Test Bank for Strategic Management of Technological Innovation 7th Schilling

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CORRECT ANSWERS ARE LOCATED IN THE 2ND HALF OF THIS DOC.

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) If an individual knows a field too well, it can stifle his or her ability to come up with solutions that require an alternative perspective.
   - ◎ true
   - ◎ false

2) An organization's overall creativity level is a simple aggregate of the creativity of the individuals it employs.
   - ◎ true
   - ◎ false

3) Sometimes, monetary rewards undermine creativity by encouraging employees to focus on extrinsic rather than intrinsic motivation.
   - ◎ true
   - ◎ false

4) Research targeted at increasing knowledge for a specific application or need is called basic research.
   - ◎ true
   - ◎ false

5) The terms "research" and "development" represent different kinds of investment in innovation-related activities.
   - ◎ true
   - ◎ false

6) The science-push approach to research and development argued that innovation was driven by the perceived demand of potential users.
   - ◎ true
   - ◎ false

7) Firms often form alliances with competitors to jointly work on an innovation project or to exchange information in pursuit of innovation.
   - ◎ true
   - ◎ false

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8) Typically the intellectual property policies of a university embrace both patentable and unpatentable innovations, and the university retains sole discretion over the rights to commercialize the innovation.
   - ◎ true
   - ◎ false

9) Incubators are regional districts, typically set up by government, to foster R&D collaboration between government, universities, and private firms.
   - ◎ true
   - ◎ false

10) Empirical evidence suggests that external sources of information are more likely to be substitutes for rather than complements to in-house research and development.
   - ◎ true
   - ◎ false

11) Work can be described as novel even if it is simply the next logical step in a series of known solutions.
   - ◎ true
   - ◎ false

12) Collaborative research is prohibited in high-technology sectors.
   - ◎ true
   - ◎ false

13) Proximity and interaction can directly influence firms' ability and willingness to exchange knowledge.
   - ◎ true
   - ◎ false

14) Knowledge that is explicit requires more frequent and close interaction to be meaningfully exchanged than knowledge that is tacit.
   - ◎ true
   - ◎ false

15) The degree to which innovative activities are geographically clustered is independent of the national differences in the way technology development is funded or protected.
   - ◎ true
   - ◎ false

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MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

16) _____ is the personality trait most often associated with creativity.
- A) Conscientiousness
- B) Agreeableness
- C) Openness to experience
- D) Extraversion

17) Which of the following statements is true of primary process thinking?
- A) It has a highly structured nature.
- B) It is believed to occur when an individual is highly focused on looking for solutions.
- C) It limits an individual's capacity for creativity.
- D) It is likely to result in combining ideas that are usually unrelated.

18) Erison Group, an advertising company, wants to hire a creative head. Who among the following would be best suited for this position?
- A) an individual who completely adheres to the existing logic and paradigms and has extensive knowledge of the field
- B) an individual who has low tolerance for ambiguity and avoids taking risks
- C) an individual who has a moderate degree of knowledge of the field but is intrinsically motivated
- D) an individual who prefers to look at problems in conventional ways

19) Meghan, an R&D scientist at a reputed medical equipment manufacturing firm, realized that most studies indicate that individuals are not able to detect any variations in their blood pressure, blood glucose levels, heartbeat, and pace of breathing as they do not monitor these aspects on a regular basis. These variations lead to further complications in most individuals. Therefore, to reduce this occurrence, she invented a device, which also functioned like a watch that could monitor the aforementioned health aspects in an individual throughout the day. The device would alert the individual using it if any of these aspects were above or below normal. Meghan's device was an instant success with several countries placing orders for the device. Which of the following characteristics of most successful inventors did Meghan exhibit in this scenario?
- A) She had specialized in a single field rather than several fields simultaneously.
- B) She was curious and more interested in the solution rather than the problem.
- C) She blindly accepted the assumptions made in previous works in the same field.
- D) She sought a global solution rather than a local solution.

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20) Who among the following is a user innovator?
A) Samuel has invented a detachable bicycle, which he plans to sell to a reputed bicycle manufacturing firm in order to make profit.
B) Sandra, an engineer, has developed a device that helps track the location of her teenage daughter's car.
C) Jessica, an ace designer for a clothing brand, has been asked to work on a dyeing technique that changes fabric color according to the room temperature.
D) Ivan, a scientist at a reputed pharmaceutical company, has developed an anti-inflammatory drug for the company to commercialize.

