

CT Envirothon Aquatics Exam 2008

Print the name of your Team/School on the line in the upper right hand corner of this page and **each** additional page. For each of the questions in this exam you will either circle the correct answer or fill in the blank space(s) provided. All specimen identifications are within the first third of the exam and you are allowed to use the provided keys to ID each organism. Each question is worth 3 points except for 34, which is worth only one. **GOOD LUCK!!!**

Use Freshwater Fishes Key to identify the following specimens.

- 1) What is the species in tray #1?
 - a) **Micropterus salmoides**
 - b) *Esox niger*
 - c) *Lepomis gibbosus*
 - d) *Micropterus dolomieu*
- 2) What is the species in tray #2?
 - a) *Cyprinus carpio*
 - b) **Salmo salar**
 - c) *Lepomis gibbosus*
 - d) *Pterygoplichthys gibbiceps*

Use the Saltwater Fishes Key to Identify the following Specimens.

- 3) What is the species in tray #3?
 - a) *Pleuronectes americanus*
 - b) *Paralichthys oblongus*
 - c) *Centropristis striata*
 - d) **Tautoglabrus adspersus**
- 4) What is the species in tray #4?
 - a) *Pomatomus saltatrix*
 - b) *Morone saxatilis*
 - c) **Stenotomus chrysops**
 - d) *Trinectes maculatus*

Use the Invasive Aquatic Plants in CT Guide for the following specimens.

- 5) What is the species in tray #5?
 - a) *Potamogeton crispus*
 - b) **Egeria densa**
 - c) *Myriophyllum heterophyllum*
 - d) *Trapa natans*
- 6) What is the species in tray #6?
 - a) *Cabomba caroliniana*
 - b) *Alliaria petiolata*
 - c) **Myriophyllum aquaticum**
 - d) *Myriophyllum spicatum*

Use the Guide for Riffle Dwelling Macroinvertebrates of CT for the following specimens.

7) What is the species in vial #7?

- a) **Tipulidae**
- b) Psephenidae
- c) Elmidae
- d) Tabanidae

8) What is the species in tray #8?

- a) Heptageniidae
- b) Siphonuriidae
- c) **Amphipoda**
- d) Pteronarcyidae

Use the Freshwater Mussels Guide for the following specimen.

9) What is the species in container #9?

- a) **Elliptio complanata**
- b) Lampsilis cariosa
- c) Dreissena polymorpha
- d) Alasmidonta heterodon

Use the Salamander Guide to ID the following specimens.

10) What is the species in container #10?

- a) Plethodon cinereus
- b) Desmognathus fuscus
- c) Gyrinophilus parapyriticus
- d) **Eurycea bislineata**

11) What is the species in container #11?

- a) **Ambystoma maculatum**
- b) Ambystoma jeffersonianum
- c) Ambystoma laterale
- d) Necturus maculosus

Use the Saltwater Invertebrate Key for the following specimens.

12) What is the species in container #12?

- a) Limulus polyphemus
- b) **Homarus americanus**
- c) Callinectes sapidus
- d) Carcinus maenas

13) What is the species in container #13?

- a) Aurelia aurita
- b) Crepidula fornicata
- c) **Asterias amurensis**
- d) Mya arenaria

For the remaining questions on the exam, no ID guides or other reference materials may be used. All questions do come directly from the materials posted on the CT Envirothon website and are referenced for your future learning. Please ask if you have any specific questions as you work through the exam.

14) To reduce the risk of transporting invasive species when you leave a body of water after recreational use you should do which of the following: (*pg 1 Stop Aquatic Hitchhikers Fact sheet*)

- a) soak your body in bleach to kill bacteria and parasites
- b) remove visible mud, plants, fish or animals before transporting equipment**
- c) release unused bait into the water body
- d) spray your dog with a hose

The following section is a matching activity. The document *Effects of Motorized Watercraft* lists several potential negative impacts of motorized watercraft and also lists potential solutions to mitigate those problems. You will need to match the potential negative effect of motorized watercraft with a potential solution to that problem. Choose a solution from column A and a problem from Column B for each question. Only Items directly addressed in the document will be correct. Not every choice will be used.

| Column A | Column B |
|------------------|----------------------|
| 1. No Wake Zones | A. Water Pollution |
| 2. Technology | B. Boating Accidents |
| 3. Canoes | C. Shoreline Erosion |
| 4. Life Jackets | D. Noise |
| 5. Bait Re-use | E. Litter |

15) Solution (Column A) _____ Problem (Column B) _____

16) Solution (Column A) _____ Problem (Column B) _____

**Answers are: No-Wake Zones - Shoreline Erosion
Technology - Water Pollution**

17) Which of the following is a characteristic of a good site to create a sandy beach? (*Reducing Recreational Impacts pg.3*)

- a) Very steep slope towards the water body
- b) Several springs of water flowing into the waterbody
- c) Lots of established aquatic vegetation**
- d) No established aquatic vegetation

18) Which of the following actions is something you should NOT do when you are camping?
(*Reducing Recreational Impacts pg5*)

- a) Properly Dispose of garbage including additional litter you may find
- b) Wash your dishes 150 feet from the water's edge using biodegradable soap
- c) **Bury any human waste in the bank of the water body**
- d) Filter and boil any surface water to be used for drinking

19) The definition of the word biomonitoring is:?
(*macro doc for Envirothon pg 2*)

- a) looking for life
- b) **the use of organisms to test water quality**
- c) the use of dissolved oxygen testing
- d) determining water quality based on pH

