Fifth Edition

MODERN SYSTEMS ANALYSIS AND DESIGN

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Chapter 2
The Origins of Software

True-False Questions

1.	Hardware manufacturers are one source of software.
	Answer: True **Difficulty:** Med **Reference:** p. 34-35
2.	The first administrative information system was General Electric's payroll system.
	Answer: True **Difficulty:** Med **Reference:** p. 32
3.	Internal corporate information systems departments now spend a smaller portion of their time and effort on developing systems from scratch.
	Answer: True **Difficulty:** Easy **Reference:** p. 32
4.	Third-party sourcing is the practice of turning over responsibility of some to all of an organization's information systems applications and operations to an outside firm.
	Answer: False **Difficulty:** Med **Reference:** p. 32
5.	Outsourcing of information systems has been steadily decreasing over the last 10 years.
	Answer: False **Difficulty:** Med **Reference:** p. 32
6.	Outsourcing is an alternative analysts need to be aware of.
	Answer: True **Difficulty:** Easy **Reference:** p. 33
7.	An organization may move to outsourcing for political reasons.
	Answer: True **Difficulty:** Easy **Reference:** p. 33
8.	Reducing time to market is one reason for outsourcing.
	Answer: True **Difficulty:** Med **Reference:** p. 33
9.	Hiring a company to run your applications on your own computers is an example of outsourcing.
	Answer: True **Difficulty:** Med **Reference:** p. 32
10.	A company may consider outsourcing if it feels that its core mission does not involve managing an information systems unit and that it might achieve more effective computing by turning over all of its operations to a more experienced, computer-oriented company.
	Answer: True **Difficulty:** Med **Reference:** p. 33

11.	Based on 2002 total revenues, the number one global software company is Microsoft.
	Answer: False **Difficulty:** Med **Reference:** p. 34

12.	Based on 2002 total revenues, the number one global software company is IBM.
	Answer: True **Difficulty:** Med **Reference:** p. 34

13.	Hardware manufacturers, packaged software producers, custom software producers, enterprisewide solutions, application server providers, and in-house developers are sources of software.
	Answer: True **Difficulty:** Med **Reference:** p. 34

14.	Sun and Hitachi are well known for their enterprisewide solutions.
	Answer: False **Difficulty:** Med **Reference:** p. 35

15.	SAP AG, PeopleSoft, and Oracle are vendors of enterprise solution software.
	Answer: True **Difficulty:** Med **Reference:** p. 37

16.	Software companies will test their systems in actual organizations to determine whether there are any problems or if any improvements can be made, and until this testing is complete, the system is not offered for sale to the general public.
	Answer: True **Difficulty:** Hard **Reference:** p. 35

17.	In many instances, off-the-shelf software can meet an organization's needs over 80 percent of the time.
	Answer: False **Difficulty:** Hard **Reference:** p. 36

18.	In general, custom software producers do not use the same methodologies, techniques, and tools that companies use to develop systems in house.
	Answer: False **Difficulty:** Medium **Reference:** p. 34

19.	IBM and EDS are two of the biggest, best-known outsourcing firms.
	Answer: True **Difficulty:** Med **Reference:** p. 33

20.	All off-the-shelf software systems can be modified to meet the specific, individual needs of a particular organization.
	Answer: False **Difficulty:** Med **Reference:** p. 35

21.	Properly designed turnkey systems will perfectly match the way an organization does business.
	Answer: False **Difficulty:** Med **Reference:** p. 35-36

