PASSAGE 3 – Questions 21-30

Symbiosis is a close ecological relationship between two dissimilar organisms. They assist each other with feeding, defending, and reproducing. In symbiosis, at least one of the pair benefits from the relationship. The other may be injured (parasitism), unaltered (commensalism), or may also benefit (mutualism).

An interesting mutually dependent relationship exists between the pine and the pinon jay. Blue pinon jays settle on the tops of pine trees and pick at the dark round seeds from the sticky cones. They store the seeds in their throats, fly off and hide them somewhere, and then return to repeat the process again. It seems the reproductive cycle of a pine jay **corresponds** with the ripening of the pine's seed. Similarly, the pine is dependent on the pinon jays for distribution of the seeds.

Seeds are stored in the bark of a tree or in the ground. Using their long bills, pinon jays plant and store them for later consumption. Their throats can expand to hold a large number of seeds; one pinon jay has been reported carrying 50 seeds in one trip. After they have planted the seeds, they return to eat them. Using their bills like a woodpecker, they hammer the seed until the shell breaks. Any unrecovered nuts are then grown into new trees. This fascinating relationship has been ongoing for thousands of years.

When both species benefit each other, this is called mutualism. An example of mutualism is a plant and fungi. The fungus occupies the cortex cells of the secondary roots of the plant. This relationship is called a 'mycorrhiza.' **It** helps the plant absorb inorganic nitrogen and phosphorus from the soil. Some fungi also produce antibiotics which may prevent the invasion of parasitic fungi and bacteria. Another example of mutualism is pollination. Bees carry pollen from one plant to the next when they seek out plants for nectar. They feed themselves on the nectar, and the plants reproduce after fertilization by the pollen from other plants.

Mutualism can also bring together two very different organisms, for example, a buffalo and an ox bird. These birds journey on the backs of African buffalo eating their parasites. The bird receives food, and the buffalo is rid of irritating insects. There are also a number of fish that provide an excellent example of mutualism. Known as 'cleaner fish,' these fish get rid of parasites and dead skin found on other fish. The best-known example is the 'cleaner wrasse,' which dwells in the Pacific and Indian oceans. They clean large predatory fish by eating tissue and parasites off their skin. This relationship provides food and protection for the wrasse and several health benefits for the other fish.

The other two types of symbiosis, besides mutualism, are commensalism and parasitism. **[A]** Commensalism refers to a symbiotic relationship where one organism eats the unused food of another. **[B]** One benefits, but the other is not affected. Examples include **the remora and the shark**. The remora attaches itself to the shark, when the shark feeds itself, the remora picks up scraps. **[C]** One example of commensalism in humans is bacteria living in our intestines that feed on food in our gut. **[D]**

In parasitism, one organism benefits and the other is harmed. **Parasites live off the body of other organisms and receive nourishment from their tissues, while also inflicting damage on their hosts**. Plants are parasitized by bacteria, fungi, and a handful of other plants. Parasites cause harm by entering the tissue of the host for their own nutritional benefit.

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None of these relationships are fixed, and it is likely that what starts as a parasitic relationship may **gradually** evolve into a mutualistic one. For example, in 1966, amebas were discovered that had become infected with bacteria. However, after five years, it was found that the core of the amebas had become dependent on the bacteria; thus, parasitism had evolved into mutualism. Unfortunately, the inverse is also possible; mutualistic associations may evolve into parasitic ones.

21. According to paragraph 2, what does the pinon jay do for the pine tree?

A. It gives the tree important nutrition.

B. It provides a primary means of seed dissemination for pinon trees.

C. It keeps the tree free from parasites.

D. It helps the tree produce larger seeds.

22. The word "corresponds" in the passage is closest in meaning to_____.

A. matches B. includes

C. exposes D. protects

23. According to paragraph 3, how does the blue pinon jay store the seeds for later?

A. By holding up to 50 in its mouth

B. By burying them in the ground

C. By protecting them in its nest

D. By allowing them to develop into new trees

24. The word "It" in the passage refers to_____.

A. bacteria B. mutualism

C. mycorrhiza D. fungus

25. According to paragraph 5, what is an example of a mutual relationship?

A. An animal eating parasites from another

B. An animal licking the body of another

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C. An animal providing protection for another

D. An animal keeping another awake and alert

26. The author mentions "<u>the remora and the shark</u>" in the passage in order to_____.

A. explain the details behind a mutualist association

B. demonstrate a connection between an active parasite picker and host

C. show how one animal can benefit from the acts of another

D. give an example of one animal causing the suffering of another

27. Which of the following best expresses the essential information in the highlighted sentence? Incorrect answer choices change the meaning in important ways or leave out essential information.

A. There are many types of creatures that are very well developed and have the strength to support other species.

B. Sometimes, the organisms supplying parasites are very harmful to their hosts.

C. Some animals are selfish and only cause damage to their hosts.

D. Organisms which must depend on others die easily because they are not strong.

28. The word "<u>gradually</u>" in the passage is closest in meaning to_____.

A. slowly B. increasingly

C. constantly D. rapidly

29. According to the passage, which of the following is NOT an example of mutualism?

A. A plant and its fungi

B. Pollen transfer from one plant to another

C. The remora and the shark

D. A buffalo and an ox bird

30. Look at the four squares [_] that indicate where the following sentence can be added to the passage.

They are completely safe and may possibly help us, hence a commensalism relationship.

Where would the sentence best fit?

A. [A] B. [B]

C. [C] D. [D]

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