Passage 51

❶Founder mutations are a class of disease-causing genetic mutations, each derived from its own ancestral "founder" in whom the mutation originated. ❷While most disease-causing mutations are found in humans at a rate of one in a few thousand to one in a few million people, founder mutation can occur at much higher rates. ❸This apparent anomaly is partially explained by the fact that most founder mutations are recessive: only a person with copies of the affected gene from both parents becomes ill. ❹Most people with only one copy of the gene--"carriers"--survive and pass the gene to offspring. ❺Furthermore, the single copy of a founder mutation often confers a survival advantage on carriers. ❻For example, the **hereditary hemochromatosis mutation** protects carriers from iron-deficiency anemia because the mutated gene allows increased efficiency of iron absorption.

1. The passage indicates which of the following about founder mutations?
A. Carriers of founder mutation may receive certain benefits from the mutated gene.
B. People who inherit founder mutations from both parents can become ill as a result.
C. Founder mutations are less likely than other mutations to be passed to offspring.

2. The author of the passage mentions the "hereditary hemochromatosis mutation" primarily in order to illustrate
A. the circumstances under which a founder mutation fails to cause a disease.
B. how difficult it is to predict the effects of founder mutations on carriers.
C. the difference between harmful founder mutation and those that are beneficial
D. how a single copy of a founder mutation can benefit a carrier.
E. a challenge to a particular theory about the transmission of founder mutations.

Passage 52

❶George Milner cites three primary problems with the labeling of Cahokia, the large archaeological site by the Mississippi River, as a state rather than a chiefdom. ❷First, finds at Cahokia are essentially similar to finds at other Mississippian chiefdoms, except that the amount of earth moved in building the mounds at Cahokia was greater than elsewhere. ❸Second, fewer people lived at Cahokia than is commonly estimated (Milner estimates that there were only a few thousand inhabitants, more common estimates are 10,000 or 20,000 inhabitants); therefore, extensive taxes, trade, and tribute were not necessary to support them. ❹Finally, while there is evidence of extensive earth movement, craftwork, trade, and elite at Cahokia, this does not indicate that Cahokia was politically centralized, economically specialized, or aggressively expansionistic.

1. The primary purpose of the passage is to
A. underscore a characterization
B. outline a challenge
C. point out an ambiguity
D. discuss an oversimplification
E. define a category

2. The passage implies that political centralization is a feature that
A. has not historically tended to emerge in centers with fewer than 20,000 inhabitants
B. distinguished other Mississippian chiefdoms from Cahokia
C. is considered characteristic of state but not of chiefdoms
D. often results from aggressive expansionism and economic specialization
E. has historically been necessary for extensive trade to occur

Passage 53

❶Like Germany, but unlike other European nations, Norway industrialized rather late in the nineteenth century. ❷Compared to Germany, however, Norway has a comparatively recent history of industrially based social classes and a much longer history of rather egalitarian class relations. ❸The origin of Norwegian egalitarian predates industrialism and the rise of the labor movement. ❹The preindustrial economy was based largely on a small independent peasantry who combined agriculture with fishing (in the north) or with forestry (in the south). ❺Because Norway was under foreign rule for five centuries until 1905, and because the topography is unfavorable for large estates, a strong aristocracy and landowner class did not emerge in most of Norway. ❻There were some exceptions to this pattern, especially in the southern regions where a landowner class did exist. ❼Norway's early social and economic history engendered egalitarianism, although, as has been pointed out by several observers, it was an equality of poverty.

1. The passage is primarily concerned with discussing the

A. link between poverty and equality in the preindustrial state
B. characteristics of industrial society shared by Norway and Germany
C. effects of industrialization on social and economic relations in Norway
D. roots of social equality in Norway
E. emergence of social classes in Norway and Germany

2. According to the passage, northern and southern Norway differed in which of the following ways in the nineteenth century?

A. a landowning class was more likely to be found in southern Norway than in northern Norway.
B. Southern Norwegian peasants relied primarily on fishing for subsistence, while Northern Norwegians relied on forestry.
C. agriculture was a significant activity in southern Norway but not in northern Norway
D. Southern Norway industrialized earlier than did northern Norway
E. foreign rule effected southern Norway more profoundly than it did northern Norway

3. The passage suggests which of the following about egalitarianism in Norway?

A. It was a source of social stability that helped Norway survive five centuries of foreign rule.
B. It manifested itself in the same way after industrialization as it had prior to industrialization.
C. It did not necessarily provide a high standard of living for most Norwegians.
D. It produced a Norwegian industrialization that differed qualitatively from industrialization in other European countries in that the labor movement was less radical in Norway.
E. It was more pervasive in southern than in northern Norway.