22.	A reasonable estimate is that off-the-shelf software can at best meet 70 percent of an organization's needs. **Answer:** True　　　　　**Difficulty:** Med　　　　　**Reference:** p. 36
23.	A turnkey system integrates individual, traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems. **Answer:** False　　　　　**Difficulty:** Med　　　　　**Reference:** p. 36
24.	Referencing enterprise solutions, the difference between the modules and traditional approaches is that the modules are integrated to focus on the business functional areas, rather than on business processes. **Answer:** False　　　　　**Difficulty:** Hard　　　　　**Reference:** p. 36
25.	Using enterprise software solutions, a firm can integrate all parts of a business process in a unified information system. **Answer:** True　　　　　**Difficulty:** Med　　　　　**Reference:** p. 36
26.	One of the primary benefits of using an enterprise software solution is the short time period required for implementation. **Answer:** False　　　　　**Difficulty:** Med　　　　　**Reference:** p. 37
27.	Lack of in-house expertise is a disadvantage associated with enterprise solutions software. **Answer:** True　　　　　**Difficulty:** Med　　　　　**Reference:** p. 37
28.	The benefits of the enterprise solutions approach include a single repository of data for all aspects of a business process and the flexibility of the separate systems. **Answer:** False　　　　　**Difficulty:** Med　　　　　**Reference:** p. 36
29.	Another method for organizations to obtain applications is to rent them or license them from third-party providers who run the applications at remote sites. **Answer:** True　　　　　**Difficulty:** Med　　　　　**Reference:** p. 37
30.	IBM captured a large share of the ERP market through its own financial systems and through the acquisition of other ERP vendors. **Answer:** False　　　　　**Difficulty:** Hard　　　　　**Reference:** p. 37
31.	An application service provider is an organization that remotely hosts and runs computer applications for other companies, typically on a per-use or license basis. **Answer:** True　　　　　**Difficulty:** Med　　　　　**Reference:** p. 38
32.	A disadvantage of ASPs is the increased need for internal information technology staff. **Answer:** False　　　　　**Difficulty:** Med　　　　　**Reference:** p. 38

33.	Advantages to using ASPs include gaining access to applications faster than via internal development, and achieving lower-cost access to corporate-quality applications. **Answer:** True **Difficulty:** Med **Reference:** p. 38
34.	ASPs purchase or license applications from other software vendors. **Answer:** True **Difficulty:** Med **Reference:** p. 38
35.	The choice to acquire software from outside sources is made at the end of the systems design phase. **Answer:** False **Difficulty:** Med **Reference:** p. 39
36.	When choosing off-the-shelf software, cost, functionality, response time, and ease of installation are some of the common criteria that should be considered. **Answer:** True **Difficulty:** Med **Reference:** p. 40
37.	When choosing off-the-shelf software, the two most important criteria are functionality and ease of installation. **Answer:** False **Difficulty:** Med **Reference:** p. 40
38.	Functionality refers to the tasks the software can perform and the mandatory, essential, and desired system features. **Answer:** True **Difficulty:** Med **Reference:** p. 40
39.	Purchasing application software is a substitute for conducting the systems analysis phase. **Answer:** False **Difficulty:** Hard **Reference:** p. 40
40.	Hybrid solutions involving some purchased and some in-house software components are not very common. **Answer:** False **Difficulty:** Med **Reference:** p. 39
41.	Open source software is different because it is freely available, not just the final product but the source code itself. **Answer:** True **Difficulty:** Med **Reference:** p. 38
42.	Purchasing software is part of one design strategy for acquiring the system identified during analysis. **Answer:** True **Difficulty:** Med **Reference:** p. 40
43.	Functionality refers to how easy it is for you, or the vendor, to customize the software. **Answer:** False **Difficulty:** Med **Reference:** p. 40

44.	Flexibility refers to how long it takes the software package to respond to the user's requests in an interactive session.
	Answer: False **Difficulty:** Med **Reference:** p. 41
45.	One way to get all of the information you want about a software package is to collect it from the vendor.
	Answer: True **Difficulty:** Easy **Reference:** p. 41
46.	One method for validating purchased software information is to contact current users of the software.
	Answer: True **Difficulty:** Easy **Reference:** p. 41
47.	A request for proposal is a document provided to vendors that asks them to propose hardware and system software that will meet the requirements of a new system.
	Answer: True **Difficulty:** Med **Reference:** p. 41
48.	Baan is a software testing and abstracting service that periodically evaluates software and collects user opinions.
	Answer: False **Difficulty:** Med **Reference:** p. 42
49.	Reuse refers to the use of previously written software resources, especially objects and components, in new applications.
	Answer: True **Difficulty:** Med **Reference:** p. 42
50.	According to a study cited in the textbook, most organizations cannot compete economically with established commercial organizations that focus on selling components as their main line of business.
	Answer: True **Difficulty:** Med **Reference:** pp. 43

Multiple Choice Questions

51.	Sources of software include:
	a. information technology services firm
	b. packaged software providers
	c. application service providers
	d. all of the above
	Answer: d **Difficulty:** Med **Reference:** p. 34

