

4-H MARINE ECOLOGY EVENT

SECTION 5: MULTIPLE CHOICE STUDY QUESTIONS

SENIOR LEVEL (14-18 years old)

MARINE PLANTS

1. Which of the following statements is true?
 - a. all seaweed is algae
 - b. all algae is seaweed
 - c. Rhodophyta is the phylum name for green algae
 - d. seaweeds have true roots, stems, and leaves like other plants
2. Which statement is NOT true about red algae?
 - a. It is capable of photosynthesis
 - b. It is the only alga that has true roots.
 - c. The scientific name for the red algae phylum is Rhodophyta.
 - d. An example is *Gracilaria*
3. A type of algae that has air bladders to help it float is called
 - a. gulfweed (*Sargassum*)
 - b. sea lettuce (*Ulva*)
 - c. *Gracilaria*
 - d. shoal grass
4. Plants use sunlight and nutrients to make food. They are called...
 - a. consumers
 - b. omnivores
 - c. plantopaths
 - d. producers
5. Which of the following is an example of green algae?
 - a. Sargassum weed
 - b. Petticoat algae
 - c. *Gracilaria*
 - d. Shaving brush algae
6. Turtle grass is
 - a. a recommended grass for stabilizing beaches
 - b. a grass that is eaten by blue herons
 - c. a grass found in bays and lagoons in warmer climates
 - d. a sea grass with cylindrical or round blades
7. Which plant has stilt-like prop roots?
 - a. white mangroves
 - b. red mangroves
 - c. buttonwood
 - d. black mangroves

8. Sargassum weed
- a. is a highly edible sea weed and often used in sushi
 - b. is found attached to rocks in shallow tidepools
 - c. provides a floating home for many marine animals
 - d. is only found in the Florida Keys

MARINE INVERTEBRATES

9. Which of the following is NOT true of sponges?
- a. Their body contains lots of holes called pores
 - b. They possess special muscles for movement
 - c. They have collar cells
 - d. They come in many shapes, sizes, and colors
10. Which group below includes cnidarians?
- a. sea stars, sea urchins, sea biscuits.
 - b. sharks, rays, and skates
 - c. sea anemones, corals, jellyfish
 - d. shrimp, crabs, lobsters
11. Which of the following is NOT true of cnidarians?
- a. They have stinging cells
 - b. They have radial symmetry
 - c. They have only one opening into their body
 - d. They have gills to help them breathe
12. Comb jellies
- a. are not jellyfish
 - b. have adhesive cells to capture prey
 - c. are transparent
 - d. all of the above are true
13. The structure in a mollusk that produces/secretes the shell is called the
- a. mantle
 - b. foot
 - c. gills
 - d. siphon
14. Mollusks that have two shells are called:
- a. univalves
 - b. polyvalves
 - c. bilaterals
 - d. bivalves
15. Which of the following is a gastropod?
- a. a squid
 - b. a flat worm
 - c. a conch
 - d. an oyster

16. The following animals are marine annelids
- sharks, rays, and skates
 - shrimp, crabs, lobsters
 - bristle worm, Christmas tree worm, spaghetti worm
 - sea stars, sea urchins, sea biscuits
17. Barnacles are placed in the group called:
- mollusks
 - anemones
 - bivalves
 - arthropods
18. Arthropods are animals that have:
- backbones and lungs
 - an exoskeleton and segmented body
 - a shell and radial symmetry
 - none of the above
19. A soft-shelled crab is...
- a crab found in freshwater lakes
 - only found in restaurants
 - a crab that has recently shed its exoskeleton
 - a crab that is too soft to eat
20. How is a horseshoe crab different from a real crab?
- it is found in saltwater
 - it has compound eyes
 - it has a shell
 - it has several pairs of claws versus just one pair
21. A male fiddler crab uses his big claw :
- for preying on food
 - to help him climb up marsh grass
 - to attract potential mates by waving at them
 - for digging holes in the mud
22. The process of molting in a crab is related to the life function of
- growth
 - reproduction
 - digestion
 - respiration
23. The word "echinodermata" means:
- stinging animal
 - hollow intestine
 - spiny skinned
 - flattened body
24. Which of the following is an echinoderm?

