
c. recirculating facility
b. offshore aquaculture
d. raceway

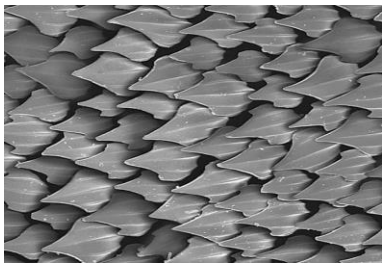
____ 165. Which of these types of fish is NOT good for aquaponics?
a. tilapia
c. koi
b. clownfish
d. bluegill

____ 166. In what year, did the Chinese start raising carp which started the aquaculture industry?
a. 1100 BC
c. 600 BC
b. 1650
d. 2018

____ 167. What is the number one state of freshwater diversity?
a. California
c. Minnesota
b. Texas
d. Alabama

____ 168. How many miles of rivers and streams in Alabama?
a. 169,000
c. 93,000
b. 132,000
d. 79,000

____ 169. What is the name of this fish scale?



a. Ganoid
b. Cycloid
c. Placoid
d. Ctenoid

____ 170. Cartilaginous fishes that have long, eel-like bodies, no scales, no appendages, and no jaws
a. Superclass Agnatha
b. Class Chondrichthyes
c. Class Osteichthyes
d. Superclass Gnathostomata

____ 171. Jawless fish that lack vertebrae, have two rows of teeth on their tongue; scavengers; produce huge amounts of slime
a. hagfish
b. guitarfish
c. lampreys
d. sunfish

____ 172. Jawless fish that have a circular mouth that is continuously open; many are parasitic; some migrate to freshwater to reproduce
a. hagfish
b. guitarfish
c. lampreys
d. sunfish

____ 173. Cartilaginous fishes that include sharks, skates, and rays
a. Superclass Agnatha
b. Class Chondrichthyes
c. Class Osteichthyes
d. Superclass Gnathostomata

____ 174. Bony fishes that include perch, trout, catfish, salmon, seahorses
a. Superclass Agnatha
b. Class Chondrichthyes
c. Class Chondrichthyes
d. Superclass Gnathostomata

____ 175. Considered "modern" bony fish, these fish are fish most familiar to us; include catfish, trout, swordfish, salmon
a. chondrostean
b. teleost’s
c. gars
d. lungfish

____ 176. Fish that have fins on lobe-like stalks that extend outward from the body; most have two lungs and can breathe air
a. chondrostean
b. teleost’s
c. gars
d. lungfish

____ 177. What can add dissolved oxygen to the water?
a. Photosynthesis
b. Diffusion from the air above
c. Wave and Wind Action
d. All answers are correct

____ 178. What can REMOVE dissolved oxygen from the water?
a. cellular respiration
b. warming waters
c. decomposition
d. all answer choices are correct

____ 179. The activated carbon performs what kind of filtration?
a. Chemical
c. Mechanical

b. Biological
d. All answer choices are correct

____ 180. What is one way to lower the amount of nitrates in your tank?
a. do a partial water change
c. add more fish
b. remove fish
d. lower the water temperature

____ 181. How do bacteria affect Dissolved Oxygen (DO) in water bodies?
a. increase DO through decomposition
c. decrease DO through decomposition
b. DO stays the same
d. bacteria multiply DO by 8

____ 182. What is countershading?
a. iridescence
c. dark dorsal...white ventral
b. white dorsal...dark ventral
d. fluorescence

____ 183. Which species is the top producer in the US?
a. Catfish
c. Striped Bass
b. Tuna
d. Salmon

____ 184. How much of the world's seafood comes from aquaculture?
a. 75%
c. 50%
b. 25%
d. 10%

____ 185. What type of tail fin allows fish to swim slow?
a. forked
c. lunate
b. rounded
d. emarginate

____ 186. When dissolved Nitrite in the water is abnormally high, the condition it causes in fish is?
a. high gas
c. gas bubble disease
b. bubbles
d. brown blood disease

____ 187. A sample of water that contains 180 ppm of Calcium Carbonate. This water would be considered...
a. soft
c. very hard
b. hard
d. moderately soft

____ 188. Respiration by fish adds CO2 to the water. This ___ pH of the water
a. increases
c. decreases
b. neutralizes
d. does not change the pH

____ 189. The salinity of seawater is ...
a. 5 ppt
c. 15 ppt
b. 35 ppt
d. 60 ppt

____ 190. In catfish, broken back disease is caused by ...
a. vitamin deficiency
c. protein deficiency
b. bacterial blood disease
d. parasitic infection

