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Exercise 20

Diamonds, an occasional component of rare igneous rocks called lamproites and kimberlites, have never been dated satisfactorily. However, some diamonds contain minute inclusions of silicate minerals, commonly olivine, pyroxene, and garnet. These minerals can be dated by radioactive decay techniques because of the very small quantities of radioactive trace elements they, in turn, contain. Usually, it is possible to conclude that the inclusions are older than their diamond hosts, but with little indication of the time interval involved. Sometimes, however, the crystal form of the silicate inclusions is observed to resemble more closely the internal structure of diamond than that of other silicate minerals. When present, the resemblance is regarded as compelling evidence that the diamonds and inclusions are truly cogenetic. (121 words)

- 1. The author implies that silicate inclusions were most often formed
 - (A) with small diamonds inside of them
 - (B) with trace elements derived from their host minerals
 - (C) by the radioactive decay of rare igneous rocks
 - (D) at an earlier period than were their host minerals
 - (E) from the crystallization of rare igneous material
- Select the sentence in the passage that indicates a way to determine the age of silicate minerals included in diamonds.









For some time scientists have believed that cholesterol plays a major role in heart disease because people with familial hypercholesterolemia, a genetic defect, have six to eight times the normal level of cholesterol in their blood and they invariably develop heart disease. These people lack cell-surface receptors for low-density lipoproteins (LDL's), which are the fundamental carriers of blood cholesterol to the body cells that use cholesterol. Without an adequate number of cell-surface receptors to remove LDL's from the blood, the cholesterol-carrying LDL's remain in the blood, increasing blood cholesterol levels. Scientists also noticed that people with familial hypercholesterolemia appear to produce more LDL's than normal individuals. How, scientists wondered, could a genetic mutation that causes a slow-down in the removal of LDL's from the blood also result in an increase in the synthesis of this cholesterol-carrying protein?

Since scientists could not experiment on human body tissue, their knowledge of familial hyper- cholesterolemia was severely limited. However, a breakthrough came in the laboratories of Yoshio Watanabe of Kobe University in Japan in 1980. Watanabe noticed that a male rabbit in his colony had ten times the normal concentration of cholesterol in its blood. By appropriate breeding, Watanabe obtained a strain of rabbits that had very high cholesterol levels. These rabbits spontaneously developed heart disease. To his surprise, Watanabe further found that the rabbits, like humans with familial hypercholesterolemia, lacked LDL receptors. Thus, scientists could study these Watanabe rabbits to gain a better understanding of familial hyper- cholesterolemia in humans

Prior to the breakthrough at Kobe University, it was known that LDL's are secreted from the liver in the form of a precursor, called very low-density lipoproteins (VLDL's), which carry triglycerides as well as relatively small amounts of cholesterol. The triglycerides are removed from the VLDL's by fatty and other tissues. What remains is a remnant particle that must be removed from the blood. What scientists learned by studying the Watanabe rabbits is that the removal of the VLDL remnant requires the LDL receptor. Normally, the majority of the VLDL remnants go to the liver where they bind to LDL receptors and are degraded. In the Watanabe rabbit, due to a lack of LDL receptors on liver cells, the VLDL remnants remain in the blood and are eventually

converted to LDL's. The LDL receptors thus have a dual effect in controlling LDL levels. They are necessary to prevent oversynthesis of LDL's from VLDL remnants and they are necessary for the normal removal of LDL's from the blood. With this knowledge, scientists are now well on the way toward developing drugs that dramatically lower cholesterol levels in people afflicted with certain forms of familial hypercholesterolemia.







- 3. In the passage, the author is primarily concerned with
 - (A) presenting a hypothesis and describing compelling evidence in support of it
 - (B) raising a question and describing an important discovery that led to an answer
 - (C) showing that a certain genetically caused disease can be treated effectively with drugs
 - (D) explaining what causes the genetic mutation that leads to heart disease
 - (E) discussing the importance of research on animals for the study of human disease

For the following question, consider each of the choices separately and select all that apply

- 4. The passage supplies information to answer which of the following questions EXCEPT?
- A Which body cells are the primary users of cholesterol?
- B How did scientists discover that LDL's are secreted from the liver in the form of a precursor?
- C Where in the body are VLDL remnants degraded?



