

ECHINODERM TEST REVIEW

NAME _____

DATE _____ PER _____

GENERAL

1. What is the meaning of the phylum name, Echinodermata? Spiny skin
2.
 - a. What type of symmetry is found in adults? Penta-radial
 - b. What is the numerical body pattern in this phylum? 5
3.
 - a. What is the body system that is unique to this phylum? Water-vascular system
 - b. What was the original function of this system? Feeding
 - c. What is its primary function in most modern Echinoderms? Locomotion
4.
 - a. What substance makes up the skeleton of Echinoderms? Ossicles made of calcium carbonate
 - b. What are the plates of skeleton in a starfish called? Ossicles
 - c. What is the fused skeleton of a sea urchin called? A test
5. List three functions of the tube feet of starfish and urchins. Movement, collecting food, and used in the water-vascular system
6. What is the name of the type of nervous system in this phylum? Nerve ring
7. List animal examples for each of the classes of Echinoderm.

| | |
|---------------|----------------------|
| Asteroidea | <u>Sea stars</u> |
| Echinoidea | <u>Sand dollars</u> |
| Ophiuroidea | <u>Brittle stars</u> |
| Holothuroidea | <u>Sea cucumbers</u> |
| Crinoidea | <u>Feather stars</u> |
8.
 - a. Which class best exhibits the characteristics of the phylum name? Asteroidea
 - b. Which class has a body that consists of a compact, pentagon-shaped central disc and five long, thin arms? Asteroidea
 - c. Which class lacks an hard skeleton? Asteroidea
 - d. Which class is considered the ancestral group? Echinoidea
9. What animal phylum shares the same branch of animal evolution with Echinoderms? Hemichordates and Chordates

STARFISH

10. What are the respiratory structures on the
 - a. aboral side of a starfish?
 - b. oral side of a starfish?
11. a. What is the largest organ found in the arms of a starfish?
 b. What are its two major functions?
12. a. What are the two stomachs found in starfish?
 b. Which stomach is everted during feeding?
 c. What pulls the stomach back in?
 d. How does the food get into the starfish?
 e. How big of an opening is required for a starfish to feed on a bivalve?
13. What are the two externally visible parts of the water vascular system?
14. Make a labeled sketch to the right showing the following parts of the water vascular system in their proper positions:
 madreporite
 stone canal,
 ring canal,
 radial canal
 lateral canal
 ampulla of tube foot
 tube foot
 ambulacral ridge
 ambulacral groove
15. What is the name of the
 - a. first larval form of a starfish?
 - b. second larval form of a starfish?
16. What is the name of the structures with clam-like “jaws” that fight predators and prevent organisms from colonizing the aboral side of starfish and urchins?
17. What is the minimum fragment of a starfish which can regenerate into a complete animal?
18. What is the name of the starfish that feeds on coral?

Folds of skin

Tube feet

Pyloric Stomach

Digest food

Absorb nutrients

Cardiac stomach and Pyloric stomach

Oral

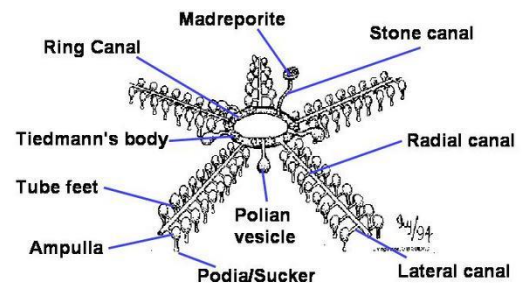
Retractor muscles

Through their stomach

.1 mm

Tube feet Radial arm

water vascular system



Bipinnaria larva

Brachiolaria larva

Pedicellariae

An arm with part of the central disk

Crown of Thorns

URCHINS

19. What is the term for the mode of gaining nourishment in urchins? Heterotroph
20. What is the name of the feeding structure in urchins? Aristotle's Lantern
21. What is the name of the larval form of urchins? Pluteus larva
22. Urchins are commercially fished.
 a. What part of the animal is eaten by humans? Insides and guts
 b. What is this called at a Sushi Bar? Uni
23. a. What is name of the "flower-shaped" structures on the aboral side of irregular urchins such as sanddollars? Aristotle's Lantern
 b. What is its function? Acts like a mouth

CUCUMBERS

24. a. What is the name of the breathing structure in cucumbers? Respiratory trees
 b. Where is it located? By the rectum
 c. How do the internal organs receive oxygen? Rectum pumps water into the "tees"
25. a. What is the name of the technique used by some cucumber species that involves removal of portions of internal systems? Evisceration
 b. What systems are partially removed? Trees, digestive tract, and gonads
26. What is the name of the sticky strands emitted from the cloaca of some cucumber species when attacked by a predator? Cuvier tubules
27. a. What are the feeding structures of cucumbers? Tentacles
 b. Describe the process of feeding. Tentacles are emitted, then mucus traps the food and brings it back to the mouth
 c. What do cucumbers eat? Sand/Sediments looking for detritus

CRINOIDS

28. What representative animal of this class resembles the proposed ancestor of both Echinoderms and Chordates? Feather star
29. What is the function of the arms of a feather star? Feeding