52.	The first administrative information system was: a. General Motor's order tracking system b. Ford Motor Company's order tracking system c. General Electric's payroll system d. Coca-Cola's payroll system **Answer:** c **Difficulty:** Med **Reference:** p. 32
53.	Which of the following is a true statement regarding in-house development? a. In-house development of information systems has increased by a factor of 3 in the last three years. b. In-house development of information systems has increased by 42 percent in the last three years. c. In-house development of information systems has progressively become a smaller piece of all the systems development work that takes place in and for organizations. d. When developing administrative systems, in-house development of information systems is still the best choice. **Answer:** c **Difficulty:** Med **Reference:** p. 32
54.	Reasons for outsourcing include: a. freeing up internal resources. b. increasing processing efficiencies. c. reducing time to market. d. all of the above. **Answer:** d **Difficulty:** Med **Reference:** p. 33
55.	The practice of turning over responsibility of some to all of an organization's information systems applications and operations to an outside firm is referred to as: a. realignment b. downsizing c. outsourcing d. time sharing **Answer**: c **Difficulty**: Med **Reference**: p. 32
56.	Hiring a company to run your applications at your site on your computers is an example of: a. a turnkey system b. outsourcing c. downsizing d. realignment **Answer**: b **Difficulty**: Med **Reference**: p. 32

57.	Which of the following are companies are ranked in the 2005 top global software companies? a. IBM b. Microsoft c. Capgemmi d. all of the above **Answer**: d **Difficulty**: Easy **Reference**: p. 35
58.	Based on 2002 total revenues, which of the following companies had the highest revenues? a. Accenture b. IBM c. Microsoft d. NTT Data Corporation **Answer**: b **Difficulty**: Med **Reference**: p. 34
59.	Based on total revenues for 2005, which of the following companies ranks fourth? a. Microsoft b. IBM c. Computer Science Corp. d. EDS **Answer**: c **Difficulty**: Hard **Reference**: p. 35
60.	Off-the-shelf software systems that cannot be modified to meet the specific needs of a particular organization are sometimes called: a. custom software systems b. in-house developed systems c. turnkey systems d. standard systems **Answer**: c **Difficulty**: Med **Reference**: p. 35-36
61.	Based on 2005 services revenue, which of the following companies is the top global software company? a. Compaq b. Microsoft c. Accenture d. IBM **Answer:** d **Difficulty:** Med **Reference:** p. 35

62.	A system that integrates individual traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems best describes: a. enterprise resource planning b. application service c. storage area network d. packaged software **Answer:** a　　　　　**Difficulty:** Med　　　　　**Reference:** p. 36
63.	SAP AG is a(n): a. hardware manufacturer b. application service provider c. enterprise solution software provider d. custom software producer **Answer**: c　　　　　**Difficulty**: Med　　　　　**Reference**: p. 37
64.	Benefits of enterprise solutions do not include: a. the flexibility of modules b. ease of implementation and less implementation time c. being an inexpensive alternative to custom development d. not requiring the company to change how it does business **Answer**: c　　　　　**Difficulty**: Med　　　　　**Reference**: p. 37
65.	When a company uses different products from different ERP vendors, as opposed to dealing with a single vendor, the company is said to have adopted a(n): a. custom development strategy b. best-of-breed strategy c. application service strategy d. packaged strategy **Answer**: b　　　　　**Difficulty**: Med　　　　　**Reference**: p. 37
66.	A major vendor that provides enterprise solution software is: a. Microsoft b. SAP AG c. Macromedia d. Adobe **Answer**: b　　　　　**Difficulty**: Med　　　　　**Reference**: p. 37