- a. coral
 - b. crab
 - c. sea urchin
 - d. skate
25. Which of the following is in the phylum Chordata?
- a. octopus
 - b. shark
 - c. sea star
 - d. coral
26. Chordates are animals that contain
- a. gills, fins, and scales
 - b. notochord, gill slits, dorsal nerve chord
 - c. ventral nerve chord, scales, and brain
 - d. backbone, ventral nerve chord, gill slits
27. Ampullae of Lorenzini
- a. help sharks digest their food
 - b. help fish to swim
 - c. are nerve receptors on the shark's snout
 - d. help sharks maintain their buoyancy
28. Sharks and rays are different from other fish, such as snappers and groupers, because sharks have:
- a. gills
 - b. cartilage instead of bones
 - c. fins
 - d. a bony jaw
29. An example of a fish that is found along the shallows of a sandy beach is the
- a. grouper
 - b. pompano
 - c. snapper
 - d. sailfish
30. A fish breathes by
- a. taking in water through the mouth and passing it over the gills
 - b. taking in water through the gills and passing it over the mouth
 - c. taking in water through the gills on one side of the body and passing it through to the gills on the other side
 - d. fanning water into the gills with the pectoral fins
31. Most bony fish maintain their neutral buoyancy by using their
- a. scales
 - b. fins
 - c. swim bladder
 - d. lateral line

32. The part of a fish that can detect vibrations in the water is the
- operculum
 - scale
 - gill raker
 - lateral line
33. Green sea turtles nest:
- in salt marshes
 - on mangrove islands
 - on sandy beaches
 - on rocky shores
34. Marine turtles possess all of the following adaptations EXCEPT:
- streamline body
 - flipper-like limbs
 - fatty deposits for buoyancy
 - gills
35. Which bird obtains its food by diving head first into the water?
- an eagle
 - a pelican
 - a roseate spoonbill
 - a plover
36. Sea mammals, such as whales, can dive deep and long because
- they can direct their oxygenated blood to just the more vital organs
 - they have more red blood cells and therefore can hold more oxygen
 - they can slow their heart rate down
 - all of the above
37. Manatees are actually distant relatives of the
- elephant
 - cow
 - horse
 - sea lion

PLANKTON

38. Dinoflagellates
- are types of phytoplankton
 - use flagellum for sideways motion.
 - can cause a red tide when in large numbers
 - all of the above
39. Microscopic phytoplankton include...
- arrow-worms
 - diatoms
 - comb jellies
 - copepods
40. Common, one-celled zooplankton are:

- a. radiolaria and foraminifera
- b. copepods and arrow-worms
- c. dinoflagellates and diatoms
- d. *Gracilaria* and *Sargassum*

41. The shell of a diatom is called a

- a. frustule.
- b. girdle
- c. exoskeleton
- d. flagellum

42. An abundant planktonic crustacean that is important in the ocean food chain is the

- a. crab
- b. barnacle
- c. diatom
- d. copepod

43. Meroplankton...

- a. are fast swimming plankton
- b. are planktonic for their entire life
- c. are only planktonic for a part of their life
- d. are benthic forms of plankton

44. Which of the following is an example of holoplankton?

- a. sea urchin
- b. jellyfish
- c. sea slug
- d. sea whip

MARINE HABITATS/ECOSYSTEMS

45. The composition of Florida's beach sand

- a. varies with location of the beach
- b. comes from volcanic sources
- c. is the same on all beaches.
- d. changes with the season

46. Sand dunes are important to us for geological and ecological reasons. These reasons include:

- a. They provide a great place for humans to build nature and walking trails
- b. They protect the land behind it from storm waves and wind
- c. They provide a solid foundation for the building of beach homes
- d. They offer us a fun place to drive ATVs on

