1. Innovators compete in two markets:
   A. Those for products and those for capital
   B. Those for research and those for design
   C. Those for technology and those for market share
   D. Those for raw materials and those for finished good

2. Figures of merit:
   A. Should be awarded to the best workers
   B. Are measurements correlated with strategic goals
   C. Are reported in the annual financial statements
   D. Are all of the above

3. The behavioural model supporting a financial analysis:
   A. Provides a description of firm and management behaviour in the past
   B. Provides a benchmark for successful management behaviour
   C. Is the main figure of merit
   D. Is the place where strategy drivers are defined

4. The strategy model supporting a financial analysis:
   A. Provides a description of firm and management behaviour
   B. Provides a benchmark for successful management behaviour
   C. Forecasts the future options and payoffs of an innovation
D. Is the place where the time value of money is defined

5. The discount model supporting a financial analysis:
A. Provides a description of firm and management behaviour
B. Provides a benchmark for successful management behaviour
C. Forecasts the future options and payoffs of an innovation
D. Is the place where the time value of money is defined

6. Value cones provide:
A. A graphical depiction of the expected risk and return of an innovation
B. A graphical depiction of the cash flow from an innovation
C. A graphical depiction of the product cycle of an innovation
D. A graphical depiction of the real options of an innovation

7. Strategy drivers are:
A. Financial measures of innovation payoff
B. Technology measures of innovation payoff
C. Measurable activities that are correlated with innovation payoff
D. Measurable profits that are correlated with innovation payoff

8. The industries with the highest proportion of tangible assets are:
A. Local government and legal services
B. Software, cinema and publishing
C. Property, mining and extractive
D. Insurance and risk management

9. The industries with the highest proportion of intangible assets are:
A. Local government and legal services
B. Software, cinema and publishing
C. Property, mining and extractive
D. Insurance and risk management

10. Scenario analysis is useful in defining:
A. The payoff of innovations more than 10 years in the future
B. The real options available for strategic investment
C. The property, mining and extractive industries
D. The historical cost of innovation

**Ans. 1 to 10**

1. a
2. b
3. a
4. c
5. d
6. a
7. c
11. The market-based perspective of management includes

a. customers and competitors, market opportunities, positional strategy, and mature markets.
b. customers and competitors, resources, positional strategy, and mature markets.
c. unique resources, market opportunities, core competencies, and dynamic markets.
d. customers and competitors, market opportunities, positional strategy, and dynamic markets.

12. Which of the following is an example of a change in product technology?

a. changes in human resources
b. changes in marketing functions
c. changes in logistics
d. changes in product features

13. The major objective driving the decisions of technology management is

a. value creation.
b. nature of the firm.
c. competitive advantage.
d. resources of the firm.
14. Technology can best be defined in economic progress as

a. knowledge.
b. the terminology of an art science.
c. the branch of knowledge that deals with industrial arts, applied science, and engineering.
d. a technological process, invention method or the like and some of the ways in which a social group provides themselves with the material objects of their civilization.

15. The process of codification in technology can best be described as

a. knowledge derived from past experiences.
b. the physical embodiment of knowledge in products, services, or procedures.
c. formalization of tacit knowledge into a usable format.
d. the development of ideas and perspectives.

16. Which of the following is a concept of management of technology within an open systems view?

a. value creation and competitive advantage
b. interfacing of technology and market factors
c. generic applicability
d. speed of problem solving

17. Which of the following is a characteristic of a capacity-driven industry?

a. There is high average of profitability.
b. There is high investment in research and development.
c. Physical capital investments are relatively large in relation to cost or value added.
d. The brand name accounts for a large part of the cost or value-added.

18. Which of the following industries is an example of a knowledge driven-industry?
   a. the textile industry
   b. the pharmaceutical industry
   c. the steel industry
   d. the packaging industry

19. Changes in process technology help firms to
   a. redefine their market scope
   b. introduce of a new product.
   c. provide superior substitutes for existing products.
   d. make improvements that are not visible in the marketplace.

