

Limnology Biology 612 Fall 2000 Test 1

1. For 1 point each, match the numbered term with the letter that best goes with it (example: #22)

Term (write correct letter on line)	Letter phrase
1 _____ Benthic	a. both organisms harmed
2 _____ Odonata	b. complex groundwater flow patterns
3 _____ mutualism	c. segmented worms
4 _____ Archaea	d. silicon cell walls, used in paleolimnology and forensics
5 _____ periphyton	e. study of freshwater ecology
6 _____ Limnology	f. living on the bottom
7 _____ thalweg	g. mixes once a year
8 _____ graben	h. mayfly
9 _____ Ephemeroptera	i. dragonfly and damselfly
10 _____ Cyanobacteria	j. benthic algae and associated organisms
11 _____ emergent macrophyte	k. a group of photosynthetic bacteria (blue green algae)
12 _____ Porifera	l. growing above the surface
13 _____ Plecoptera	m. sponge
14 _____ epilithic	n. both organisms benefit
15 _____ competition	o. stonefly
16 _____ Cladocera	p. fastest portion of stream
17 _____ Crustacea	q. living on rocks
18 _____ hyporheic	r. a super-Kingdom separate from Bacteria and Eukarya
19 _____ surface tension	s. <i>Daphnia</i>
20 _____ vadose zone	t. a tectonic depression
21 _____ heterogeneous aquifer	u. Bilvalva and Gastropoda
22 ___y___ Walter's lectures	v. groundwater that interacts with surface water
23 _____ Oligocheata	w. hydrogen bonding at surface
24 _____ Diatoms	x. unsaturated zone
25 _____ monomictic	y. sleeping potions

2. Describe how humans have modified river systems including how urbanization has altered flood hydrographs and frequencies of floods, the effects of channelization, and the extent and hydrological effects of damming (10).

3. Which of the lakes or conditions will lead to a deeper epilimnion? (Circle one of the two after each letter, 1 point each)

- | | | |
|----|-----------------------------|----------------------------|
| a. | windy spring | calm spring |
| b. | long fetch | short fetch |
| c. | abrupt hot spring weather | slow warming spring |
| d. | small lake in forest | small lake in grassland |
| e. | high absorption coefficient | low absorption coefficient |

4. Why do you think it is important to study Limnology (5)?

5. Give a general definition of a wetland (5).

6. Draw two graphs with vertical profiles of temperature in a temperate dimictic lake, 30 m deep, one each for winter and summer. Place depth on the y-axis, temperature on the x-axis. Label the three distinct layers in the summer (10).

7. Draw or describe the process of meander formation (10).

8. Describe how movement of water varies with scale from milliseconds to centuries, and from 10^{-6} m to continental size scales, a graph is ok here (10).

9. Describe how Reynolds number varies with scale and how this is related to changes in viscosity and diffusion (10).

10. Order the attenuation coefficients in each series of conditions (10 points total). 1 = lowest attenuation coefficient; 2 = medium coefficient; 3 = greatest attenuation coefficient

oligotrophic lake _____ blue light _____ green light _____ red light

eutrophic lake _____ blue light _____ green light _____ red light

All colors of light _____ oligotrophic _____ mesotrophic _____ eutrophic

All colors of light _____ very turbid _____ moderate turb _____ few suspended materials

all colors of light _____ high tannin _____ moderate tannin _____ low tannin*

*tannins are colored organic compounds

11. Draw a graph with density of water on the y axis and temperature on the x axis. Label and number both axes (5).