47. Which plant could be used to help prevent beach/dune erosion?

- a. turtle grass
- b. manatee grass
- c. sea oats
- d. purple laver

48. Which of the following animals is LEAST likely to be found around mangrove roots?

- a. dolphin fish
 - b. snook
 - c. shrimp
 - d. mullet
49. What do salt marshes, cypress ponds, and mangrove swamps have in common?
- a. they are all wetlands
 - b. they have no value to humans
 - c. they are found only in south Florida
 - d. they are all high in salinity
50. The organic debris brought in by tides and trapped by the roots of mangrove trees
- a. serve as a source of food for marine organisms
 - b. reduces the force of the tides
 - c. serves as a depository for salt
 - d. provides a surface on which plankton can grow
51. Which of the following is an appropriate food chain for a mangrove ecosystem?
- a. Seaweed eaten by crab, crab eaten by moray eel, moray eel eaten by tuna
 - b. Detritus eaten by shrimp, shrimp eaten by fish, fish eaten by heron
 - c. Diatom eaten by copepod, copepod eaten by herring, herring eaten by salmon
 - d. Sea urchin eaten by shrimp, shrimp eaten by fish, fish eaten by manatee
52. Which mangrove tree is usually found growing closest to the water?
- a. white mangrove
 - b. black mangrove
 - c. red mangrove
 - d. buttonwood
53. One of the most common grasses found in a salt marsh is:
- a. manatee grass (*Syringodium*)
 - b. cord grass (*Spartina*)
 - c. bahia grass (*Bahia bahia*)
 - d. turtle grass (*Thalassia*)
54. Cordgrasses are adapted to live in salt water because they have
- a. special glands in their leaves to excrete excess salt
 - b. thick leaves to store water and pump salt out
 - c. roots that absorb excess salt
 - d. waxy stems that store freshwater
55. Which animal depends on an estuary for at least part of their life cycle?
- a. shrimp
 - b. clam
 - c. manatee
 - d. all of the above
56. Estuaries are found:
- a. on barrier islands
 - b. at the local swimming area

- c. at the mouths of rivers
 - d. upstream from rivers
57. Brackish water is:
- a. a mixture of seawater and freshwater
 - b. a mixture of polluted water and clean water
 - c. formed by tannic acid in freshwater
 - d. a mixture of tannic acid and seawater
58. A food web
- a. is a simple chain of who eats who in a community
 - b. is what a fisherman uses to catch bait
 - c. describes the feeding relationships between species in a biotic community.
 - d. always starts with a scavenger
59. In a marine food chain, a shark would most likely be considered a
- a. omnivore
 - b. producer
 - c. top predator/carnivore
 - d. herbivore
60. The area of the ocean where most marine life live is
- a. over the continental shelf
 - b. in the open ocean (beyond the continental shelf)
 - c. in the deep and dark depths of the ocean
 - d. in the mouths of rivers
61. A species whose presence or absence reveals the health of an ecosystem is called
- a. a signature species
 - b. a generalist
 - c. a designated species
 - d. an indicator species
62. A nesting area for birds is called a
- a. rookery
 - b. clutch
 - c. pod
 - d. niche
63. Oyster communities are beneficial because they
- a. stabilize shorelines from wave action
 - b. help water quality
 - c. provide hard bottom habitats for fish and other animals
 - d. all of the above
64. Which of the following is a possible invasive fish species found off the Florida coast?
- a. toadfish
 - b. pompano
 - c. lionfish
 - d. goliath grouper

65. The salinity of seawater can be measured using a
- refractometer
 - thermometer
 - DO meter
 - secchi disk
66. Organisms that live on the sea floor are said to be/called
- nekton
 - plankton
 - pelagic
 - benthic
67. Organisms that grow attached to submerged portions of structures such as rocks, docks, buoys, boats and/or ships are often called _____ organisms.
- indicator
 - fouling
 - predatory
 - planktonic
68. Red tides are
- cause light to bend in the water
 - toxic accumulations of pollutants in the water
 - a special type of tide that occurs once during the year
 - marine phytoplankton blooms that may or may not be harmful to living things
69. The average salinity of seawater is
- 30 ml
 - 4.5 ppt
 - 35 ppt
 - 40 grams
70. Recent declines in many commercial fisheries are mostly due to
- global climate change
 - marine pollution
 - predation by marine mammals
 - overfishing by humans