

Passage 111

Modern manufacturers, who need reliable sources of materials and technologically advanced components to operate profitably, face an increasingly difficult choice between owning the producers of these items (a practice known as backward integration) and buying from independent producers. Manufacturers who integrate may reap short-term rewards, but they often restrict their future capacity for innovative product development.

Backward integration removes the need for some purchasing and marketing functions, centralizes overhead, and permits manufacturers to eliminate duplicated efforts in research and development. Where components are commodities (ferrous metals or petroleum, for example), backward integration almost certainly boosts profits. Nevertheless, because product innovation means adopting the most technologically advanced and cost-effective ways of making components, backward integration may entail a serious risk for a technologically active company—for example, a producer of sophisticated consumer electronics.

A company that decides to make rather than buy important parts can lock itself into an outdated technology. Independent suppliers may be unwilling to share innovations with assemblers with whom they are competing. Moreover, when an assembler sets out to master the technology of producing advanced components, the resulting demands on its resources may compromise its ability to assemble these components successfully into end products. Long-term contracts with suppliers can achieve many of the same cost benefits as backward integration without compromising a company's ability to innovate.

However, moving away from backward integration is not a complete solution either. Developing innovative technologies requires independent suppliers of components to invest huge sums in research and development. The resulting low profit margins on the sale of components threaten the long-term financial stability of these firms. Because the ability of end-product assemblers to respond to market opportunities depends heavily on suppliers of components, assemblers are often forced to integrate by purchasing the suppliers of components just to keep their suppliers in business.

257. According to the passage, all of the following are benefits associated with backward integration EXCEPT:
- (A) improvement in the management of overhead expenses
 - (B) enhancement of profit margins on sales of components
 - (C) simplification of purchasing and marketing operations
 - (D) reliability of a source of necessary components
 - (E) elimination of unnecessary research efforts
258. According to passage, when an assembler buys a firm that makes some important component of the end product that the assembler produces, independent suppliers of the same component may
- (A) withhold technological innovations from the assembler

- (B) experience improved profit margins on sales of their products
 - (C) lower their prices to protect themselves from competition
 - (D) suffer financial difficulties and go out of business
 - (E) stop developing new versions of the component
259. Which of the following best describes the way the last paragraph functions in the context of the passage?
- (A) The last in a series of arguments supporting the central argument of the passage is presented.
 - (B) A viewpoint is presented which qualifies one presented earlier in the passage.
 - (C) Evidence is presented in support of the argument developed in the preceding paragraph.
 - (D) Questions arising from the earlier discussion are identified as points of departure for further study of the topic.
 - (E) A specific example is presented to illustrate the main elements of argument presented in the earlier paragraphs.
260. According to the passage, which of the following relationships between profits and investments in research and development holds true for producers of technologically advanced components?
- (A) Modest investments are required and the profit margins on component sales are low.
 - (B) Modest investments are required but the profit margins on component sales are quite high.
 - (C) Despite the huge investments that are required, the profit margins on components sales are high.
 - (D) Because huge investments are required, the profit margins on component sales are low.
 - (E) Long-term contractual relationships with purchasers of components ensure a high ratio of profits to investment costs.

Passage 112

Homeostasis, an animal's maintenance of certain internal variables within an acceptable range, particularly in extreme physical environments, has long interested biologists. The desert rat and the camel in the most water-deprived environments, and marine vertebrates in an all-water environment, encounter the same regulatory problem: maintaining adequate internal fluid balance.

For desert rats and camels, the problem is conservation of water in an environment where standing water is nonexistent, temperature is high, and humidity is low. Despite these handicaps, desert rats are able to maintain the osmotic pressure of their blood, as well as their total body-water content, at approximately the same levels as other rats. One countermeasure is behavioral: these rats stay in burrows during the hot part of the day, thus avoiding loss of

fluid through panting or sweating, which are regulatory mechanisms for maintaining internal body temperature by evaporative cooling. Also, desert rats' kidneys can excrete a urine having twice as high a salt content as sea water.

Camels, on the other hand, rely more on simple endurance. They cannot store water, and their reliance on an entirely unexceptional kidney results in a rate of water loss through renal function significantly higher than that of desert rats. As a result, camels must tolerate losses in body water of up to thirty percent of their body weight. Nevertheless, camels do rely on a special mechanism to keep water loss within a tolerable range: by seating and panting only when their body temperature exceeds that which would kill a human, they conserve internal water.