____ 191. What causes Ich?
a. Bacteria
c. Nutrition issue
b. Virus
d. Parasite

____ 192. Feeding behavior is easier to monitor when _____ feed is used.
a. floating
c. sinking
b. meal
d. live

____ 193. What does a 1.5 feed conversion ration mean?

a. fish produce 1.5 lbs. of fish per pound of feed
b. Fish have to be fed 1.5 lbs. before converted
c. fish have to weigh 1.5 lbs. before they can convert the feed
d. fish produce 1.5 lbs. of body weight per 1.5 lbs. per feed

____ 194. What is the normal weight at which shrimp are harvested in the United States?
a. 16-18 grams
b. 10-15 grams
c. 5-7 grams
d. 20 grams

____ 195. The hybrid Striped Bass is a cross between which two fish.
a. Hybrid Carp and White Bass
b. White Bass and hybrid trout
c. White Bass and hybrid trout
d. Striped Mullet and Striped Bass

____ 196. Most cultured trout is ___?
a. lake
b. brook
c. brown
d. rainbow

____ 197. Which type of breeding improves growth rate, feed conversion, and disease resistance?
a. inbreeding
b. crossbreeding
c. pure breeding
d. homozygous cross

____ 198. Under ideal conditions, how often can female tilapia spawn
a. once a year
b. twice a year
c. every 4-6 weeks
d. every 6-10 weeks

____ 199. 10 ppm = 10 parts salt _____ parts water
a. 1,000,000,000
b. 1,000,000
c. 1,000
d. 100,000

____ 200. What does ectothermic mean?
a. warm blooded
b. cold blooded
c. warm extremities
d. cold extremities

Aquaculture CDE Test Bank
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1
2. ANS: D PTS: 1
3. ANS: B PTS: 1
4. ANS: B PTS: 1
5. ANS: A PTS: 1
6. ANS: A PTS: 1
7. ANS: A PTS: 1
8. ANS: C PTS: 1
9. ANS: A PTS: 1
10. ANS: C PTS: 1
11. ANS: D PTS: 1
12. ANS: C PTS: 1
13. ANS: B PTS: 1
14. ANS: C PTS: 1
15. ANS: B PTS: 1
16. ANS: D PTS: 1
17. ANS: C PTS: 1
18. ANS: A PTS: 1
19. ANS: C PTS: 1
20. ANS: C PTS: 1
21. ANS: C PTS: 1
22. ANS: D PTS: 1
23. ANS: D PTS: 1
24. ANS: D PTS: 1
25. ANS: D PTS: 1
26. ANS: D PTS: 1
27. ANS: B PTS: 1
28. ANS: D PTS: 1
29. ANS: D PTS: 1
30. ANS: D PTS: 1
31. ANS: B PTS: 1
32. ANS: B PTS: 1
33. ANS: C PTS: 1
34. ANS: B PTS: 1
35. ANS: D PTS: 1
36. ANS: A PTS: 1
37. ANS: A PTS: 1
38. ANS: C PTS: 1
39. ANS: C PTS: 1
40. ANS: D PTS: 1
41. ANS: B PTS: 1

42. ANS: B PTS: 1
43. ANS: B PTS: 1
44. ANS: A PTS: 1
45. ANS: C PTS: 1
46. ANS: B PTS: 1
47. ANS: C PTS: 1
48. ANS: D PTS: 1
49. ANS: C PTS: 1
50. ANS: A PTS: 1
51. ANS: A PTS: 1
52. ANS: B PTS: 1
53. ANS: D PTS: 1
54. ANS: C PTS: 1
55. ANS: C PTS: 1
56. ANS: A PTS: 1
57. ANS: A PTS: 1
58. ANS: B PTS: 1
59. ANS: B PTS: 1
60. ANS: B PTS: 1
61. ANS: A PTS: 1
62. ANS: B PTS: 1
63. ANS: A PTS: 1
64. ANS: B PTS: 1
65. ANS: A PTS: 1
66. ANS: D PTS: 1
67. ANS: D PTS: 1
68. ANS: B PTS: 1
69. ANS: C PTS: 1
70. ANS: B PTS: 1
71. ANS: C PTS: 1
72. ANS: D PTS: 1
73. ANS: A PTS: 1
74. ANS: A PTS: 1
75. ANS: B PTS: 1
76. ANS: C PTS: 1
77. ANS: A PTS: 1
78. ANS: B PTS: 1
79. ANS: B PTS: 1
80. ANS: B PTS: 1
81. ANS: A PTS: 1
82. ANS: C PTS: 1
83. ANS: B PTS: 1
84. ANS: C PTS: 1
85. ANS: D PTS: 1
86. ANS: B PTS: 1
87. ANS: A PTS: 1
88. ANS: C PTS: 1

