

OCEANOGRAPHY - MR240
HOMEQUIZ 10 (Chapter 13)

Monday, April 24, 2017
Due: Friday, April 28, 2017

NAME: _____

TRUE OR FALSE (15 pts)

- _____ Seaweed cannot grow in the dysphotic zone even though some sunlight is present.
- _____ The bathyal zone includes the continental slope and rise and is equivalent in depth to the mesopelagic and bathypelagic zones.
- _____ The marine nekton include reptiles, mammals and fish.
- _____ Marine organisms grow more rapidly in polar waters and do not live long.
- _____ Phytoplankton is responsible for the synthesis of 90% to 96% of the surface ocean's carbohydrates.
- _____ Because hydrostatic pressure compresses air in a fish's air bladder, deep-water fish generally have much larger air bladders.
- _____ Infauna within the benthic environment are more likely associated with a mud substrate than gravel.
- _____ The intertidal zone represents harsh conditions. Only eurythermic and euryhaline species can survive in such conditions.
- _____ Omnivores consume both plants and animals as part of their diet.
- _____ Energy pyramids are simple graphical representations of a food chain and reflect the energy and biomass depletion with each trophic level.
- _____ Ultimately, the amount of biomass in a sun-based food chain is controlled by the availability of light and nutrients.
- _____ Detritivorous organisms such as bacteria greatly contribute in decomposing organic matter into its inorganic components.
- _____ An average of 90% of the energy in food consumed by organisms is transferred to the next trophic level.
- _____ Chemosynthesis is the main method of binding energy into carbohydrates on the planet.
- _____ Factors that limit primary production are sunlight, nutrients, upwelling, turbulence, grazing intensity and turbidity.

MULTIPLE CHOICES: (30 pts)

1. A good "working definition" for life might be: "A highly organized system that can capture, store, and transmit _____."
 - a) Raw materials
 - b) Metabolic products
 - c) Waste products
 - d) Energy
2. By using the word "commonality" to describe one of the basic attributes of life, we mean:
 - a) All living things had different origins
 - b) All life interacts, in some way, with all other life
 - c) All life shares certain basic underlying mechanisms within each individual
 - d) All living organisms require identical raw materials and produce essentially similar end products
3. Most biologists and geologists now think life began on Earth about:
 - a) 10,000 – 15,000 years ago
 - b) 8 billion years ago
 - c) 3.5 – 4 billion years ago
 - d) 3 million years ago

4. In order to survive, every organism must have a continuous external source of:
 - a) Oxygen
 - b) Energy
 - c) Spores, seeds, gametes, etc
 - d) Adult living organisms

5. What is entropy?
 - a) The relative measure of disorder over time
 - b) The growth of an organism over time
 - c) The amount of energy transformation over a lifespan
 - d) The complexity of living organisms

6. Which of the following is never part of the carbon cycle?
 - a) Dissolved organic carbon (DOC)
 - b) Carbon dioxide
 - c) Shells and ooze
 - d) Each item listed can be part of the carbon cycle

7. "Fixation" means:
 - a) Adding nitrogen to a compound
 - b) The spaying or neutering of marine mammals to prevent overpopulation
 - c) Adding carbon dioxide to a compound
 - d) Binding an atom into a larger molecule

8. Mass extinctions are:
 - a) Mythical and unproven
 - b) Relatively rare – perhaps 6 great extinctions have occurred since the origin of life on Earth
 - c) So rare that only one is known from the time of the solidification of Earth's surface
 - d) Relatively common, happening about once in every million years

9. The zone of lighted ocean in which marine autotrophs tap more energy than they use to stay alive is called:
 - a) The dysphotic zone
 - b) The abyssal zone
 - c) The photic zone
 - d) The aphotic zone

10. Though it is difficult to generalize for the ocean as a whole, the bottom of the photic zone is typically _____ meters (feet) in mid-latitude.
 - a) 10 meters (33 feet)
 - b) 1000 meters (3300 feet)
 - c) 100 meters (330 feet)
 - d) 200 meters (660ft)