Marine vertebrates experience difficulty with their water balance because though there is no shortage of seawater to drink, they must drink a lot of it to maintain their internal fluid balance. But the excess salts from the seawater must be discharged somehow, and the kidneys of most marine vertebrates are unable to excrete a urine in which the salts are more concentrated than in seawater. Most of these animals have special salt-secreting organs outside the kidney that enable them to eliminate excess salt.

261. Which of the following most accurately states the purpose of the passage?
- (A) To compare two different approaches to the study of homeostasis
 - (B) To summarize the findings of several studies regarding organisms' maintenance of internal variables in extreme environments
 - (C) To argue for a particular hypothesis regarding various organisms' conservation of water in desert environments
 - (D) To cite examples of how homeostasis is achieved by various organisms
 - (E) To defend a new theory regarding the maintenance of adequate fluid balance
262. According to the passage, the camel maintains internal fluid balance in which of the following ways?
- I. By behavioral avoidance of exposure to conditions that lead to fluid loss
 - II. By an ability to tolerate high body temperatures
 - III. By reliance on stored internal fluid supplies
- (A) I only
 - (B) II only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
263. It can be inferred from the passage that some mechanisms that regulate internal body temperature, like sweating and panting, can lead to which of the following?
- (A) A rise in the external body temperature
 - (B) A drop in the body's internal fluid level
 - (C) A decrease in the osmotic pressure of the blood

(D) A decrease in the amount of renal water loss

(E) A decrease in the urine's salt content

264. It can be inferred from the passage that the author characterizes the camel's kidney as "entirely unexceptional" (line 24) primarily to emphasize that it

(A) functions much as the kidney of a rat functions

(B) does not aid the camel in coping with the exceptional water loss resulting from the extreme conditions of its environment

(C) does not enable the camel to excrete as much salt as do the kidneys of marine vertebrates

(D) is similar in structure to the kidneys of most mammals living in water-deprived environments

(E) requires the help of other organs in eliminating excess salt

Passage 113

In the seventeenth-century Florentine textile industry, women were employed primarily in low-paying, low-skill jobs. To explain this segregation of labor by gender, economists have relied on the useful theory of human capital. According to this theory, investment in human capital—the acquisition of difficult job-related skills—generally benefits individuals by making them eligible to engage in well-paid occupations. Women's role as child bearers, however, results in interruptions in their participation in the job market (as compared with men's) and thus reduces their opportunities to acquire training for highly skilled work. In addition, the human capital theory explains why there was a high concentration of women workers in certain low-skill jobs, such as weaving, but not in others, such as combing or carding, by positing that because of their primary responsibility in child rearing women took occupations that could be carried out in the home.

There were, however, differences in pay scales that cannot be explained by the human capital theory. For example, male construction workers were paid significantly higher wage than female taffeta weavers. The wage difference between these two low-skill occupations stems from the segregation of labor by gender: because a limited number of occupations were open to women, there was a large supply of workers in their fields, and this "overcrowding" resulted in women receiving lower wages and men receiving higher wages.

265. The passage suggests that combing and carding differ from weaving in that combing and carding are

(A) low-skill jobs performed by primarily by women employees

(B) low-skill jobs that were not performed in the home

(C) low-skill jobs performed by both male and female employees

(D) high-skill jobs performed outside the home

(E) high-skill jobs performed by both male and female employees

266. Which of the following, if true, would most weaken the explanation provided by the human capital theory for women's concentration in certain occupations in

seventeenth-century Florence?

- (A) Women were unlikely to work outside the home even in occupations whose house were flexible enough to allow women to accommodate domestic tasks as well as paid labor.
- (B) Parents were less likely to teach occupational skills to their daughters than they were to their sons.
- (C) Women's participation in the Florentine paid labor force grew steadily throughout the sixteenth and seventeenth centuries.
- (D) The vast majority of female weavers in the Florentine wool industry had children.
- (E) Few women worked as weavers in the Florentine silk industry, which was devoted to making cloths that required a high degree of skill to produce.

267. The author of the passage would be most likely to describe the explanation provided by the human capital theory for the high concentration of women in certain occupations in the seventeenth-century Florence textile industry as

- (A) well founded though incomplete
- (B) difficult to articulate
- (C) plausible but poorly substantiated
- (D) seriously flawed
- (E) contrary to recent research

Passage 114

Maps made by non-Native Americans to depict Native American land tenure, resources and population distributions appeared almost as early as Europeans' first encounters with Native Americans and took many form: missionaries' field sketches, explorers' drawings, and surveyors' maps, as well as maps rendered in connection with treaties involving land transfers. Most existing maps of Native American lands are reconstructions that are based largely on archaeology, oral reports, and evidence gathered from observers' accounts in letter, diaries, and official reports; accordingly, the accuracy of these maps is especially dependent on the mapmakers' own interpretive abilities.

