

## 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 waste 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 1/10<sup>th</sup> acre, fixed radius, and circular plot? What is the radius of a variable radius plot?

2 points

**ANSWER:** The radius of a 1/10<sup>th</sup> 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