21) Which of the following is the correct sequence of steps for the science-push approach to research and development?
A) Customers express an unmet need, the R&D team develops the product to meet that need, the product is manufactured, and finally the marketing team promotes the product.
B) Scientific discovery leads to an invention, the engineering team designs the product, it is then manufactured, and finally the marketing team promotes it.
C) The marketing team discovers a need, R&D comes up with the product concept that is refined by the engineering team, the manufacturing team then produces it, and finally the product is sold.
D) The manufacturing team sees a way to improve a product, the engineering team redesigns it, and finally the marketing team creates awareness about the improved product.

22) Breaking Ventures Incorporated realized that most parents are worried about their teenage children going out on their own. Based on this information, the company developed a device that could be fixed into teenagers' cell phones through which parents could keep track of their children's location. This is referred to as the _____ to research and development.
A) demand-pull approach
B) supply-push approach
C) science-push approach
D) research-pull approach

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23) The demand-pull approach to research and development refers to innovation that
- A) focuses on developing products that are expected to increase demand in a particular market segment.
- B) begins by examining the outcomes of the firm's basic research and the potential commercial applications that may be constructed from those outcomes.
- C) focuses on developing products that are expected to decrease the demand for their substitute products.
- D) originates as a response to the specific problems or suggestions of customers.

24) Organizations that manufacture products such as light bulbs for lamps or chargers for electrical vehicles are called _____.
- A) moderators
- B) lead users
- C) complementors
- D) incubators

25) _____ is the ability of an organization to recognize, assimilate, and utilize new knowledge.
- A) Cognitive dissonance
- B) Absorptive capacity
- C) Organizational obsolescence
- D) Built-in obsolescence

26) The president of Mountain Home University has been asked by the board members to set up a separate unit to facilitate the commercialization of technology developed by research students at the university. Such a unit is typically called a _____.
- A) strategic business unit
- B) commercialization office
- C) technology transfer office
- D) science park

27) Which of the following statements is true of the Bayh-Dole Act of 1980?
- A) It made university technology transfer activities illegal and unethical.
- B) It allowed universities to collect royalties on inventions funded with taxpayer dollars.
- C) It restricted the provision of patents for inventions developed at universities.
- D) It made investments in research and technology mandatory for public companies.

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28) Which of the following statements is true of science parks?
- A) Because of the vast distance between university laboratories and other research centers, science parks seldom provide ready access to scientific expertise.
- B) The formation of science parks typically leads to traffic congestion, inordinately high housing costs, and higher concentrations of pollution in the area.
- C) Even though science parks are known to assist new start-ups, they strongly prohibit collaboration activities between firms.
- D) Science parks often give rise to technology clusters that have long-lasting and self-reinforcing advantages.

29) Institutions designed to nurture the development of new businesses that might otherwise lack access to adequate funding or advice are called _____.
- A) complementors
- B) research collaboration offices
- C) incubators
- D) technology clusters

30) Which of the following is true of interfirm collaborative research and development networks?
- A) Collaborative research networks are not important or viable in high-technology sectors.
- B) Interfirm networks can enable firms to achieve much more than they could achieve individually.
- C) The flow of information and other resources through a network is independent of the network's size.
- D) Information diffusion is fairly slow and limited in collaborative research networks with dense structures and many paths for information to travel.

31) _____ are regional groups of firms that have a connection to a common technology and may engage in buyer, supplier, and complementor relationships, as well as research collaboration.
- A) Technology transfer offices
- B) Technology incubators
- C) Strategic business units
- D) Technology clusters

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32) Which of the following statements is true of geographical clustering?
A) The proximity of many competitors serving a local market leads to competition that increases their pricing power in their relationships with both buyers and suppliers.
B) Close proximity of firms eliminates the likelihood of a firm's competitors gaining access to the firm's proprietary knowledge.
C) Clustering invariably leads to lower concentrations of pollution and inordinately low housing costs.
D) Proximate firms have an advantage in sharing information that can lead to greater innovation productivity.