Many existing maps also reflect the 150-year role of the Bureau of Indian Affairs (BIA) in administering tribal lands. Though these maps incorporate some information gleaned directly from Native Americans, rarely has Native American cartography contributed to this official record, which has been compiled, surveyed, and authenticated by non-Native American. Thus our current cartographic record relating to Native American tribes and their migrations and cultural features, as well as territoriality and contemporary trust lands, reflects the origins of the data, the mixed purposes for which the maps have been prepared, and changes both in United States government policy and in non-Native Americans' attitudes toward an understanding of Native Americans.

268. Which of the following best describes the content of the passage?
- (A) A chronology of the development of different methods for mapping Native Americans
 - (B) A discussion of how the mapmaking techniques of Native Americans differed from those of Europeans
 - (C) An argument concerning the present-day uses to which historical maps of Native American lands are put
 - (D) An argument concerning the nature of information contained in maps of Native American lands
 - (E) A proposal for improving the accuracy of maps of Native American lands
269. The passage mentions each of the following as a factor affecting current maps of Native American lands EXCEPT
- (A) United States government policy
 - (B) non-Native Americans' perspective on Native Americans
 - (C) origins of the information utilized to produce the maps
 - (D) changes in ways that tribal lands are used
 - (E) the reason for producing the maps
270. The passage suggests which of the following about most existing maps of Native American lands?
- (A) They do not record the migrations of Native American tribes.
 - (B) They have been preserved primarily because of their connection with treaties involving land transfers.
 - (C) They tend to reflect archaeological evidence that has become outdated.
 - (D) They tend to be less accurate when they are based on oral reports than when they are based on written documents.
 - (E) They are not based primarily on the mapmakers' firsthand observations of Native American lands.
271. All of the following are examples of the type of evidence used in creating "Most existing maps" (line 7-8) EXCEPT
- (A) a nineteenth-century government report on population distribution of a particular tribe
 - (B) taped conversations with people who lived on Native American tribal lands in the early twentieth century
 - (C) aerial photographs of geological features of lands inhabited by Native Americans
 - (D) findings from a recently excavated site once inhabited by a certain Native American people
 - (E) a journal kept by a non-Native American explorer who traveled in Native American territory in the early nineteenth century

Passage 115

(This passage was written in 1984.)

It is now possible to hear a recording of Caruso's singing that is far superior to any made during his lifetime. A decades-old wax-cylinder recording of this great operatic tenor has been digitized, and the digitized signal has been processed by computer to remove the extraneous sound, or "noise," introduced by the now "ancient" wax-cylinder recording process.

Although this digital technique needs improvements, it represents a new and superior way of recording and processing sound which overcomes many of the limitations of analog recording. In analog recording systems, the original sound is represented as a continuous waveform created by variations in the sound's amplitude over time. When analog playback systems reproduce this waveform, however, they invariably introduce distortions. First, the waveform produced during playback differs somewhat from the original waveform. Second, the medium that stores the analog recording creates noise during playback which gets added to the recorded sounds.

Digital recordings, by contrast, reduce the original sound to a series of discrete numbers that represent the sound's waveform. Because the digital playback system "reads" only numbers, any noise and distortion that may accumulate during storage and manipulation of the digitized signal will have little effect: as long as the numbers remain recognizable, the original waveform will be reconstructed with little loss in quality. However, because the waveform is continuous, while its digital representation is composed of discrete numbers, it is impossible for digital systems to avoid some distortion. One kind of distortion, called "sampling error," occurs if the sound is sampled (i.e., its amplitude is measured) too infrequently, so that the amplitude changes more than one quantum (the smallest change in amplitude measured by the digital system) between samplings. In effect, the sound is changing too quickly for the system to record it accurately. A second form of distortion is "quantizing error," which arises when the amplitude being measured is not a whole number of quanta, forcing the digital recorder to round off. Over the long term, these errors are random, and the noise produced (a background buzzing) is similar to analog noise except that it only occurs when recorded sounds are being reproduced.

272. Which of the following best describes the relationship of the first paragraph to the passage as a whole?
- (A) The first paragraph introduces a general thesis that is elaborated on in detail elsewhere in the passage.
 - (B) The first paragraph presents a concrete instance of a problem that is discussed elsewhere in the passage.
 - (C) The first paragraph describes a traditional process that is contrasted unfavorably with a newer process described elsewhere in the passage.
 - (D) The first paragraph presents a dramatic example of the potential of a process that is described elsewhere in the passage.
 - (E) The first paragraph describes a historic incident that served as the catalyst for developments described elsewhere in the passage.

