

Advanced Level Multiple Choice Questions

The following questions are for the Advanced Level of the MEE. Youth competing at this level are responsible for knowing the answers to these 50 questions PLUS the senior level questions. Questions from this list AND the senior list will be selected for Section 5 of the State 4-H Marine Ecology Event. The answer key can be obtained by contacting kblyler@ufl.edu.

1. Another name for a tidal swamp is _____.
 - a. mangrove community
 - b. coastal hammock
 - c. maritime forest
 - d. freshwater marsh
2. Adaptations represent behaviors and body parts that are _____.
 - a. temporary
 - b. exotic
 - c. successful and persistent in populations
 - d. all of the above
3. Resource partitioning describes how _____.
 - a. soil layers differ
 - b. the economic aspects of land use are evaluated
 - c. how different species of plants and wildlife use the same habitat in different ways
 - d. the loss of habitat results in habitat fragmentation
4. The most biologically productive waters in the ocean overlie the _____.
 - a. continental slope
 - b. continental shelf
 - c. abyssal plains
 - d. ocean trenches
5. Epifauna are _____.
 - a. plants that grow on the ocean floor
 - b. animals that burrow into the ocean floor
 - c. animals that grow by attaching themselves to a substrate or structure
 - d. plants that attach themselves to animals
6. Which of the following organisms would be considered nekton?
 - a. crab
 - b. sponge
 - c. jellyfish
 - d. barracuda
7. Which term describes the non-living components of an ecosystem such as soil, water, air, etc.?
 - a. biotic
 - b. abiotic
 - c. eubiotic
 - d. autobiotic

8. Which of the following is considered a “biotic” factor of a marine ecosystem?
- a. temperature
 - b. food/prey
 - c. salinity
 - d. oxygen
9. Which ecological unit below is defined to include both biotic and abiotic factors?
- a. ecosystem
 - b. community
 - c. population
 - d. species
10. The zone in the ocean where light penetration is enough to support photosynthesis is called the _____.
- a. dysphotic zone
 - b. aphotic zone
 - c. anaerobic zone
 - d. euphotic zone
11. Marine organisms that can tolerate a wide range of salinity conditions are described as being _____.
- a. euryhaline
 - b. stenohaline
 - c. eurythermal
 - d. stenothermal
12. Where are you likely to find a euryhaline organism?
- a. in the open ocean
 - b. in coastal waters such as estuaries
 - c. in lakes
 - d. all the above
13. The mixing of bottom sediments by benthic organisms is called _____.
- a. bioconversion
 - b. biosynthesis
 - c. bioturbation
 - d. bioenergy
14. The intertidal zone is also known as the _____.
- a. littoral zone
 - b. hadal zone
 - c. pelagic zone
 - d. splash zone

15. Which of the following is a benthic organism?
- tuna
 - lobster
 - Sargassum* weed
 - jellyfish
16. Barrier islands _____.
- are extremely fragile ecosystems
 - protect the mainland from severe storms
 - are constantly moving and eroding
 - all of the above
17. Which of the following is NOT true about zooxanthellae?
- They are organisms that absorb sunlight through the mostly transparent tissues of coral polyps.
 - They produce oxygen and organic molecules which are then absorbed by their cnidarian host.
 - They are single celled dinoflagellates that live in symbiosis with some corals, jellyfish, and sea anemones.
 - They are fast moving types of copepods that provide an important food source for fish larvae.
18. Which of the following is NOT true about sponges?
- They are filter feeders.
 - They have specialized cells called amoebocytes that move food through the body.
 - They only have one opening for water to flow into.
 - Many have supporting structures called spicules.
19. Which of the following is NOT true about sponges?
- They can provide a home for many small animals living within the holes and crevices of the sponge.
 - They are organized at the cellular level and lack true organs.
 - They develop from a fertilized egg or zygote.
 - They have radial symmetry.
20. The nematocysts of sea anemones are used for _____.
- mating and reproduction
 - feeding and protection
 - helping the anemone move about
 - support and growth
21. Which of the following is NOT true about sea fans?
- They typically grow broadside to face the current to be most efficient at capturing plankton for food.
 - They possess a flexible skeleton made of horny material.
 - Each sea fan is composed of a single organism.
 - They are in a group called "gorgonians."