Medium Section

Passage 54

❶Prominent among theories of the function of sleep is Meddis' immobilization hypothesis, which holds that sleep, rather than serving a restorative function, plays a protective role during times that animals cannot be usefully engaged in other activities. ❷Meddis reasoned that animals not immediately threatened by predators would be safer if they passed the time sleeping. ❸**Sleep would prevent an animal from moving or responding to nonthreatening stimuli in ways that might attract the attention of predators.**

❶However, that hypothesis cannot easily explain why one often observes a rebound in sleep time or intensity following a period of sleep deprivation. ❷Neither does the hypothesis explain the existence of various states of sleep, which themselves may be associated with different functions.

1. According to the passage, the immobilization hypothesis fails to account for which of the following facts?

A. That sleep does not appear to be a uniform and unchanging state
B. That under certain conditions animals appear to need more sleep than usual
C. That animals rarely sleep when a predator has been detected nearby

2. In the context of the passage as a whole, the highlighted portion serves primarily to

A. present the thinking that led scientists to qualify a widely accepted view
B. describe the basis on which a hypothesis was advanced
C. illustrate the kind of reasoning that is applied in a branch of science
D. explain how a hypothesis can be tested empirically
E. relate the analysis that refined a tentative explanation

Passage 55

❶For centuries, oak were the wood of choice for European shipbuilders. ❷However, toward the end of the eighteenth century, as British oak supplies grew scarce, shipbuilders there turned to teak and found in it an ideal substitute. ❸Other woods expand and contract at different rates than oak, so repairs to oak ships done with those woods split or leak. ❹Only teak matches oak's expansion coefficient and stays watertight. ❺It is unmatched in its resistance to rot and pests, and its oils even protect nails against corrosion. ❻Moreover, it was one of two important tropical hardwoods (with Central American mahogany) that dried light enough to float downriver—the only way to transport timber in quantity from the inland jungles where it grew.

1. It can be inferred from the passage that an advantage of teak over mahogany is that teak is:

A. more compatible with the materials in existing ships.
B. less susceptible to rot and pests
C. available in greater quantities in inland jungles

2. In the context in which it appears, "turned to" most nearly means

A. rotated
B. resorted to
C. deflected from
D. reverted to
E. revolved around

本文视频讲解

Passage 56

❶The waters east of Cape Hangklip were once the center of a lucrative wild-caught abalone fishery, but illegal fishing in the mid-1990s escalated to such levels that the recreational fishery was closed in 2003. ❷When abalones did not rebound, commercial fishing was also banned. ❸Continue declines in abalone were attributed to poaching, but an invasion by rock lobsters during the early 1990s probably intensified the trend. ❹Rock lobsters prey on sea urchins, and increased rock lobster densities coincided with significant decreases in urchins. ❺In that area, urchins feed largely by trapping drift kelp, and in doing so provide juvenile abalone with both protective shelter and nourishment. ❻Without urchins' presence, juvenile abalones are less likely to survive to adulthood.

1. According to the passage, since the early 1990s, sea urchins in the waters east of Cape Hangklip have

A. significantly changed their feeding habits
B. suffered increased predation from a certain species
C. experienced increased competition for kelp, their main source of nourishment
D. seen a sharp decline in the availability of kelp, due to environmental changes
E. rebounded as commercial fishing in the region has declined

2. According to the passage, which of the following is a true statement about the feeding behaviors of sea urchins?

A. They change according to the type of food available in an area.
B. They are responsible for the decline of abalones in some regions.
C. They have a significant impact on the young of another species.
D. They make sea urchins more vulnerable to potential predators.
E. They result in a marked decline in kelp in certain regions.

Passage 57

❶One reason researchers have long believed that Mars never enjoyed an extensive period of warm and wet climate is that much of the surface not covered by wind-borne dust appear to be composed of unweathered material. ❷**If water flowed for an extended period, researchers reasoned, it should have altered and weathered the volcanic minerals, creating clays or other oxidized, hydrated phases (minerals that incorporate water molecules in their crystal structure).**

❶It turns out, though, that the scientists were not looking closely enough. ❷New high-resolution mapping data and close-up surface studies have revealed clays and other hydrated minerals in many regions. ❸The clay deposits are scattered all over, in ancient volcanic surfaces and heavily cratered highland regions, some of which have apparently been exposed by erosion only recently.

1. According to the passage, scientists are able to discover weathered material on the Martian surface because they have benefited from which of the following?

A. A new method to analyze volcanic craters created on the Martian surface.
B. An improved ability to detect hydrated materials on the Martian surface
C. A more sophisticated understanding of the effect of wind-borne dust on the Martian surface
D. A decision to look for water primarily in heavily cratered highland regions.
E. A better understanding of how erosion might affect clay deposits.

2. It can be inferred from the passage that the author would agree with which of the following statements regarding the reasoning discussed in the highlighted sentence?

A. It provides the basis for an explanation of why water on Mars has been difficult to find until recently.
B. It correctly identifies a consequence of water flowing on the Martian surface.
C. It depends on a false assumption about how water and volcanic materials interact on Mars.