67.	One of the top three reasons for choosing to go with a provider is: a. having internal IT staff run the application b. hosting the application internally c. having IT staff install and upgrade d. freeing internal IT staff **Answer**: d **Difficulty**: Med **Reference**: p. 38
68.	The choice between a package and an external supplier will be determined by: a. whether the supported task is generic b. the organization's needs c. the task requires custom support, and the system cannot be built internally d. the resources and staff are available, and the system must be built from scratch **Answer**: b **Difficulty**: Med **Reference**: p. 39
69.	Some of the most well-known and popular open source software names are: a. Linux b. mySQL c. Firefox d. all of the above **Answer**: d **Difficulty**: Med **Reference**: p. 38
70.	Displays and reports may be easily redesigned if the modules are written in: a. fourth-generation language b. third-generation language c. object-oriented language d. English language **Answer**: a **Difficulty**: Med **Reference**: p. 41
71.	The choice to acquire software from outside sources should be made: a. at the beginning of the analysis phase b. at the middle of the analysis phase c. at the end of the analysis phase d. at the end of the design phase **Answer**: c **Difficulty**: Med **Reference**: p. 39
72.	Which of the following describes the internal staffing requirements when software components are acquired from packaged software producers? a. Some internal staff are necessary, but mostly consultants are needed. b. Some IS and user staff to define requirements and evaluate packages are needed. c. Internal staff may be needed, depending on the application. d. Internal staffing requirements vary. **Answer**: b **Difficulty**: Med **Reference**: p. 39

73.	Which of the following describes the internal staffing requirements when software components are acquired from enterprise wide solutions providers? a. Some internal staff are necessary, but mostly consultants are needed. b. Some IS and user staff to define requirements and evaluate packages are needed. c. Internal staff may be needed, depending on the application. d. internal staffing requirements vary **Answer**: a　　　　**Difficulty**: Med　　　　**Reference**: p. 39
74.	According to a study cited in the textbook, which of the following development methods can lead to a larger maintenance burden? a. in-house development b. packaged software c. outsourcing d. enterprisewide solutions **Answer**: a　　　　**Difficulty**: Med　　　　**Reference**: p. 39
75.	Which of the following software producers is generally not a source of application software? a. custom software producers b. enterprise solution producers c. packaged software producers d. in-house developers **Answer**: b　　　　**Difficulty**: Med　　　　**Reference**: p. 36-37
76.	When purchasing off-the-shelf software, you should consider: a. flexibility b. response time c. vendor viability d. all of the above **Answer**: d　　　　**Difficulty**: Med　　　　**Reference**: p. 40
77.	When choosing off-the-shelf software, which of the following are the two most important criteria? a. vendor viability and vendor support b. cost and functionality c. documentation and response time d. flexibility and functionality **Answer**: a　　　　**Difficulty**: Med　　　　**Reference**: p. 40

78.	Which of the following software criteria refers to the tasks the software can perform and the mandatory, essential, and desired system features? a. cost b. vendor viability c. functionality d. flexibility **Answer**: c **Difficulty**: Easy **Reference**: p. 40
79.	Which of the following software criteria determines whether the software package can perform all or just some of the software tasks your users need? a. cost b. vendor viability c. functionality d. flexibility **Answer**: c **Difficulty**: Easy **Reference**: p. 40
80.	Vendor support can take the form of: a. providing assistance to install software b. training users and system staff on the software c. providing help as problems arise after installation d. all of the above **Answer**: d **Difficulty**: Easy **Reference**: p. 40
81.	Which of the following software evaluation criteria refers to the ease with which you or the vendor can customize the software? a. cost b. vendor viability c. functionality d. flexibility **Answer**: d **Difficulty**: Easy **Reference**: p. 41
82.	Which of the software evaluation criteria refers to how long it takes the software package to respond to the user's requests in an interactive session? a. functionality b. return rate c. response time d. flexibility **Answer**: c **Difficulty**: Easy **Reference**: p. 41

83.	Which of the following software evaluation criteria measures the difficulty of loading the software and making it operational?
	a. ease of installation b. installation viability c. functionality d. flexibility
	Answer: a **Difficulty**: Easy **Reference**: p. 41
84.	Which of the following are ways of validating purchased software information?
	a. reviewing software documentation and technical marketing literature b. sending prospective vendors a questionnaire asking specific questions about their packages c. using the software yourself and running it through a series of tests based on the criteria for selecting software d. all of the above
	Answer: d **Difficulty**: Med **Reference**: p. 41
85.	The document sent to vendors asking them to propose hardware and software that will meet the requirements of your new system is called a:
	a. requirements statement b. request for proposal c. baseline project plan d. business case
	Answer: b **Difficulty**: Med **Reference**: p. 41
86.	Which of the following is a true statement about reusing software?
	a. Reuse should increase programmer productivity. b. Reuse should decrease development time. c. Reuse should result in higher-quality software. d. All of the above.
	Answer: d **Difficulty:** Med **Reference:** p. 42
87.	The reuse of object libraries can result in:
	a. reduced rework b. reduced defect density c. increased productivity d. all of the above
	Answer: d **Difficulty:** Med **Reference:** p. 42

