

Reading Section

Time: 75 Minutes

45 Questions

Directions: This section measures your ability to read and understand written English similar to that which one may expect in a college or university setting. Read each passage and answer the questions based on what is stated or implied in the passage. Circle or mark the correct answer in the book or write it on a separate piece of paper.

Passage 1

Tube worms live anchored to the sea floor, 1,700 feet below the ocean surface, near natural spring vents that spew forth water from the earth. They live off geothermal energy instead of sunlight. There are two species of the tube worm family, with very different lengths of life and growth rates, but similarities as well.

The slow-growing tube worms are known to live as long as 250 years, making them the longest-living sea invertebrates known. This species lives near cold sea-floor seeps and may not grow at all from one year to the next. Even when they do grow, it is generally from a half an inch to four inches per year. In spite of their slow growth, due to their long lives, they can reach nine feet before they die, although they are thinner than the hot-water worms.

The seeps under the slow-growing tube worms are rich with oily materials. The environment in which they live is slow and peaceful, stable and low-energy. The cold-water seeps and the tube worms that reside there may live hundreds or thousands of years.

In stark contrast, the fast-growing tube worms live a quick and short life, growing rapidly. They attach themselves near hot steaming vents that force water into the sea, growing about two and a half feet a year, and

up to eight feet overall. They live by absorbing sulfur compounds metabolized by bacteria in a symbiotic relationship.

The hot water vents spew forth scalding water filled with hydrogen sulfide, which the tiny bacteria living in the worms' tissues consume. These tube worms live a rapid life, with none of the relaxing characteristics of the cold-water tube worms.

1. The word *anchored* in the first sentence is closest in meaning to
 - A. affixed.
 - B. contentedly.
 - C. feeding.
 - D. above.
2. The expression *spew forth* in the first sentence is closest in meaning to
 - A. inhale.
 - B. discharge.
 - C. control.
 - D. eliminate.

3. The author implies that a *vent* and a *seep* are

- the same.
- different in that a *vent* involves rapid discharge while a *seep* involves slow discharge.
- different in that a *vent* involves discharge while a *seep* involves intake.
- different in that a *vent* involves slow discharge while a *seep* involves rapid discharge.

4. The passage indicates that the two types of tube worms discussed are

- from totally different families.
- different in that one is not a true tube worm at all.
- from the same family but different species.
- from the same species and only differ because of habitat.

5. The author states that the cold-water tube worm

- grows slower than the hot-water tube worm.
- grows faster than the hot-water tube worm.
- does not grow as high as the hot-water tube worm.
- does not live as long as the hot-water tube worm.

6. The word *stark* in the fourth paragraph is closest in meaning to

- complete.
- somewhat.
- comparative.
- interesting.

7. The word *overall* in the fourth paragraph is closest in meaning to

- lifetime.
- annually.
- generally.
- rapidly.

8. The word *scalding* in the last paragraph is closest in meaning to

- hydrogen-filled.
- bacteria-filled.
- boiling.
- rapidly spewing.

9. The author indicates that the ingredients in the water that comes from the two types of vents are

- different only because the heat of the hot vents destroys the oil as it spews forth.
- different in that one contains bacteria and the other contains oily materials.
- the same.
- different in that one contains oily materials and the other contains hydrogen sulfide.

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Passage 2

A new procedure has been developed to treat aneurysms, particularly those that occur near the brain stem, where surgery is dangerous.

Aneurysms are blood sacs formed by enlargement of the weakened wall of arteries or veins. They are dangerous and thus must generally be removed before they cause considerable damage. If one ruptures, it can cause strokes or fatal hemorrhaging, the latter of which occurs in 50 percent of all patients. Before rupturing, an aneurysm frequently shows no sign or symptom that it exists. Brain aneurysms occur in approximately 5 percent of the population. Most patients are between 40 and 65 years old, with hemorrhages most prevalent in those between 50 and 54.

The new procedure involves inserting a soft, flexible micro-catheter through the femoral artery in the groin area and snaking it up through blood vessels to the brain. Inside the catheter is a small, coiled wire, which can be extruded after it reaches its destination. After the coil is outside the catheter, a low voltage electrical current is applied, and the coil detaches at a preset solder point. Additional coils are snaked through the catheter and also detached at the site, creating a basket, or metal framework, which causes the blood to clot around it. The micro-catheter is withdrawn, the clot remains, and the healed aneurysm no longer is exposed to the stress that can cause another rupture.