11. When a phytoplankter remains below the depth where it can photosynthesize, its:
 - a) Will eventually die
 - b) Will die almost immediately
 - c) The question is meaningless
 - d) Will survive, but will grow much more slowly

12. What is produced in primary productivity?
 - a) Carbon dioxide
 - b) Carbohydrates
 - c) Gametes
 - d) Cold, blue light

13. Where, through a year, is the greatest total oceanic primary productivity?
 - a) Productivity is about equal at all latitudes
 - b) In the polar regions
 - c) In the tropics
 - d) In the temperate zones

14. Zooplankton are considered:
- Nekton
 - Active swimmers
 - Primary producers
 - Microscopic drifting animal forms
15. Typical plankton productivity in the temperate zone is about _____ $\text{gC/m}^2/\text{yr}$.
- 120
 - 5
 - 1,200
 - 500
16. Microscopic plantlike organisms are called :
- Zooplankton
 - Plankton
 - Meroplankton
 - Phytoplankton
17. Primary productivity can be measured from satellites by sensors that detect
- Sea surface temperature
 - Chlorophyll concentrations
 - Carbohydrates in seawater
 - Latitude and longitude
18. Primary productivity occurring on land is now thought to be about _____ primary productivity in the ocean.
- The same as
 - 20% of
 - 50% of
 - 200% of
19. the difference between neritic and oceanic zones include all of the following except:
- The neritic is in the photic and dysphotic zones, but the oceanic also extends into the aphotic zone
 - The neritic does not extend deeper than 200 m
 - The neritic is closer to the landmass
 - The neritic only has benthonic life formes
 - The neritic is not subdivided into zones by depth
 - The neritic has pelagic, nektonic and benthonic life forms
20. Which of the following is the correct listing from largest to smallest for the categories used in classification?
- Kingdom, phylum, class, order, family, genus, species
 - Kingdom, class, phylum, order, family, genus, species
 - Kingdom, phylum, order, class, family, genus, species
 - Kingdom, phylum, family, class, order, genus, species
 - Kingdom, phylum, genus, class, order, family, species
21. Temperature and/or salinity:
- can control the distribution of organisms
 - can control the degree of activity of organisms
 - can control the reproduction of organisms
 - can cause organisms to migrate
 - all of the above
22. The global pattern of productivity indicates:
- Estuaries have higher productivity than the open ocean
 - A gradual decrease in productivity towards the center of the open ocean
 - Equatorial waters have a higher productivity because of upwelling
 - There is a complex relationship between productivity, nutrient supply and sunlight
 - All of the above

23. What layer is permanently devoid of light?
- a) Photic zone
 - b) Euphotic zone
 - c) Disphotic zone
 - d) Aphotic zone
24. Which zone is the deepest seabed zone?
- a) Bathyal zone
 - b) Hadal zone
 - c) Littoral zone
 - d) Abyssal zone
25. What is a more accurate term for the feeding relationship of organisms?
- a) Food chain
 - b) Food web
 - c) Trophic chains
 - d) Primary consumption
26. What is a heterotrophy?
- a) An organism that creates its own food
 - b) An organism that eat other organism
 - c) An organism that conducts photosynthesis
 - d) An organism that remains plankton for its entire life
27. Which community has the highest level of net primary production?
- a) Rain forests
 - b) Kelp forests
 - c) Coral reefs
 - d) Open ocean
28. What traps light energy in primary producers?
- a) Photosynthetic
 - b) Thylakoid]
 - c) Chlorophyll
 - d) Biomass
29. What kind of movement of particles is able to move against normal concentration gradients?
- a) Active transport
 - b) Diffusion
 - c) Osmosis
 - d) All of the above
30. What is an advantage of using scientific names?
- a) There is only one name per species
 - b) They are universal to all languages
 - c) They can indicate the relatedness of organisms
 - d) All of the above