Passage 58

❶Most seismologists assume that following a major earthquake and its aftershocks, the fault (a break in Earth's crust where pressure can trigger an earthquake) will remain quiet until stresses have time to rebuild, typically over hundreds or thousands of years. ❷Recent evidence of subtle interactions between earthquakes may overturn this assumption, however. ❸According to the stress-triggering hypothesis, faults are unexpectedly responsive to subtle stresses they acquire as neighboring faults shift. ❹Rather than simply dissipating, stress relieved during an earthquake travels along the fault, concentrating in sites nearby; even the smallest additional stresses may then trigger another quake along the fault or on a nearby fault. ❺Although scientists have long viewed such subtle interactions as nonexistent, the hypothesis has explained the location and frequency of earthquakes following several destructive quakes in California, Japan, and Turkey.

1. According to the passage, which of the following is an assumption that may be invalidated by recent seismological evidence?

A. Earthquakes are caused by stresses building up in faults within Earth's crust.
B. Most major earthquakes can be predicted with reasonable accuracy.
C. Faults are highly responsive to even minor stresses in neighboring faults.
D. Most major earthquakes are followed by predictable aftershocks.
E. A fault that has resulted in a major earthquake becomes quiet for a long period.

2. The passage suggests that most seismologists believe which of the following about fault stresses?

A. They are dissipated when they result in an earthquake.
B. They are transferred between neighboring faults.
C. They will not cause a major earthquake along the same fault in the space of a few years.

Passage 59

❶Was resource intensification—an increase in labor and time devoted to subsistence activities in order to increase food yields—by Dorset Paleo-Eskimos and Recent Indians on the island of Newfoundland simply a response to population pressure? ❷Not exactly. ❸On Newfoundland, population pressure did not result from a steadily growing resident population but, rather, from the arrival and lingering presence of new and significantly different populations. ❹Newfoundland's hunter-gatherer populations—both resident and newcomer—adjusted to the presence of other populations through niche differentiation. ❺Building on a tradition that emphasized marine resources, Dorset Paleo-Eskimos intensified their harvest of seals in response to the arrival of Recent Indians in the first few centuries A.D. ❻**Recent Indians who were more familiar with broad-based, interior-maritime adaptation, intensified this strategy to cope with the Dorset.**

1. According to the passage, which of the following resulted from the arrival of the Recent Indians?

A. The Dorset Paleo-Eskimos were forced to compete with the Recent Indians for a limited supply of seals.
B. The Dorset Paleo-Eskimos spent more time harvesting seals than they had in the past.
C. The Dorset Paleo-Eskimos increased the amount of labor and time devoted to defending their territory.
D. The Dorset Paleo-Eskimos began to adopt new subsistence strategies they learned from the Recent Indians.
E. The previously steady growth of the Dorset Paleo-Eskimos population came to a halt.

2. Which of the following best describes the function of the highlighted sentence in the context of the passage as a whole?

A. It points out a flaw in a theory discussed earlier in the passage.
B. It demonstrates the need for additional research on a phenomenon mentioned earlier in the passage.
C. It underscores the importance of a trait mentioned earlier in the passage.
D. It supports an assertion made earlier in the passage.
E. It questions the evidence for a tradition mentioned earlier in the passage

Passage 60

❶During the Pleistocene epoch, several species of elephants isolated on islands underwent rapid dwarfing. ❷This phenomenon was not necessarily confined to the Pleistocene, but may have occurred much earlier in the Southeastern Asian islands, although evidence is fragmentary. ❸Several explanations are possible for this dwarfing. ❹For example, islands often have not been colonized by large predators or are too small to hold viable predator populations. ❺Once free from predation pressure, large body size is of little advantage to herbivores. ❻Additionally, island habitats have limited food resources, a smaller body size and a need for fewer resources would thus be favored. ❼Interestingly, the island rule is reversed for small mammals such as rodents, for which gigantism is favored under insular conditions.

1. The primary purpose of the passage is to

A. question the plausibility of one explanation sometimes offered for the dwarfing of certain species living on islands

B. argue that dwarfing of certain species living on islands occurred prior to the Pleistocene

C. cite evidence suggesting that dwarfing may have adverse consequences for some species living on islands

D. present some possible explanations for the dwarfing of certain species living on islands

E. contrast the effects of insular conditions on species with large body size and species with small body

2. According to the passage, which of the following statements about body size in mammals is true?

A. A large body is unfavorable to mammalian species' survival under most conditions.

B. A large body tends to benefit small mammals living on islands.

C. For most herbivorous mammals, a large body size is easier to sustain in the absence of large predators.

D. Under most conditions, a small body is less beneficial to herbivorous mammals than to nonherbivorous mammals.

E. Among nonherbivorous mammals, a small body is more beneficial on an island than on a mainland.