The procedure lasts two hours, which is half as long as invasive surgery, and recovery time is generally limited to a few days instead of a few weeks. The procedure was discovered in the 1990s, was approved by the U.S. Food and Drug Administration in 1995, and is available in various hospitals where there are advanced neurology departments and specialists trained in the procedure. Many lives have been saved by use of

the procedure, because the alternative would have been to watch and wait rather than risk the hazards of surgery.

10. The author implies that the procedure described is useful for
 - A. all aneurysms.
 - B. aneurysms that occur anywhere in the brain.
 - C. aneurysms that occur near the brain stem only.
 - D. aneurysms that occur near large blood vessels.
11. The word *They* in the first paragraph refers to
 - A. aneurysms.
 - B. brain stems.
 - C. surgeries.
 - D. procedures.
12. The word *considerable* in the first paragraph is closest in meaning to
 - A. slight.
 - B. kind.
 - C. significant.
 - D. recurring.
13. The word *one* in the first paragraph refers to
 - A. brain stem.
 - B. aneurysm.
 - C. procedure.
 - D. surgery.

14. The word *snaking* in the second paragraph is closest in meaning to

- meandering.
- extruding.
- living.
- damaging.

15. The word *withdrawn* in the second paragraph is closest in meaning to

- removed.
- too large.
- charged.
- inserted.

16. An aneurysm is most similar to

- an ulcer.
- a hernia.
- a heart attack.
- cancer.

17. The author indicates that half of the patients who have a brain aneurysm could also have

- a stroke.
- a seizure.
- a heart attack.
- hemorrhaging that results in death.

18. The author indicates that the point of creating a basket near the aneurysm is to

- catch the aneurysm when it breaks off.
- serve as a base for a blood clot to form.
- dissolve the aneurysm.
- provide a means of studying the aneurysm.

19. The author indicates that the femoral artery is

- small.
- in the upper thigh.
- in the brain.
- connected to the brain.

20. The author states that the electrical charge is applied in order to

- stimulate the brain.
- stimulate the aneurysm.
- dissolve the aneurysm.
- separate the coil from the wire.

21. The author implies that the wire breaks off

- randomly.
- by being cut with an additional tool.
- at a predetermined and prepared location on the wire.
- inside the micro-catheter.

22. According to the passage, traditional surgical techniques take

- longer and require more recuperation time than the new procedure.
- longer but require less recuperation time than the new procedure.
- less time and require less recuperation time than the new procedure.
- less time but require longer recuperation time than the new procedure.

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23. The author implies that the new procedure

- A. can be performed at any hospital.
- B. is performed only at hospitals containing the required equipment and certified doctors.
- C. is performed by certified doctors but requires no special equipment.
- D. is performed by any surgeon using special equipment.

Passage 3

Scientists have discovered the bones of what may be the largest meat-eating dinosaur ever to walk the earth. The discovery was made by a team of researchers from Argentina and North America in Patagonia, a desert on the eastern slopes of the Andes in South America. Besides the interesting fact that the dinosaur was huge and horrifying, it is even more astounding that the bones of a number of the dinosaurs were found together. This discovery challenges the prior theory that the biggest meat-eaters lived as loners and instead indicates that they may have lived and hunted in packs. The Tyrannosaurus Rex lived in North America and was believed to hunt and live alone.

The newly discovered meat-eater appears to be related to the Giganotosaurus family, being as closely related to it as a fox would be to a dog. It is actually not of the same family at all as the Tyrannosaurus Rex, being as different from it as a cat is from a dog.

The fossilized remains indicate that the animals lived about 100 million years ago. With needle-shaped noses and razor sharp teeth, they were larger than the Tyrannosaurus Rex, although their legs were slightly shorter, and their jaws were designed to be better able to dissect their prey quickly and precisely.

24. The author states that the newly discovered dinosaur remains are evidence that it was the largest

- A. dinosaur ever.
- B. carnivorous dinosaur.
- C. herbivorous dinosaur.
- D. South American dinosaur.

25. The word *Besides* in the first paragraph is closest in meaning to

- A. in spite of.
- B. in addition to.
- C. although.
- D. mostly.

26. The word *horrifying* in the first paragraph is closest in meaning to

- A. frightening.
- B. large.
- C. fast.
- D. interesting.

27. The word *astounding* in the first paragraph is closest in meaning to

- A. terrifying.
- B. pleasing.
- C. displeasing.
- D. surprising.