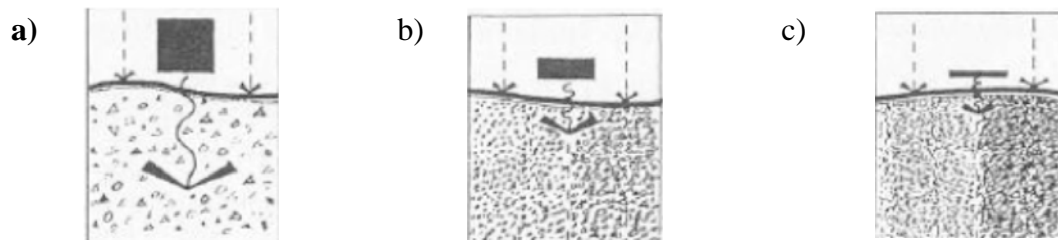
20) With 3,412 acres of lakes negatively affected in the State of CT, what is the largest cause of impairment for lakes?
(*2002 fact sheet pg6*)

- a) **PCBs (fish consumption concern)**
- b) Indicator Bacteria
- c) Exotic Species
- d) Dumping of Food Coloring

21) Which of the following choices is true when looking at the water budget for an area dominated by large trees?
(*What Happens to Water pp7-12*)

- a) **Interception rates are high, Erosion/Runoff rates are low, Transpiration rates are high**
- b) Interception rates are low, Erosion/Runoff rates are low, Transpiration rates are low
- c) Interception rates are high, Erosion/Runoff rates are high, Infiltration rates are low
- d) Interception rates are low, Erosion/Runoff rates are high, Infiltration rates are high

22) Which box below will allow for the quickest infiltration rates of a precipitation event?
(*What Happens to Water pg .11*)



23) When you walk your dog or other pets it is important to clean up after them and dispose of the waste properly. Which of the following is NOT a negative consequence of leaving the waste on the ground? (*After the Storm Guide pg 2*)

- a) Sticky, smelly shoes
- b) Bacteria and pathogens washing into a stream
- c) Nutrient Loading of a water body
- d) Spending time outdoors with your pet**

24) Purple Loosestrife is a common Invasive wetland plant in much of CT. The plant is able to outcompete local species for several reasons including immense seed creation and distribution. According to *the Invasive Aquatic Plants guide on page 9*, how many seeds can one plant generate?

- a) 200-300
- b) 20,000-30,000
- c) 2,000,000-3,000,000**
- d) 20,000,000-30,000,000

25) Suspended sediment is a problem in aquatic systems for several reasons. Which of the following is not a negative impact of suspended sediment? (*Stormwater Center article 14 pg 1*)

- a) Increased wear and tear on hydroelectric equipment
- b) Reduced sight distance for trout lowering feeding efficiency
- c) Painful teeth brushing experiences**
- d) Abrades and damages fish gills, increasing infection and disease rates

26) As little as 10% impervious surface in a watershed has been shown to lead to degraded water quality. The higher the % imperviousness, the more severe the problems within the watershed. Which of the following changes is found in urban streams due to increased impervious surface? (*Stormwater Center article 128 pg6*)

- a) Sediment loading increases**
- b) Large woody debris is increased
- c) Summer temperatures decrease
- d) Potential fish barriers decrease

27) The red algae *Grateloupia turuturu* is an invasive algae from Japan and has been found in Long Island Sound. What native species of red algae is in direct competition, and likely losing to *Grateloupia*? (*red algae invasion pg. 2*)

- a) irish moss**
- b) red herring
- c) red handed
- d) red faced

28) What is the approximate number of river miles in the State of CT?(2002 fact sheet pg 1)

- a) 100,000
- b) 3,000
- c) **5,800**
- d) 58,000

29) The word hydroperiod is defined as: (*Salamander Terminology slide 5*)

- a) A water break during football game
- b) August – October
- c) **The time a vernal pool or pond contains water**
- d) El nino

For the following three questions use words in the box to complete the blanks in the paragraph below. The paragraph is taken word for word from the *Buffer Fact Sheet*. Each blank is numbered and only one word fits per blank. Not all words will be used and any word will be used only once.

“Land within buffer areas is not developed and, therefore, generally does not generate pollution. Vegetated buffer strips act as (30)_____ to intercept and absorb nutrients, sediment and other pollutants carried in stormwater run-off. Buffers slow down runoff which both reduces (31)_____ and allows silt and other suspended solids to settle out before they reach a receiving waterbody or wetlands. Additionally, any contaminants attached to the sediment do not reach the waterbody or wetlands. Vegetated buffers provide an area for infiltration, thereby reducing the (32)_____ of runoff. Bacteria, pathogens and pesticides that are trapped within the buffer area decompose or are broken down, thus preserving water quality.

| | |
|---------------------|----------------------|
| -erosion(31) | -bacteria |
| -color | -carbonation |
| -smell | -cadmium |
| -volume(32) | -salinity |
| -pH | -filters (30) |
| -Dissolved oxvgen | |

33) The use of benthic macroinvertebrates to determine stream health is known as biomonitoring. When scientists collect and analyze a benthic population several characteristics are used to determine the health of the water body. Which of the following are ALL characteristics used to determine stream health? (*Riverwatch Macro guide pg 12*)

- a) **abundance, diversity, pollution tolerance**
- b) abundance, pollution tolerance, resistance to heavy flows
- c) diversity, functional feeding groups, % calcium carbonate
- d) % blue colored, diversity, composition

34) Who is going to win the World Series this year _____? (1point only)
Any answer is correct