

CT Envirothon Aquatics Exam 2022 (KEY)

Print the name of your Team/School on the line in the upper righthand corner of this page and EACH additional page. For each of the questions in this exam, circle the correct answer or fill in the blank space(s) provided.

All specimen identifications are included in the first half of the exam and you are allowed to use the provided keys to ID each organism. Each question from #1 – #16 is worth 2 points, and Questions #17 – #39 are worth 3 points unless noted otherwise. **GOOD LUCK!!!**

PRACTICAL SECTION

Use The Amphibians of Connecticut to answer the following questions:

1) What is the species in container #1?

- a) *Necturus maculosus*
- b) *Notophthalmus viridescens*
- c) *Ambystoma maculatum*
- d) *Bufo fowleri*

Answer: A

2) What is the species in container #2?

- a) *Necturus maculosus*
- b) *Notophthalmus viridescens*
- c) *Ambystoma maculatum*
- d) *Bufo fowleri*

Answer: D

3) What is the main food source for the adult form of the organism in container #3?

- a) Leaves and Debris
- b) Zooplankton
- c) *Insects and other invertebrates*
- d) None of the above

Answer: C

4) The organism in container #4 can be an indicator of what habitat condition?

- a) *A Vernal Pool*
- b) The Ocean
- c) A Stream
- d) Terrestrial

Answer: A

Use the Connecticut Fish Key to identify the following organisms:

5) What is the species in container #5

- a) *Squalus sp.*
- b) *Anguilla rostrata*
- c) *Salmo salar*
- d) *Alosa pseudoharengus*

Answer: A

6) What is the species in container #6?

- a) *Squalus sp.*
- b) *Anguilla rostrata*
- c) *Salmo salar*
- d) *Alosa pseudoharengus*

Answer: B

Please utilize the Key to Saltwater Invertebrates to identify the following organisms:

7) Are the two species in container #7 and #8 considered a native or invasive species to Long Island Sound?

- a) Both species are native
- b) Both species are invasive
- c) Species in container #7 is native, species in container #8 is invasive
- d) Species in container #7 is native, species in container #8 is invasive

Answer: A

Use the Guide to Riffle Dwelling Macroinvertebrates for questions 8-10:

8) The organism in container #9 is an example of what functional feeding group:

- a) Shredder
- b) Grazer
- c) Collector
- d) Predator

Answer: D

9) What is the order of the specimen in container #10?

- a) *Plecoptera*
- b) *Ephemeroptera*
- c) *Trichoptera*
- d) *Odonata*

Answer: B

10) What is the order of the specimen in container #11?

- a) *Plecoptera*
- b) *Ephemeroptera*
- c) *Trichoptera*
- d) *Odonata*

Answer: A

Use the Invasive Aquatic Plants in CT Guide for the following plant:

11) What is the organism in photo #12?

- a) *Potamogeton crispus*
- b) *Myriophyllum heterophyllum*
- c) *Hydrilla verticillata*
- d) *Marsilea quadrifolia*

Answer: A

Using the Watershed Simulator, answer questions 12-14:

12) True or False, Stream C is downgradient of Stream A.

- a) True
- b) False

Answer: A) True

13) The red dye flowing into stream A is an example of:

- a) Non-point source pollution
- b) Point Source Pollution
- c) Urban Stormwater Runoff
- d) None of the Above

Answer: A

14) In the watershed simulation, what is the stream order of Stream B

- a) 1
- b) 2
- c) 3
- d) 4

Answer: A

Use Water Monitoring Equipment A and B to answer the following questions:

15) Instrument A is typically used in _____ systems in order to take _____. ?

- a) Stream, chemical measurements
- b) Lake, chemical measurements**
- c) Stream, temperature
- d) Lake, temperature

Answer: B (It is a Van Dorn)

16) Instrument B, first created in 1865, is a device used to measure:

- a) Water Saturation
- b) Water Clarity**
- c) Water Density
- d) Water Height

Answer: B (it is a secchi disc)

OBJECTIVE SECTION

17) All of the following are examples of an impervious surface EXCEPT:

- a) Roads
- b) Schools
- c) Pervious Pavement Parking Lot
- d) Libraries

Answer: C

18) Which of the following is false about native aquatic plants?

- a) They help stabilize sediments
- b) They help remove nutrients from the water column
- c) They decrease water clarity
- d) They act as habitat for wildlife

Answer: C

19) Evapotranspiration is a process where _____ return(s) water to the _____.

- a) Plants, Groundwater
- b) Soil, Groundwater
- c) Plants, Atmosphere
- d) Soil, Atmosphere

Answer: C

20) What layer of a typical dimictic Lake is the first to go anoxic in the summer?

- a) Epilimnion
- b) Metalimnion
- c) Hypolimnion
- d) Thermocline

Answer: C

21) Why are Aquatic Macroinvertebrates great indicators of water quality?