22. Which of the following is TRUE about Ctenophores?
- They are a class within the phylum Cnidaria.
 - They have adhesive cells called colloblasts to help them capture food.
 - They immobilize prey with toxic barbs.
 - They lack any kind of nervous system.
23. Which class of mollusk is composed mainly of filter feeders?
- pelecypoda
 - cephalopoda
 - gastropoda
 - scaphopoda
24. Which of the following is NOT true of a cephalopod?
- They are active carnivores and scavengers.
 - They are all restricted to living on the bottom.
 - They have a mouth equipped with a horny beak.
 - Many forms have chromatophores that can help them change color rapidly.
25. A crab larva is called a _____.
- nauplius
 - veliger
 - zoea
 - pupa
26. When one lifts up a pile of beach wrack and sees very small animals hopping around, they are likely looking at _____.
- mole crabs
 - coquina clams
 - beach spiders
 - beach fleas or amphipods
27. Which of the following is NOT true about true crabs?
- They only live underwater.
 - They have a shell called a carapace.
 - They have five pairs of appendages
 - They have two pairs of antennae.
28. Which of the following is NOT true about echinoderms?
- They have radial symmetry.
 - They have a water vascular system.
 - They are found in both fresh and salt water.
 - Most have planktonic stages before becoming benthic adults.
29. The water vascular system and tube feet of sea stars have which of the following functions?
- mobility
 - sensory
 - opening bivalve shells
 - all of the above

30. Which of the following traits best explains why sharks are especially vulnerable to overfishing?
- Sharks are not fast swimmers and cannot escape fishermen.
 - Sharks live in schools and entire populations can be wiped out by a single fishing boat.
 - Sharks give birth to relatively few young at a time and populations would be slow to recover.
 - The sensory systems of sharks are not able to detect the approach of fishing boats.
31. A deeply forked caudal fin on a fish can indicate _____.
- it lives near the bottom in cracks and crevices
 - it is a strong and fast swimmer on the move constantly
 - it is adapted for slow swimming and great maneuverability
 - none of the above
32. A structure inside the head of a fish that can be used to determine its age is called a(n) _____.
- eye bone
 - neuromast organ
 - otolith
 - gill arch
33. The term "rookery" refers to _____.
- bird nesting areas
 - endemic birds on barrier islands
 - feeding area on or near rocky surfaces
 - types of mating calls
34. The melon of porpoises and dolphins is used _____.
- for storing fat
 - to focus incoming sounds
 - for smelling
 - all of the above
35. Sirenians are _____.
- the only marine mammals that are herbivorous
 - found on every continent
 - plankton feeders
 - related to cows on land
36. Which species of whale calves off Florida's northeast coast?
- sperm whales
 - gray whales
 - humpback whales
 - North Atlantic right whales
37. Which of the following statement is NOT true about diatoms?
- They are single-celled phytoplankton.
 - They have pillbox shaped frustules.
 - They can be found in warm, nutrient rich water.
 - They are multi-celled animals of the zooplankton.

38. Plankton that spend only a part of their life in the plankton community are called _____.
- ultraplankton
 - meroplankton
 - holoplankton
 - zooplankton
39. Which of the following would be considered holoplankton?
- fish larva
 - crab larva
 - copepod
 - lobster larva
40. Which of the following is NOT true about red tides?
- They are caused by dinoflagellates.
 - They are not natural but occur because of human wastewater runoff in coastal waters.
 - They typically occur or begin offshore.
 - None of the above (all are true).
41. Salt in seawater is
- dissolved from the rocks that make up the earth's crust.
 - released into the ocean from the earth's mantle by volcanic activity.
 - cosmogenic in origin.
 - a and b only
42. The density of seawater
- is greater than freshwater
 - increases with increasing depth of ocean
 - increases with increasing salinity
 - all of the above
43. Surface heating of the ocean produces a zone of rapid temperature change beneath the mixed layer called
- pycnocline
 - thermocline
 - barocline
 - halocline
44. The horizontal distance between two consecutive troughs or crests is the
- wavelength
 - wave height
 - wave period
 - amplitude
45. The most important factors controlling the height of a wave are _____.
- how long the wind blows in a given direction
 - the distance over which the wind blows
 - how fast the wind blows
 - all of the above

46. A tide with two unequal high water marks each tidal cycle is called a _____.
- a. diurnal tide
 - b. mixed tide
 - c. semidiurnal tide
 - d. semidiurnal mixed tide*
47. A secchi disk is used to measure _____.
- a. refraction of light in water
 - b. attenuation of light in water
 - c. density of water
 - d. oxygen in water
48. The light that penetrates deepest in the ocean is _____.
- a. blue
 - b. red
 - c. green
 - d. yellow
49. Oceanographers on board a ship will use a CTD to measure _____.
- a. currents, time, distance
 - b. conductivity, temperature, and depth
 - c. currents, temperature, and distance
 - d. none of the above
50. Ocean upwelling brings up _____.
- a. nutrients from deeper waters
 - b. deepwater sediments
 - c. manganese nodules
 - d. all of the above