33) The benefits firms reap by locating in close geographical proximity to each other are known collectively as _____.
A) agglomeration economies
B) incubator economies
C) virtual economies
D) shadow economies

34) _____ is a positive externality from R&D resulting from the spread of knowledge across organizational or regional boundaries.
A) Technological discombobulation
B) Technological determinism
C) Technological spillover
D) Technological dissonance

35) A variety of rice created by Biocrop Incorporated through recombinant DNA technology was found to be rich in both carbohydrates and proteins. After the success of this rice variety, recombinant DNA technology was implemented by less-developed countries to increase the nutrient levels of fruits, pulses, and greens in order to feed their malnourished children. This is an example of _____.
A) technological dissonance
B) technological spillover
C) technological retardation
D) technological determinism

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ESSAY. Write your answer in the space provided or on a separate sheet of paper.

36) What are the most important intellectual abilities for creative thinking? What is the impact of knowledge on creativity?

37) Explain the terms "basic research" and "applied research."

38) In the context of government-funded research, explain the term "science parks." What are their advantages?

39) What are some of the downsides to geographical clustering?

40) Explain the concept of technology spillovers. What are the factors affecting the likelihood of technological spillovers?

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Answer Key

Test name: Chapter 02

1) TRUE
2) FALSE
3) TRUE
4) FALSE
5) TRUE
6) FALSE
7) TRUE
8) TRUE
9) FALSE
10) FALSE
11) FALSE
12) FALSE
13) TRUE
14) FALSE
15) FALSE
16) C
17) D
18) C
19) D
20) B
21) B
22) A
23) D
24) C
25) B
26) C
27) B
28) D
29) C
30) B
31) D
32) D
33) A
34) C
35) B
36) Essay

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An individual's creative ability is a function of his or her intellectual abilities, knowledge, personality, motivation, and environment. The most important intellectual abilities for creative thinking include intelligence, memory, the ability to look at problems in unconventional ways, the ability to analyze which ideas are worth pursuing and which are not, and the ability to articulate those ideas to others and convince others that the ideas are worthwhile. The impact of knowledge on creativity is somewhat double-edged. If an individual has too little knowledge of a field, he or she is unlikely to understand it well enough to contribute meaningfully to it. On the other hand, if an individual knows a field too well, that person can become trapped in the existing logic and paradigms, preventing him or her from coming up with solutions that require an alternative perspective. Thus, an individual with only a moderate degree of knowledge of a field might be able to produce more creative solutions than an individual with extensive knowledge of the field.

37) Essay
Basic research is effort directed at increasing understanding of a topic or field without a specific immediate commercial application in mind. This research advances scientific knowledge, which may (or may not) turn out to have long-run commercial implications. Applied research is directed at increasing understanding of a topic to meet a specific need. In industry, this research typically has specific commercial objectives.

38) Essay
Science parks refer to regional districts, typically set up by government, to foster R&D collaboration between government, universities, and private firms. These parks create fertile hotbeds for new start-ups and a focal point for the collaboration activities of established firms. Their proximity to university labora-tories and other research centers ensures ready access to scientific expertise. Such centers also help university researchers implement their scientific discoveries in commercial applications. Such parks often give rise to technology clusters that have long-lasting and self-reinforcing advantages.

39) Essay
There are some downsides to geographical clustering. First, the proximity of many competitors serving a local market can lead to competition that reduces their pricing power in their relationships with both buyers and suppliers. Second, close proximity of firms may increase the likelihood of a firm's competitors gaining access to the firm's proprietary knowledge. Third, clustering can potentially lead to traffic congestion, inordinately high housing costs, and higher concentrations of pollution.

40) Essay

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Technological spillovers occur when the benefits from the research activities of one firm (or nation or other entity) spill over to other firms (or nations or other entities). Spillovers are thus a positive externality of research and development. Whether R&D benefits will spill over is partially a function of the strength of protection mechanisms such as patents, copyrights, and trade secrets. Since the strength of protection mechanisms varies significantly across industries and countries, the likelihood of spillovers varies also. The likelihood of spillovers is also a function of the nature of the underlying knowledge base and the mobility of the labor pool.