89. ANS: A PTS: 1
90. ANS: C PTS: 1
91. ANS: C PTS: 1
92. ANS: D PTS: 1
93. ANS: D PTS: 1
94. ANS: A PTS: 1
95. ANS: A PTS: 1
96. ANS: C PTS: 1
97. ANS: C PTS: 1
98. ANS: D PTS: 1
99. ANS: C PTS: 1
100. ANS: A PTS: 1
101. ANS: C PTS: 1
102. ANS: B PTS: 1
103. ANS: C PTS: 1
104. ANS: A PTS: 1
105. ANS: C PTS: 1
106. ANS: D PTS: 1
107. ANS: D PTS: 1
108. ANS: A PTS: 1
109. ANS: B PTS: 1
110. ANS: D PTS: 1
111. ANS: D PTS: 1
112. ANS: A PTS: 1
113. ANS: A PTS: 1
114. ANS: D PTS: 1
115. ANS: B PTS: 1
116. ANS: B PTS: 1
117. ANS: D PTS: 1
118. ANS: C PTS: 1
119. ANS: B PTS: 1
120. ANS: B PTS: 1
121. ANS: D PTS: 1
122. ANS: A PTS: 1
123. ANS: D PTS: 1
124. ANS: B PTS: 1
125. ANS: C PTS: 1
126. ANS: D PTS: 1
127. ANS: B PTS: 1
128. ANS: C PTS: 1
129. ANS: A PTS: 1
130. ANS: B PTS: 1
131. ANS: A PTS: 1
132. ANS: C PTS: 1
133. ANS: B PTS: 1
134. ANS: C PTS: 1

135. ANS: D PTS: 1
136. ANS: C PTS: 1
137. ANS: D PTS: 1
138. ANS: B PTS: 1
139. ANS: C PTS: 1
140. ANS: B PTS: 1
141. ANS: A PTS: 1
142. ANS: A PTS: 1
143. ANS: B PTS: 1
144. ANS: B PTS: 1
145. ANS: A PTS: 1
146. ANS: B PTS: 1
147. ANS: D PTS: 1
148. ANS: D PTS: 1
149. ANS: C PTS: 1
150. ANS: D PTS: 1
151. ANS: B PTS: 1
152. ANS: C PTS: 1
153. ANS: A PTS: 1
154. ANS: D PTS: 1
155. ANS: A PTS: 1
156. ANS: C PTS: 1
157. ANS: B PTS: 1
158. ANS: C PTS: 1
159. ANS: C PTS: 1
160. ANS: A PTS: 1
161. ANS: D PTS: 1
162. ANS: D PTS: 1
163. ANS: D PTS: 1
164. ANS: C PTS: 1
165. ANS: B PTS: 1
166. ANS: A PTS: 1
167. ANS: D PTS: 1
168. ANS: B PTS: 1
169. ANS: C PTS: 1
170. ANS: A PTS: 1
171. ANS: A PTS: 1
172. ANS: C PTS: 1
173. ANS: B PTS: 1
174. ANS: C PTS: 1
175. ANS: B PTS: 1
176. ANS: D PTS: 1
177. ANS: D PTS: 1
178. ANS: D PTS: 1
179. ANS: A PTS: 1
180. ANS: A PTS: 1
181. ANS: C PTS: 1

182. ANS: C PTS: 1
183. ANS: A PTS: 1
184. ANS: C PTS: 1
185. ANS: B PTS: 1
186. ANS: D PTS: 1
187. ANS: B PTS: 1
188. ANS: C PTS: 1
189. ANS: B PTS: 1
190. ANS: A PTS: 1
191. ANS: D PTS: 1
192. ANS: A PTS: 1
193. ANS: D PTS: 1
194. ANS: A PTS: 1
195. ANS: C PTS: 1
196. ANS: D PTS: 1
197. ANS: B PTS: 1
198. ANS: C PTS: 1
199. ANS: B PTS: 1
200. ANS: B PTS: 1