- 5. The passage implies that if the Watanabe rabbits had had as many LDL receptors on their livers as do normal rabbits, the Watanabe rabbits would have been
 - (A) less likely than normal rabbits to develop heart disease
 - (B) less likely than normal rabbits to develop high concentrations of cholesterol in their blood
 - (C) less useful than they actually were to scientists in the study of familial hypercholesterolemia in humans
 - (D) unable to secrete VLDL's from their livers
 - (E) immune to drugs that lower cholesterol levels in people with certain forms of familial hypercholesterolemia
- 6. The passage implies that Watanabe rabbits differ from normal rabbits in which of the following ways?
 - (A) Watanabe rabbits have more LDL receptors than do normal rabbits.
 - (B) The blood of Watanabe rabbits contains more VLDL remnants than does the blood of normal rabbits.
 - (C) Watanabe rabbits have fewer fatty tissues than do normal rabbits.
 - (D) Watanabe rabbits secrete lower levels of VLDL's than do normal rabbits.
 - (E) The blood of Watanabe rabbits contains fewer LDL's than does the blood of normal rabbits.





Discussion of the assimilation of Puerto Ricans in the United States has focused on two different factors: social standing and the loss of national culture, depending on whether the commentator is North American or Puerto Rican. Many North American social scientists consider Puerto Ricans as the most recent in a long line of ethnic entrants to occupy the lowest rung on the social ladder. Such a "sociodemographic" approach tends to regard assimilation as a benign process. In contrast, the "colonialist" approach of island-based writers tends to view assimilation as the forced loss of national culture in an unequal contest with imposed foreign values. There is, of course, a strong tradition of cultural accommodation among other Puerto Rican thinkers, like Eugenio Fernandez Mendez. But the Puerto Rican intellectuals who have written most about the assimilation process in the United States all advance cultural nationalist views, advocating the preservation of minority cultural distinctions and rejecting what they see as the subjugation of colonial nationalities. (162 words)

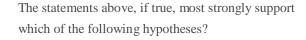
- 7. It can be inferred from the passage that a writer such as Eugenio Fernandez Mendez would most likely agree with which of the following statements concerning members of minority ethnic groups?
 - (A) It is necessary for the members of such groups to adapt to the culture of the majority.
 - (B) The members of such groups generally encounter a culture that is static and undifferentiated.
 - (C) Social mobility is the most important feature of the experience of members of such groups.
 - (D) Social scientists should emphasize the cultural and political aspects of the experience of members of such groups.
 - (E) The assimilation of members of such groups requires the forced abandonment of their authentic national roots.
- 8. In the context in which it appears, "subjugation" in the last sentence most nearly means
- (A) accommodation
- ® subjection
- © assimilation
- incorporation
- ® defeatism







9. When cut, the synthetic material fiberglass, like asbestos, releases microscopic fibers into the air. It is known that people who inhale asbestos, fibers suffer impairment of lung functions. A study of 300 factory workers who regularly cut fiberglass showed that their lung capacity is, on average, only 90 percent of that of a comparable group of people who do not cut fiberglass.



- (A) People who work with fiberglass are likely also to work with asbestos.
- (B) Fiberglass fibers impair lung function in people who inhale them.
- (C) Fiberglass releases as many fibers into the air when cut as does asbestos.
- (D) Coarse fibers do not impair lung function in people who inhale them.
- (E) If uncut, fiberglass poses no health risk to people who work with it.











Simone de Beauvoir's work greatly influenced Betty Friedan's----indeed, made it possible. Why, then, was it Friedan who became the prophet of women's emancipation in the United States? Political conditions, as well as a certain anti-intellectual bias, prepared Americans and the American media to better receive Friedan's deradicalized and highly pragmatic *The Feminine Mystique*, published in 1963, than Beauvoir's theoretical reading of women's situation in *The Second Sex*. In 1963 when *The Second Sex* first appeared in translation in the United States, the country had entered the silent, fearful fortress of the anticommunist McCarthy years (1950-1954), and Beauvoir was suspected of Marxist sympathies. Even *The Nation*, a generally liberal magazine, warned its readers against "certain political leanings" of the author. (120 words)

For the following question, consider each of the choices separately and select all that apply

- 10. It can be inferred from the passage that which of the following is a factor in the explanation of why *The Feminine Mystique* was received more positively in the United States than was *The Second Sex*?
- A By 1963 political conditions in the United States had changed.
- B Friedan's approach to the issue of women's emancipation was less radical than Beauvoir's.
- Readers did not recognize the powerful influence of Beauvoir's book on Friedan's ideas.