20. Which of the following characteristics of technology is the trigger for technology development?
   a. transferability
   b. appropriateness
   c. opportunity
   d. resources

*Ans. 11 to 20*

11-b 12-d 13-c 14-a 15-c 16-a 17-c 18-b 19-d 20-c
21. Which environmental level refers to the set of customers, suppliers, competitors, and other environmental agencies directly related to a firm?
   a. Task environment  
   b. Competitive environment  
   c. Industrial environment  
   d. Macroenvironment

22. The most turbulent segment of the microenvironment is
   a. technological.  
   b. social.  
   c. political.  
   d. economic.

23. What does the technological environment consist of?
   a. Proven research  
   b. Creation of new knowledge  
   c. Creation of new knowledge and application of that knowledge  
   d. The management of technology

24. The University of Alabama's chemistry research lab is which of the following actors in the technological environment?
   a. Private facilitator  
   b. Public developer  
   c. Private developer  
   d. Public facilitator
25. The technological environment has created which of the following that facilitate the flow of information, resources, and personnel for technology development and diffusion?
   
   a. Government funding  
   b. Technology integration  
   c. Innovation networks  
   d. Globalization

26. An example of government's influence in the development of the technological environment is 
   
   a) the Rubicon Group.  
   b) Rensselaer Polytechnic Institute.  
   c) the Clinton/Gore Technology Policy for America.  
   d) Research Triangle Park.

27. Changes initiated by technology developers that are largely independent of the forces in other macroenvironmental segments are referred to as 
   
   a) social.  
   b) autonomous.  
   c) economic.  
   d) induced.

28. From 1975 through 1989, which of the following countries saw, as a percentage of GNP, a decrease in national research and development?
   
   a) France  
   b) United States  
   c) United Kingdom  
   d) West Germany
29. Multinational research and development is more common for which type of firms?

   a) Pacific Rim
   b) United States
   c) Japanese
   d) European

30. Firms that are not positioned to develop specific technologies would turn to which of the following to help them develop those specific technologies?

   a) Globalization
   b) Time compression
   c) Technology integration
   d) Increase in R&D expenditures

*Ans. 21 to 30*

21-a  22-c  23-c  24-b  25-c  26-d  27-b  28-c  29-d  30-c

31. At the level of an individual firm, technical change may be described as a process of problem solving. What two stages in the process of problem solving include strong judgmental input?

   a) Solution development and technology choice
   b) Problem recognition and solution development
   c) Problem recognition and technology choice
   d) Commercialization and technology choice
32. The processes by which firms arrive at a feasible solution to customer wants is known as
   a. diffusion.
   b. innovation.
   c. T-M matrix.
   d. invention.

33. Which component of the output of the process of innovation is the major facet of the marketing strategy of a firm?
   a. The hardware component
   b. The evaluation information component
   c. The dominant component
   d. The software component

34. The development of the computer is an example of which of the following innovations?
   a. Autonomous
   b. Market
   c. Political
   d. Environmental

35. Technology push innovations tend to be driven by which of the following?
   a. Consumers
   b. Political factors
   c. Research
   d. Manufacturers
36. An innovation that uses existing organizational practices and technologies but reconfigures them in new or different ways is known as

a. architectural innovation.
b. modular innovation.
c. incremental innovation.
d. radical innovation.

37. The process by which new technologies emerge to obsolete existing technologies is known as

a. technology limit.
b. learning curve.
c. S-curve of technology development.
d. technology progression.

38. What principle suggests that a characteristic feature of technical know-how is not easily transmitted?

a. Technological insularity
b. Temporal clustering
c. Spatial clustering
d. Managed innovation

39. The Silicon Valley is an example of which of the following?

a. Temporal clustering
b. Spatial clustering
c. The law of macrocosm
d. Inflexible specialization theory
40. Which of the following factors influencing the process of innovation is not a firm-level factor?

   a. Organization structure  
   b. Input factors  
   c. Communication patterns  
   d. Resources  

Ans. 31 to 40

31-c  32-b  33-b  34-a  35-d  36-a  37-d  38-a  39-b  40-b

41. Diffusion is a concept that refers to

   a. sellers of products.  
   b. sellers of services.  
   c. buyers of services.  
   d. imitation.  