88.	When considering reuse, which of the following issues should be addressed? a. The current lack of a methodology for creating and clearly defining and labeling reusable components for placement in a library b. the lack of commitment to reuse c. lack of proper training and rewards needed to promote reuse d. all of the above **Answer:** d **Difficulty:** Med **Reference:** p. 42-43
89.	Which of the following is the software reuse step that involves the design of a reusable piece of software, starting from existing software assets or from scratch? a. storage b. abstraction c. recontextualization d. conceptualization **Answer:** b **Difficulty:** Med **Reference:** p. 43
90.	Which of the following is the software reuse step that involves making software assets available for others to use? a. storage b. abstraction c. recontextualization d. conceptualization **Answer:** a **Difficulty:** Med **Reference:** p. 43
91.	Which of the following is the software reuse step that involves making the reusable asset understandable to developers who want to use it in their systems? a. storage b. abstraction c. recontextualization d. conceptualization **Answer:** c **Difficulty:** Med **Reference:** p. 43
92.	Which of the following is not an approach that an organization can take to software reuse? a. flexible reuse b. facilitated reuse c. ad hoc reuse d. managed reuse **Answer:** a **Difficulty:** Med **Reference:** p. 43

93.	The software reuse approach that allows individuals to find or develop reusable assets on their own, and has few, if any, organizational rewards for reusing assets best describes: a. flexible reuse b. facilitated reuse c. ad hoc reuse d. managed reuse **Answer:** c **Difficulty:** Med **Reference:** p. 43
94.	The software reuse approach where developers are not required to practice reuse, but are encouraged to do so best describes: a. flexible reuse b. facilitated reuse c. ad hoc reuse d. managed reuse **Answer:** b **Difficulty:** Med **Reference:** p. 44
95.	Which of the following is a software reuse approach that mandates the development, sharing, and adoption of reusable assets? a flexible reuse b. facilitated reuse c. ad hoc reuse d. managed reuse **Answer:** d **Difficulty:** Med **Reference:** p. 44
96.	The most expensive and extensive reuse approach is: a. designed reuse b. facilitated reuse c. ad hoc reuse d. managed reuse **Answer:** a **Difficulty:** Med **Reference:** p. 43
97.	The typical reuse level for the facilitated software reuse approach is: a. 5–15 percent b. 15–50 percent c. 40–90 percent d. varies, usually unknown **Answer:** a **Difficulty:** Med **Reference:** p. 44

98.	The typical reuse level for the managed software reuse approach is: a. 5–15 percent b. 15–50 percent c. 40–90 percent d. varies, usually unknown **Answer:** b **Difficulty:** Med **Reference:** p. 44
99.	The tools and technology associated with the designed software reuse approach are: a. file system or minimal Web site and e-mail b. self-use repository or Web site, submitters may add some metadata to improve search and evaluation c. registrar-monitored repository, extensive metadata, multiproject source code control, asset quality assurance, change notification, and utilization measurements d. requirements and portfolio management tools, frameworks standards, generators, and change management tools **Answer:** d **Difficulty:** Med **Reference:** p. 44
100.	The tools and technology associated with the managed software reuse approach are: a. file system or minimal Web site and e-mail b. self-use repository or Web site, submitters may add some metadata to improve search and evaluation c. registrar-monitored repository, extensive metadata, multiproject source code control, asset quality assurance, change notification, and utilization measurements d. requirements and portfolio management tools, frameworks standards, generators, and change management tools **Answer:** c **Difficulty:** Med **Reference:** p. 44

Fill In the Blanks

101.	***Outsourcing*** is the practice of turning over responsibility of some to all of an organization's information systems applications and operations to an outside firm. **Difficulty**: Med **Reference**: p. 32
102.	***Turnkey systems*** are off-the-shelf software systems that cannot be modified to meet the specific, individual needs of a particular organization. **Difficulty**: Hard **Reference**: p. 35-36
103.	***Enterprise resource planning systems*** integrate individual traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems. **Difficulty**: Med **Reference**: p. 36

