

Station 4

A1. Fish photo labeled "A" belongs to which feeding guild?

2 points

- A) Piscivore B) Zooplanktivore C) Benthivore

Explain your choice:

ANSWER: Because of mouth placement and shape, and species of fish (Black Buffalo)

A2. Using the dichotomous Family key provided, identify fish specimen "B" to species. Remember, preserved fish may not retain the coloration of live specimens.

2 points

Genus: Fundulus Species: grandis

A3. What major watershed are you located in at this time?

1 point

ANSWER: Armand Bayou Watershed (Horsepen Bayou Sub-watershed), San Jacinto/Trinity River Basin.

A4. A) Define Aquaculture and list one (1) example.

2 points

ANSWER: farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants.

B) Define Polyculture and list one (1) example.

2 points

ANSWER: Polyculture is agriculture using multiple crops in the same space, in imitation of the diversity of natural ecosystems, and avoiding large stands of single crops. Aquaponics systems use a combination of aquatic plants and crawfish in the same culture space.

A5. What are the three (3) general criteria that the US Environmental Protection Agency and US Army Corps of Engineers state must be present before an area can be deemed a wetland?

3 points

**ANSWER: Hydric soils
Hydrophytic vegetation
Wetland hydrology - permanent or periodic inundation or soil saturation to the surface, at least seasonally (usually a week or more during the growing season)**

12 total points

Station 4

CI 1. Describe one (1) way that ecotourism can benefit sustainable agriculture?

1 point

ANSWER: Sustainable agriculture includes maintaining the natural state of a cropped area, which in turn maintains its natural beauty and its natural biota. Areas that retain their natural amenities can attract ecotourism. These tourists provide a ready-made market for the agricultural products grown in the area.

CI 2. What is one (1) advantage to preserving woodlands in agricultural areas?

1 point

ANSWER: Preserving woodlands improves water infiltration, creates breeding and feeding grounds for diverse bird, insect, and wildlife species, cuts down on wind erosion, adds aesthetic value, and contributes forest products to the local economy.

CI 3. Some native wildlife (deer, rabbits) can be agricultural pests. How can you prevent these animals from damaging agricultural production if you maintain their habitat in the same area? Offer two (2) suggestions.

2 points

ANSWER: Planting attractor crops which wildlife prefer over cash crops can reduce crop damage by wildlife. Controlled hunting of certain species can prevent overpopulation and increase revenue for the area. Control of some species will require physical barriers—fences, netting, etc.

CI 4. Plants have enhanced insect pollination over generations. Describe one (1) change plants have made to enhance pollination.

1 point

ANSWER: Adaptations in shape, color, and timing of flowering.

CI 5. Many native pollinators are more efficient than bees at pollinating plants. Why are bees considered more useful in agriculture and horticulture? Give two (2) reasons.

2 points

ANSWER: Some bees such as the European Honey Bee are polylectic which means they are able to find good food sources from many different plant species. Other bees are oligolectic, like the Alfalfa Leafcutter Bee that is very specific about the plant species that it chooses for food. In addition, honeybees are more interested in nectar. Wild, native bees are mostly pollen collectors. Domestic bees serve a dual purpose in that they serve as effective pollinators at the same time that they produce marketable products for the beekeeper. They can also be managed, moved, and controlled, which increases the reliability of pollination.

CI 6. What are two (2) advantages of well-managed and not overstocked pasture-raised livestock animals as opposed to those raised in CAFO's? What does the acronym CAFO stand for?

3 points

ANSWER: Require fewer antibiotics to keep healthy, reduce soil erosion, increase soil fertility, store carbon, provide habitat for beneficial organism, produce less waster product, fewer *E. coli*, eat grass, which is low on the food chain and is not a human food source, etc.

ANSWER: Confined or Concentrated Animal Feeding Operation.

10 points total

Station 4

F1. Describe two (2) benefits of prescribed fire.

2 points

ANSWER: Manage undesirable vegetation, control invasive species and restore native plant communities, enhance seedling regeneration after a harvest, reduce wildfire hazard through fuel reduction, manage longleaf pine and other fire dependent species, improve aesthetics and accessibility, site preparation prior to reforestation.

F2. What is Silviculture?

1 point

ANSWER: The art and science of growing trees.

F3. Site index is determined based on what two variables? Circle your ANSWER.

1 point

A.) Total height and dbh

B.) Total height and age

C.) Merchantable height and basal area

D.) Merchantable height and age

F4. What is the radius of a 1/10th acre, fixed radius, and circular plot? What is the radius of a variable radius plot?

2 points

ANSWER: The radius of a 1/10th acre plot is 37.24 ft. A variable radius plot, by definition has no fixed radius.

F5. Using the provided field guide, identify the species of tree labeled F5. What use does this tree have?

2 points

ANSWER: Green Ash (*Fraxinus pennsylvanica*). It is used in high quality furniture and baseball bats.

8 total points

Station 4

S1. Using the soil textural chart (provided), what is the soil texture of a soil containing 65 percent sand, and 10 percent clay? What is the percentage of silt in this soil?

2 points

ANSWER: Sandy loam, 25 percent silt

S2. From the soils pit, and using the Munsell color book provided, what is the Munsell color of the topsoil?

2 points

ANSWER: TBD. 2 point question; 1 point accepted for _____.

S3. From the soils pit, what is the soil texture of both the topsoil and the subsoil?

2 point

**ANSWER: Topsoil: TBD
 Subsoil: TBD**

S4. From the soils pit, using the provided tape measure, what is the thickness of the surface soil?

1 point

ANSWER: TBD

S5. What is the principle cause of the darker color at the surface?

1 point

ANSWER: Organic matter (accept organic carbon, humus)

S6. What is the horizon between the darker surface horizon and the subsoil called?

1 point

ANSWER: E or eluvial horizon

S7. There is a wet area along the right side of the road as you come in. Why does the Yaupon grow on the mound, but not in the wet area?

1 point

ANSWER: Yaupon prefer a better drained soil

S8. As flooding occurs, which sediments are first to drop out of suspension?

1 point

A) Clays B) Sands C) Silts D) Loams

11 total points

Station 4

W1. List two (2) functions of a bird's feathers.

2 points

ANSWER: Insulation to retain body heat, flying, weatherproof, protection, camouflage, mate attraction, and flexibility.

W2. What is considered the squirrels' most preferred food item? Circle the correct ANSWER.

1 point

Acorn

Chinese Tallow berry

Hickory nut

Pecan

W3. Look at the skull on the table:

a. Look closely at the dentition. Is this animal a carnivore, an herbivore or an omnivore? Explain your ANSWER.

2 points

ANSWER: TBD

b. What species of animal did this skull belong to?

1 point

ANSWER: TBD

W3. Look at the photographs on the table labeled "Wildlife A" and "Wildlife B". Identify each animal by common name and whether it is venomous or non-venomous.

4 points

ANSWER: Wildlife A: Coral Snake – venomous

Wildlife B: Milk snake – not venomous

W5. Toads are more likely to employ which type of foraging strategy?

1 point

A) Active Hunter

B) Sit and Spin

C) Grazer

D) Sit and Wait

11 total points