42. Dynamics of diffusion refers to

   a) the S-curve of diffusion.  
   b) adoption over time.  
   c) a rapid growth phase.  
   d) a slow growth phase.  

43. The era of diffusion history when adoption rates accelerate until half of the individuals in the system have adopted an innovation is known as

   a. rapid growth phase.  
   b. maturity.
c. slow growth phase.
d. emergence.

44. Reinvention can occur because

a. the innovation solves a problem for which it was not initially intended.
b. the elements comprising a systemic innovation are tightly interrelated.
c. there is no potential for evolution.
d. adopters possess detailed knowledge regarding the innovation.

45. The mechanism that unlocks the doors of an adopter population for the propagation of an innovation is

a. technology substitution.
b. technology imitation.
c. bandwagon effect.
d. NIH.

46. Which step in the model of innovation adoption leads either an individual or a firm to form a favorable or an unfavorable attitude toward an innovation?

a. Decision
b. Implementation
c. Attitude formation
d. Confirmation

47. The cost-benefit analysis of the adoption decision occurs during which stage?

a. Attitude formation
b. Decision
c. Awareness
d. Confirm

48. Adopters of innovation are divided into five adopter categories depending on their speed of adoption. Which adopter has the greatest degree of opinion leadership?

a. Early adopters
b. Innovators
c. Early majority  
d. Laggards

49. A reason problems of implementation are likely to be more serious when the adopter is an organization rather than an individual is
   a. implementers are the same people as the decision makers.
   b. organizational structure often lends instability.
   c. organizational structure often resists the implementation of innovation.
   d. NIH.

50. Which of the following does not influence the process of adoption?
   a. Relative advantage  
b. Compatibility  
c. Observability  
d. Incompatibility

**Ans. 41 to 50**

41-c  42-b  43-a  44-a  45-a  46-c  47-b  48-a  49-c  50-a

51. ___________________ inevitably destroys inferior technologies and ushers in superior technologies.
   a. Technology integration  
b. Technological progression  
c. Architectural innovations  
d. Technology substitution

52. The driving force behind the movement of societies from the First Wave, the agricultural era, to the Second Wave, the industrial era, has been
   a. superior processes.
b. technological progression.
c. automation.
d. technology-market matrix.

53. The deregulation of the airline industry and the advent of the "hub and spoke" system is an example of
   a. automation.
   b. competitive rivalry.
   c. change in value constellation.
   d. superior processes.

54. During 1990, which industry had the greatest output of technological activity as reflected in patents filed?
   a. Instruments and related products
   b. Electronic and other electric equipment
   c. Machinery, except electric
   d. Oil and gas extraction, petroleum products

55. The technological characteristic of competitive domain that refers to the velocity of change in a competitive domain that sets the pace of the internal operations of the competing firms is known as
   a. appropriability.
   b. technological opportunity.
   c. institutional milieu.
   d. speed.

56. The technology emergence phase that contains substantial variation among product design is known as
   a. the appearance of technological discontinuity.
   b. the appearance of technological continuity.
   c. the era of ferment.
   d. the emergence of dominant design.
57. Firms tracking the emergence of a dominant design need to focus their attention on
   a. factors over and beyond the technical features of the innovation.
   b. the technical features of the innovation.
   c. regulation and government intervention.
   d. production costs.