273. According the passage, one of the ways in which analog recording systems differ from digital recording systems is that analog systems
- (A) can be used to reduce background noise in old recordings
 - (B) record the original sound as a continuous waveform
 - (C) distort the original sound somewhat
 - (D) can avoid introducing extraneous and nonmusical sounds
 - (E) can reconstruct the original waveform with little loss in quality
274. Which of the following statements about the numbers by which sound is represented in a digital system can be inferred from the passage?
- (A) They describe the time interval between successive sounds in a passage of music.
 - (B) They model large changes in the amplitude of the initial sound with relatively poor precision.
 - (C) They are slightly altered each time they are read by the playback apparatus.
 - (D) They are not readily altered by distortion and noise accumulated as the digital signal is stored and manipulated.
 - (E) They are stored in the recording medium in small groups that can be read simultaneously by the playback apparatus.
275. Which of the following can be inferred from the passage about the digital approach to the processing of sound?
- (A) It was developed in competition with wax-cylinder recording technology.
 - (B) It has resulted in the first distortion-free playback system.
 - (C) It has been extensively applied to nonmusical sounds.
 - (D) It cannot yet process music originally recorded on analog equipment.
 - (E) It is not yet capable of reprocessing old recordings in a completely distortion-free manner.

Passage 116

The function of capital markets is to facilitate an exchange of funds among all participants, and yet in practice we find that certain participants are not on a par with others. Members of society have varying degrees of market strength in terms of information they bring to a transaction, as well as of purchasing power and creditworthiness, as defined by lenders.

For example, within minority communities, capital markets do not properly fulfill their functions; they do not provide access to the aggregate flow of funds in the United States. The financial system does not generate the credit or investment vehicles needed for underwriting economic development in minority areas. The problem underlying this dysfunction is found in a rationing mechanism affecting both the available alternatives for investment and the amount of financial resources. This creates a distributive mechanism penalizing members of minority groups because of their socioeconomic differences from others. The existing system expresses

definite socially based investment preferences that result from the previous allocation of income and that influence the allocation of resources for the present and future. The system tends to increase the inequality of income distribution. And, in the United States economy, a greater inequality of income distribution leads to a greater concentration of capital in certain types of investment.

Most traditional financial-market analysis studies ignore financial markets' deficiencies in allocation because of analysts' inherent preferences for the simple model of perfect competition. Conventional financial analysis pays limited attention to issues of market structure and dynamics, relative costs of information, and problems of income distribution. Market participants are viewed as acting as entirely independent and homogeneous individuals with perfect foresight about capital-market behavior. Also, it is assumed that each individual in the community at large has the same access to the market and the same opportunity to transact and to express the preference appropriate to his or her individual interest. Moreover, it is assumed that transaction costs for various types of financial instruments (stocks, bonds, etc.) are equally known and equally divided among all community members.

276. The main point made by the passage is that

- (A) financial markets provide for an optimum allocation of resources among all competing participants by balancing supply and demand
- (B) the allocation of financial resources takes place among separate individual participants, each of whom has access to the market
- (C) the existence of certain factors adversely affecting members of minority groups shows that financial markets do not function as conventional theory says they function
- (D) investments in minority communities can be made by the use of various alternative financial instruments, such as stocks and bonds
- (E) since transaction costs for stocks, bonds, and other financial instruments are not equally apportioned among all minority-group members, the financial market is subject to criticism

277. The passage states that traditional studies of the financial market overlook imbalances in the allocation of financial resources because

- (A) an optimum allocation of resources is the final result of competition among participants
- (B) those performing the studies choose an oversimplified description of the influences on competition
- (C) such imbalances do not appear in the statistics usually compiled to measure the market's behavior
- (D) the analysts who study the market are unwilling to accept criticism of their methods as biased
- (E) socioeconomic difference form the basis of a rationing mechanism that puts minority groups at a disadvantage