28. The author implies that the most interesting fact about the find is that this dinosaur

- A. lived and hunted with others.
- B. had a powerful jaw and sharp teeth.
- C. was found in the Andes.
- D. was larger than Tyrannosaurus Rex.

29. The passage indicates that prior to this discovery scientists believed that

- meat-eating dinosaurs lived alone.
- there were no meat-eating dinosaurs in the Andes.
- Tyrannosaurus Rex lived in the Andes.
- meat-eating dinosaurs were small in stature.

30. The word *it* in the second paragraph refers to

- newly discovered meat-eater.
- relationship.
- Giganotosaurus.
- dog.

31. The author states that the newly discovered meat-eating dinosaur is

- closely related to Tyrannosaurus Rex.
- not closely related to Tyrannosaurus Rex.
- not closely related to Giganotosaurus.
- closely related to the large cat family.

32. The word *dissect* in the last sentence is closest in meaning to

- dismember.
- swallow.
- chew.
- escape.

33. The word *prey* in the last sentence of the passage is closest in meaning to

- victim.
- enemy.
- dinosaurs.
- attacker.

Passage 4

Scientists have developed a new bionic computer chip that can be paired with human cells to combat disease. The tiny device, smaller and thinner than a strand of hair, combines a healthy human cell with an electronic circuitry chip. Doctors can control the activity of the cell by controlling the chip with a computer.

It has long been established that cell membranes become permeable when exposed to electrical impulses. Researchers have conducted genetic research for years with a trial-and-error process of bombarding cells with electricity in an attempt to introduce foreign substances such as new drug treatments or genetic material. They were unable to apply a particular level of voltage for a particular purpose. With the new invention, the computer sends electrical impulses to the chip, which triggers the cell's membrane pores to open and activate the cell in order to correct diseased tissues. It permits physicians to open a cell's pores with control.

Researchers hope that eventually they will be able to develop more advanced chips whereby they can choose a particular voltage to activate particular tissues, whether they be muscle, bone, brain, or others. They believe that they will be able to implant multiple chips into a person to deal with one problem or more than one problem.



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34. The word *mated* in the first sentence is closest in meaning to

- A. avoided.
- B. combined.
- C. introduced.
- D. developed.

35. The word *strand* in the second sentence is closest in meaning to

- A. type.
- B. thread.
- C. chip.
- D. color.

36. The author implies that scientists are excited about the new technology because

- A. it is less expensive than current techniques.
- B. it allows them to be able to shock cells for the first time.
- C. it is more precise than previous techniques.
- D. it is possible to kill cancer with a single jolt.

37. The author states that scientists previously were aware that

- A. they could control cells with a separate computer.
- B. electronic impulses could affect cells.
- C. electric charges could harm a person.
- D. cells interact with each other through electrical charges.

38. The word *bombarding* in the second paragraph is closest in meaning to

- A. barraging.
- B. influencing.
- C. receiving.
- D. testing.

39. The author implies that up to now, the point of applying electric impulse to cells was to

- A. kill them.
- B. open their walls to introduce medication.
- C. stop growth.
- D. combine cells.

40. The word *triggers* in the second paragraph is closest in meaning to

- A. damages.
- B. causes.
- C. shoots.
- D. assists.

41. The word *eventually* in the third paragraph is closest in meaning to

- A. finally.
- B. in the future.
- C. possibly.
- D. especially.



42. The word *they* in the first sentence of the third paragraph refers to

- A. researchers.
- B. chips.
- C. voltages.
- D. tissues.

43. The word *particular* in the third paragraph is closest in meaning to

- A. huge.
- B. slight.
- C. specific.
- D. controlled.

44. The word *others* in the third paragraph refers to other

- A. researchers.
- B. chips.
- C. voltages.
- D. tissues.

45. The author indicates that it is expected doctors will be able to

- A. place one large chip in a person to control multiple problems.
- B. place more than one chip in a single person.
- C. place a chip directly inside a cell.
- D. place a chip inside a strand of hair.



Writing Section

Time: 30 Minutes

1 Question

Directions: This section measures your ability to write in English, including your ability to organize ideas, create an essay in standard written English, and support the thoughts with sufficient examples and evidence. Write an essay in 30 minutes. You may make notes on a separate piece of paper, and then type or handwrite the essay.

Do you agree or disagree with the following statement: *Don't leave until tomorrow what you can do today?* Use specific reasons and examples to support your stance.