58. Which of the following is not a function of dominant design?
   a. Providing for the standardization of a product
   b. Increasing variation in products
   c. Optimizing organization designs for volume and efficiency
   d. Promise of decrease in product cost to consumers

59. Which of the following would a firm not do if the firm has chosen not to participate in a new technology?
   a. Avoid the threat through increasing dependence on the most threatened submarkets
   b. Do nothing
   c. Increase flexibility
   d. Expand work on improvement of existing technology

60. Which of the following is a way architectural innovation may upset the competitive equilibrium within an industry?
   a. Autonomous extension of the existing technology
   b. Overestimating the impact of embedded architectural knowledge
   c. Favoring the emergence of new firms
   d. Favoring the old industry practices

*Ans. 51 to 60*

51. a
52. c
53. d
61. During which phase of technology evolution are process innovations coupled to design and engineering during product development?
   
   a. Technology emergence
   b. Incremental innovation
   c. Industry clock speed
   d. Craft tasks

62. Of the four modes of configuring value chains and value constellations, which one is based on production of goods on a larger scale and volume?
   
   a. Craft production
   b. Mass production
   c. Lean production
   d. Mass customization

63. Which of the following production principles of mass customization allows the production process to respond quickly to change in demand and design?
   
   a. Flexible manufacturing systems
   b. Computer-aided design/computer-aided manufacturing
   c. Use of information and telecommunication technologies
   d. Use of computerized databases
64. The firm-to-market linkage that is based on the premise that allows greater variety to be built into products and services so that they are more responsive to customer's needs is
   a. craft production.
   b. mass production.
   c. lean production.
   d. mass customization.

65. In relation to task characteristics, four types of major tasks can be identified. Which of the following two share the attribute that the task is not analyzable or very well understood?
   a. Craft tasks and nonroutine tasks
   b. Routine tasks and craft tasks
   c. Engineering tasks and nonroutine tasks
   d. Routine tasks and nonroutine tasks

66. Based on the Woodward studies discussed in the text, which category is characterized by long production runs of standardized parts?
   a. Unit and small batch production
   b. Large batch and mass production
   c. Craft production
   d. Continuous production

67. Artificial intelligence techniques currently being developed tried to codify wisdom and experience accumulated by individuals for what purpose?
   a. Use established formulas
   b. Influence a variety of certain tasks
   c. Automate some of the craft tasks
   d. Impact the nature of tasks

68. Interdependence among tasks that exist within an organization are altered by
   a. transformation in value chain configuration.
   b. team-based structure.
   c. advances in information technology.
d. communication within the organization.

69. As technology automates many of the analyzable jobs, individuals who perform repetitive and some engineering tasks may no longer be needed. This force is called

   a. robotic machinery.
   b. software dominant technology.
   c. creative destruction.
   d. requisite interpersonal skills.

70. As a result of the changing face of managerial careers, the importance of a job is not lifetime employment. What features are necessary to compete in today's market?

   a. Acquisition of additional skills and knowledge in order to progress horizontally within an organization
   b. Availability of a home office
   c. Workflow integration
   d. The ability to form teams of specialists

**Ans. 61 to 70**

61. a
62. b
63. c
64. c
65. a
66. b
67. c
68. a
69. c
70. a
71. Technology intelligence is a critical input into strategic decisions: How is this intelligence defined?

a. Technology-related information that is useful for strategic decision making
b. Technical data used for new product development
c. Technological strategy
d. The technological environment

72. Of the broad types of intelligence suitable for different types of strategic decision, which one refers to broad technology trends that are developing in an economy?

a. Industry or business level
b. Program level
c. Project level
d. Macro-level

73. Mapping the technology environment is broken down into four interlinked steps. Which step alerts an organization to predictable changes in its environment?

a. Monitoring
b. Forecasting
c. Scanning
d. Assessing

74. The four most useful forecasting techniques are

a. Delphi, scenarios, s-curves, and morphological analysis.
b. Scope, direction, speed, and intensity.
c. Scanning, monitoring, forecasting, and assessment.
d. Planning, collecting, analyzing, and presenting.
75. Four major principals can be summarized and observed while developing a strategy of data collection. Which principle addresses the critical nature of primary data sources?

a. Data collection should be guided by the kind of decision for which technology intelligence is sought.
b. The scanning of what's in the technological arena should have an investigative element.
c. The analyst should focus on those engaged in technology development as well as the facilitators.
d. The choice of mechanisms will depend on the importance attached by a specific firm.

**Ans. 71 to 75**

71. a  
72. d  
73. c  
74. a  
75. b  