

OCN 201 Spring 2006 Exam 3 (75 pts)

True or False(1 pt each). A = TRUE; B = FALSE

1. According to the serial endosymbiosis theory, eukaryotes developed as a result of symbiotic associations among multiple prokaryotes.
2. Meroplankton refers to plankton that spend their whole life in the plankton.
3. Zooxanthellae are parasites of coral
4. Some fish are filter feeders.
5. Phytoplankton are chemoautotrophs.
6. Marine snow refers to snow formed from sea spray
7. Polar oceans have very low productivity for most of the year because they are nutrient limited.
8. The euphotic zone refers to the deepest part of the sea into which no sunlight penetrates.
9. Anemones are Cnidarians.
10. Corals have only one opening to their digestive cavity.
11. Many animals in the very deep sea are blue
12. The deep scattering layer moves toward the sea surface during the day.
13. The lateral line system of fish is used for camouflage.
14. Cnidarians are a group of organisms named for their stinging cells.
15. CO₂ and water are the main factors limiting photosynthesis in the ocean
16. Hagfish produce copious amounts of slime as a defense mechanism.
17. Some bacteria are photoautotrophs.
18. There are very few viruses in seawater.
19. Whales are considered nekton.
20. Evidence suggests that the building blocks of life (e.g., amino acids) could not have formed on early earth.

21. The uppermost portion of the sea is known as the abyss.
22. Nutrients are highest in the surface of the ocean.
23. Biomass increases with depth in the ocean.
24. Water temperature is more variable at the sea surface than it is in the deep sea.
25. Fisheries yields have been dramatically increasing for the past decade

Multiple Choice (2 points each)

26. An animal that eats herbivores is a:
 - A. Parasite
 - B. Secondary consumer
 - C. Chemoheterotroph
 - D. Photoautotroph
27. For decaying whales on the sea floor, the first of the three main stages of decomposition is characterized by
 - A. chemoautotrophic bacteria
 - B. enrichment opportunists
 - C. mobile scavengers
 - D. ambush predators
28. At hydrothermal vents, bacteria get the energy to drive chemosynthesis from
 - A. hydrogen sulfide
 - B. sugar
 - C. sunlight
 - D. heat
29. Countershading refers to
 - A. having a reduced silhouette
 - B. using light flashes to attract prey
 - C. producing light to use as a flashlight to find prey
 - D. having a light belly and a dark back

30. The trophic pyramid occurs because:
- A. Only 10% of biomass at one trophic level is converted to biomass at the next higher trophic level
 - B. The ocean is nutrient limited
 - C. Overfishing reduces population size
 - D. There is not much food in the deep sea
31. Which is NOT a feature of mysticete whales
- A. two blowholes
 - B. baleen
 - C. use echolocation
 - D. feed on plankton
32. Which of the following is a vertebrate?
- A. nudibranch
 - B. squid
 - C. whale shark
 - D. clam
33. The upper part of the reef face where most wave energy is concentrated is the
- A. lagoon
 - B. patch reef
 - C. reef terrace
 - D. buttress zone
34. Animals living within sediments are referred to as
- A. pelagic
 - B. infauna
 - C. epiflora
 - D. sedimentary
35. Bony fish belong to the class:
- A. Chondrichthyes
 - B. Mammalia
 - C. Osteichthyes
 - D. Odontocetes
36. Batesian mimicry refers to an animal that:
- A. uses a bioluminescent lure as bait
 - B. is non-toxic but looks like another animal that is toxic
 - C. uses ink jets to confuse predators
 - D. has evolved to look like a plant

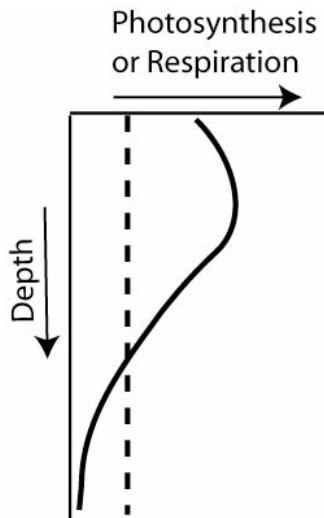
37. Animals that are able to swim strongly enough to make headway against ocean currents are referred to as
- A. plankton
 - B. sessile
 - C. oceanic
 - D. nekton
38. Which of the following is the most abundant type of cellular life in the sea:
- A. Prokaryotes
 - B. Fishes
 - C. Jellyfish
 - D. Protists
39. Geological evidence indicates that life first appeared on earth:
- A. At least 6 billion years ago
 - B. At least 3.8 billion years ago
 - C. No more than 5 million years ago
 - D. No more than 6 thousand years ago
40. Disposal of sewage in the ocean causes little environmental or health impact if it is:
- A. adequately diluted
 - B. left untreated
 - C. deposited on coral reefs
 - D. not regulated

Short Answer. (4 points each):

41. For the graph below depicting how photosynthesis and respiration change with depth during daylight hours, indicate which line represents photosynthesis and which represents respiration (2 pts). Also indicate on the graph (with a circle or an arrow) the location of the compensation depth (2 pts).

Dashed line represents:

Solid line represents:



42. Give an example of a symbiosis between two marine organisms (2 pts) AND give a reason for why you would consider it a mutualism, commensalism, or parasitism (2 pts).

43. What is the name for the phenomenon in which some types of toxins become more concentrated at higher trophic levels (2pts) and why does this happen (2pts)?

44. What name has been given to the point at which atolls drown (2 pts) and why does this happen (2pts)?

45. Most bioluminescence is blue or blue-green, but a few deep-sea organisms can produce red bioluminescence. Briefly explain why this might be an advantage for them.