Advanced Certification Exam

The purpose of this test is to certify WV Save Our Streams volunteer monitors and trainers. To renew your certification you must complete a field review and test within one-year after receiving your initial certification and every other year thereafter. The test can be completed on-line or it can be printed, and the completed test can be mailed to the program coordinator at the address provided below.

WV Dept. of Environmental Protection
Save Our Streams Program
601 57th Street, SE
Charleston, WV 25304

Name _____ Date _____
Affiliation _____ Phone _____
Mailing address _____
_____
E-mail _____

1. Benthic macroinvertebrates are usually more diverse in which of the following riverine habitat?

   A. Rocky and sandy bottom areas with fast flowing water.
   B. Bedrock with fast flowing water and swirling currents.
   C. Soft-bottom deep areas with slow-moving or standing water.
   D. Rocky areas with many of the rocks stacked and water moving rapidly over the rocks.

Answer _____

2. The length of a typical stream survey is?

   A. 100 meters
   B. 100 feet
   C. 50 meters
   D. 10 times the average width of the stream

Answer _____

3. From the list below, choose the most efficient equipment for collecting benthic macroinvertebrates from riffle habitats. Provide a brief explanation for your choice.

   A. Two-pole screen barrier net
   B. Leaf packs
   C. Rectangular style kick-net
   D. D-net

Answer _____

4. Briefly explain the importance of a reference condition for monitoring trends in your adopted stream's characteristics.

5. [True or False] An ephemeral stream is one that retains water throughout the year, except during extreme drought conditions.

Answer _____

6. If a well-forested watershed, having healthy streams is clear-cut; describe at least two impacts that this activity could have on the resident streams.

1.	
2.	

7. Which of the following water quality analyses are commonly used to measure of concentration of nutrients in a stream?

A. Alkalinity and acidity
B. Nitrate and phosphate
C. Temperature and dissolved oxygen
D. Conductivity and pH

Answer _____

8. A pebble count is a procedure used to characterize which part of the stream's conditions?

A. It is an estimate of the suspended sediment load.
B. It is a method for measuring the width of the riparian buffer.
C. It is a method for measuring the composition of the streambed.
D. It is a procedure used to determine the correct riffles for macroinvertebrate samples.

Answer _____

9. This metal is common in streams contaminated by polluted coalmine drainage.

A. Cobalt
B. Mercury
C. Lead
D. Iron

Answer _____

10. Embeddedness is defined as the degree to which larger rocks such as coarse gravel, cobble and boulders are covered and surrounded by smaller particles such as sand, silt and clay. Why is this condition important to assess during your stream survey?

11. Safety is of critical importance to volunteer stream monitors. Provide four safety recommendations that monitor's should follow.

1. _____
2. _____
3. _____
4. _____

12. The analysis that measures the cloudiness of the water is?

A. Conductivity
B. Turbidity
C. Total dissolved solids
D. Dissolved oxygen

Answer _____

13. Describe the steps of macroinvertebrate collection procedures.

14. Determine the percent saturation of dissolved oxygen in a stream given the following information: Temperature 13° Celsius; Dissolved oxygen 7.6 mg/L

Answer _____

15. Benthic macroinvertebrate samples were collected upstream (Sample 1) and downstream (Sample 2) of a small tributary discharging acidic water. The results of these collections are provided below. Use the metrics given to evaluate the differences between these communities and provide a brief interpretation of your results. **Note**: Use the level-one method.

Sample 1

	Total	Taxa
Plecoptera (**Stoneflies**)	21	2
Ephemeroptera (**Mayflies**)	45	3
Trichoptera (**Case-building caddisflies**)	7	2
Hydropsychidae (**Common netspinner**)	17	1
Elmidae (**Riffle beetle**)	8	1
Psephenidae (**Water penny**)	3	1
Chironomidae (**Non-biting midge**)	1	1
Simuliidae (**Black fly**)	2	1
Cambaridae (**Crayfish**)	2	1
Oligochaeta (**Aquatic worm**)	1	1
Totals	107	14

Sample 2

	Total	Taxa
Plecoptera (**Stonefly**)	3	1
Trichoptera (**Net-spinning caddisfly**)	3	1
Hydropsychidae (**Common netspinner**)	8	1
Elmidae (**Riffle beetle**)	2	1
Chironomidae (**Non-biting midge**)	8	1
Cambaridae (**Crayfish**)	3	1
Asellidae (**Aquatic sowbug**)	1	1
Oligochaeta (**Aquatic worm**)	4	1
Totals	32	8

Metrics	Sample 1	Sample 2
Total number		
Total Taxa		
EPT Taxa		
Biotic Index		
Stream score		

Comments:

16. Which of the statements below accurately describe the goals and objectives of the Clean Water Act (CWA) since its reauthorization in 1972?

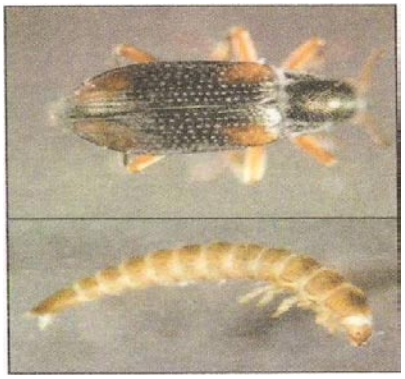
A. To restore the conditions of navigable waters in the United States, so that they are fishable and swimable.
B. To restore and maintain the chemical, physical and biological integrity of the Nation's waters.
C. To make sure industry receives the appropriate tax breaks when applying the minimum treatments to their water discharges.
D. To restore and maintain the conditions of our Nation's waters so that they are safe for human consumption.

Answer _____

Identify the macroinvertebrates to the lowest possible taxonomic level. Scientific names are preferred (**family-level whenever possible**) but common names are also acceptable.

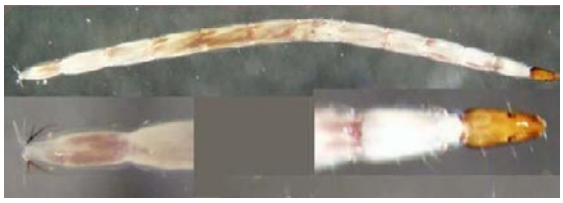
1. _____

2. _____

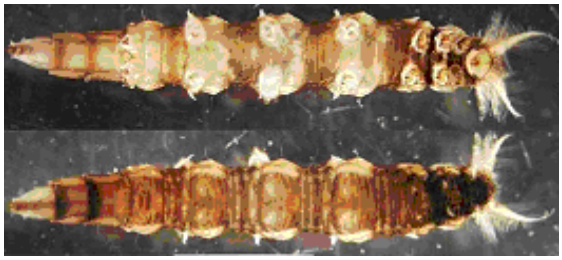


3. _____

4. _____



5. _____



6. _____

7. _____

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34. _____

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