278. The author's main point is argued by

- (A) giving examples that support a conventional generalization
 - (B) showing that the view opposite to the author's is self-contradictory
 - (C) criticizing the presuppositions of a proposed plan
 - (D) showing that omissions in a theoretical description make it inapplicable in certain cases
 - (E) demonstrating that an alternative hypothesis more closely fits the data
279. A difference in which of the following would be an example of inequality in transaction costs as alluded to in lines 40-43?
- (A) Maximum amounts of loans extended by a bank to businesses in different areas
 - (B) Fees charged to large and small investors for purchasing stocks
 - (C) Prices of similar goods offered in large and small stores in an area
 - (D) Stipends paid to different attorneys for preparing legal suits for damages
 - (E) Exchange rates in dollars for currencies of different countries
280. Which of the following can be inferred about minority communities on the basis of the passage?
- (A) They provide a significant portion of the funds that become available for investment in the financial market.
 - (B) They are penalized by the tax system, which increases the inequality of the distribution of income between investors and wage earners.
 - (C) They do not receive the share of the amount of funds available for investment that would be expected according to traditional financial-market analysis.
 - (D) They are not granted governmental subsidies to assist in underwriting the cost of economic development.
 - (E) They provide the same access to alternative sources of credit to finance businesses as do majority communities.
281. According to the passage, a questionable assumption of the conventional theory about the operation of financial markets is that
- (A) creditworthiness as determined by lenders is a factor determining market access
 - (B) market structure and market dynamics depend on income distribution
 - (C) a scarcity of alternative sources of funds would result from taking socioeconomic factors into consideration
 - (D) those who engage in financial-market transactions are perfectly well informed about the market
 - (E) inequalities in income distribution are increased by the functioning of the financial market
282. According to the passage, analysts have conventionally tended to view those who participate in financial market as

- (A) judging investment preferences in terms of the good of society as a whole
- (B) influencing the allocation of funds through prior ownership of certain kinds of assets
- (C) varying in market power with respect to one another
- (D) basing judgments about future events mainly on chance
- (E) having equal opportunities to engage in transactions

Passage 117

(The following is based on material written in 1996.)

The Montreal Protocol on Substances that Deplete the Ozone Layer, signed in 1987 by more than 150 nations, has attained its short-term goals: it has decreased the rate of increase in amounts of most ozone-depleting chemicals reaching the atmosphere and has even reduced the atmospheric levels of some of them. The projection that the ozone layer will substantially recover from ozone depletion by 2050 is based on the assumption that the protocol's regulations will be strictly followed. Yet there is considerable evidence of violations, particularly in the form of the release of ozone-depleting chlorofluorocarbons (CFC's), which are commonly used in the refrigeration, heating, and air conditioning industries. These violations reflect industry attitudes; for example, in the United States, 48 percents of respondents in a recent survey of subscribers to *Air Conditioning, Heating, and Refrigeration News*, an industry trade journal, said that they did not believe that CFC's damage the ozone layer. Moreover, some in the industry apparently do not want to pay for CFC substitutes, which can run five times the cost of CFC's. Consequently, a black market in imported illicit CFC's has grown. Estimates of the contraband CFC trade range from 10,000 to 22,000 tons a year, with most of the CFC's originating in India and China, whose agreements under the Protocol still allow them to produce CFC's. In fact, the United States Customs Service reports that CFC-12 is a contraband problem second only to illicit drugs.

283. According to the passage, which of the following best describes most ozone-depleting chemicals in 1996 as compared to those in 1987?
- (A) The levels of such chemicals in the atmosphere had decreased.
 - (B) The number of such chemicals that reached the atmosphere had declined.
 - (C) The amounts of such chemicals released had increased but the amounts that reached the atmosphere had decreased.
 - (D) The rate of increase in amounts of such chemicals reaching the atmosphere had decreased.
 - (E) The rate at which such chemicals were being reduced in the atmosphere had slowed.
284. The author of the passage compares the smuggling of CFC's to the illicit drug trade most likely for which of the following reasons?
- (A) To qualify a previous claim
 - (B) To emphasize the extent of a problem

- (C) To provide an explanation for an earlier assertion
- (D) To suggest that the illicit CFC trade, likely the illicit drug trade, will continue to increase
- (E) To suggest that the consequences of a relatively little-known problem are as serious as those of a well-known one

285. The passage suggests which of the following about the illicit trade in CFC's?

- (A) It would cease if manufacturers in India and China stopped producing CFC's.
- (B) Most people who participate in such trade do not believe that CFC's deplete the ozone layer.
- (C) It will probably surpass illicit drugs as the largest contraband problem faced by the United States Custom Services.
- (D) It is fostered by people who do not want to pay the price of CFC substitutes.
- (E) It has grown primarily because of the expansion of the refrigeration, heating, and air-conditioning industries in foreign countries.

Answer Key

Passage 111

257. B	258. A	259. B	260. D	261.
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Passage 112

261. D	262. B	263. B	264. B	265.
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Passage 113

265. B	266. A	267. A	268.	269.
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Passage 114

268. D	269. D	270. E	271. C	272.
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Passage 115

272. D	273. B	274. D	275. E	276.
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Passage 116

276. C	277. B	278. D	279. B	280. C
281. D	282. E	283.	284.	285.

Passage 117

283. D	284. B	285. D	286.	287.
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