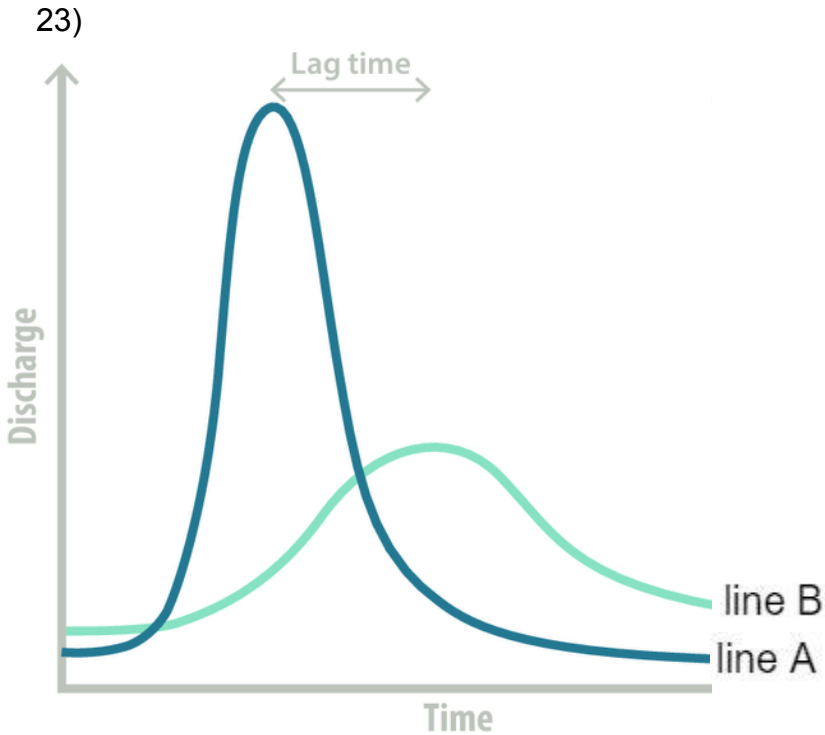
- a) They are common in rivers and streams
- b) They are sensitive to pollution
- c) They spend most of their life cycles in the water
- d) All of the above

Answer: D

22) According to the River Continuum Concept, the headwaters will have a higher concentration of _____ compared to large streams.

- a) Shredders
- b) Collectors
- c) Predators
- d) None of the Above

Answer: A



In the hydrograph above, line A represents a _____ watershed while line B represents a _____ watershed.

- a) Rural, Urban
- b) Urban, Rural
- c) Forested, Agricultural
- d) Agricultural, Forested

Answer: B

24) In the stream food web, _____ inputs come from outside sources such as leaves falling from trees.

- a) Autochthonous
- b) Allochthonous
- c) Biotic
- d) Abiotic

Answer: B

25) Which of the following taxa are measured in the EPT Richness Index?

- a) *Ephemeroptera*
- b) *Plecoptera*
- c) *Trichoptera*
- d) All of the Above

Answer: D

26) Which of the following would affect the level of nutrients detected in a stormwater run-off sample?

- a) The season the sample was taken
- b) When the last rain event occurred
- c) The rate of flow of the water
- d) All of the Above

Answer: D

27) Where are wetlands found?

- a) Only within rivers, streams and lakes
- b) At the interface between aquatic and terrestrial ecosystems
- c) Only in areas that have persistent rain
- d) None of the above

Answer: B

28) True or False: The state of Connecticut uses the term “hydric soil” as part of the definition of a wetland.

- a) True
- b) False

Answer: B) False

29) True or False: Permeability is the capacity for a fluid to move through a material.

- a) True
- b) False

Answer: a) True

30) What are common sources of groundwater contamination?

- a) Gasoline stations
- b) Manufacturing facilities
- c) Auto repair shops
- d) All the above

Answer: D

- 31) Which of the following is a function of a riparian corridor?
- a) Increase runoff and decrease infiltration
 - b) Release pollution into surface runoff
 - c) Reduce bank erosion
 - d) None of the above

Answer: C

- 32) What is an example of point source pollution?
- a) Construction sites
 - b) The slope of an agricultural field
 - c) A discharge pipe from an industrial plant
 - d) All the above

Answer: C

- 33) True or False: Sedimentation is the process of depositing sediments moved as part of the erosion process.
- a) True
 - b) False

Answer: A) True

- 34) What act is nonpoint source pollution regulated under?
- a) Section 319 of the Clean Water Act
 - b) The CT Remediation Standard Regulations
 - c) Surface Water Protection Criteria
 - d) None of the Above

Answer: A

- 35) In Connecticut, what agency handles drinking water quality?
- a) Department of Transportation
 - b) Department of Energy and Environmental Protection
 - c) Department of Labor
 - d) Department of Public Health

Answer: D

- 36) This year marks the 50th anniversary of the CT Inland Wetland and Watercourses Act (IWWA). What year was the CT IWWA established?
- a) 1956
 - b) 1972
 - c) 1980
 - d) None of the above

Answer: B

37) What conditions are favorable for cyanobacteria?

- a) High temperatures
- b) Solute concentrated water
- c) Still stagnant water
- d) All the above

Answer: D

38) What are some measures taken to mitigate water quality concerns as lakes respond to climate change?

- a) Nutrient sequestration
- b) Algaecide application
- c) Lake aeration
- d) All the above

Answer: D) All the above

39) Write your answer in the space below (2 points): Name a body of water in Connecticut.

(Any answer given within reason is correct, worth 2 points)