104.	***Enterprise software solutions*** enable a firm to integrate all parts of a business process into a unified information system.
	Difficulty: Med **Reference**: p. 36
105.	An ***application service provider*** is an organization that hosts and runs computer applications for other companies, typically on a per use or license basis.
	Difficulty: Med **Reference**: p. 38
106.	When choosing off-the-shelf software, the eight most common criteria are ***cost***, ***functionality***, ***vendor support***, ***vendor viability***, ***flexibility***, ***documentation***, ***response time***, and ***ease of installation***.
	Difficulty: Hard **Reference**: p. 40
107.	When considering off-the-shelf software, the two most important criteria are ***vendor support*** and ***vendor viability***.
	Difficulty: Hard **Reference**: p. 40
108.	When resources and staff are available and the system must be built from scratch, a company should consider ***in-house developers***.
	Difficulty: Med **Reference**: p. 39
109.	Responding to the need for growth and flexibility is a new generation of providers called ***managed service providers***.
	Difficulty: Easy **Reference**: p. 38
110.	Together, SAP and Oracle control about 60 percent of the **ERP** market.
	Difficulty: Med **Reference**: p. 37
111.	When a supported task is generic, a company should consider acquiring its software from a ***packaged software producer***.
	Difficulty: Med **Reference**: p. 35
112.	**Microsoft** is ranked in the 2005 top 10 global software companies and is in the operating systems software business sector.
	Difficulty: Med **Reference**: p. 35
113.	***Functionality*** refers to the tasks the software can perform and the mandatory, essential, and desired system features.
	Difficulty: Med **Reference**: p. 40
114.	***Vendor support*** includes assistance to install the software, train user and systems staff on the software, and provide help as problems arise after installation.
	Difficulty: Easy **Reference**: p. 40

115.	*__Flexibility__* refers to how easy it is for you, or the vendor, to customize the software. **Difficulty**: Med **Reference**: p. 41
116.	*__Response time__* refers to how long it takes the software package to respond to the user's request in an interactive session. **Difficulty**: Med **Reference**: p. 41
117.	*__Ease of installation__* is a measure of the difficulty of loading the software and making it operational. **Difficulty**: Med **Reference**: p. 41
118.	*__Independent software testing services__* periodically evaluate software and collect user opinions, thus providing a range of opinions about possible software packages. **Difficulty**: Hard **Reference**: pp. 42
119.	*__Reuse__* refers to the use of previously written software resources, especially objects and components, in new applications. **Difficulty**: Medium **Reference**: p. 42
120.	The three basic software reuse steps are *__abstraction__*, *__storage__*, and *__recontextualization__*. **Difficulty**: Hard **Reference**: p. 43
121.	*__Abstraction__* is the software reuse step that involves the design of a reusable piece of software, starting from existing software assets or from scratch. **Difficulty**: Medium **Reference**: p. 43
122.	*__Storage__* is the software reuse step that involves making software assets available for others to use. **Difficulty**: Medium **Reference**: p. 43
123.	*__Recontextualization__* is the software reuse step that involves making the reusable asset understandable to developers who want to use it in their systems. **Difficulty**: Hard **Reference**: p. 43
124.	*__Facilitated reuse__* is the software reuse approach where developers are not required to practice reuse, but are encouraged to do so. **Difficulty**: Medium **Reference**: p. 44
125.	*__Designed reuse__* is the software reuse approach that mandates reuse and measures its effectiveness, as well as mandates that assets be designed for reuse as they are being designed for specific applications. **Difficulty**: Hard **Reference**: p. 44

Matching Questions

Match each of the following terms with its corresponding definition.

	a. application service provider b. reuse c. enterprise resource planning systems d. outsourcing e. request for proposal
126.	A document provided to vendors to ask them to propose hardware and system software that will meet the requirements of your new system. **Answer**: e **Reference**: p. 41
127.	The practice of turning over responsibility of some to all of an organization's information systems applications and operations to an outside firm. **Answer**: d **Reference**: p. 32
128.	A system that integrates individual traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems. **Answer**: c **Reference**: p. 36
129.	An organization that hosts and runs computer applications for other companies, typically on a per-use or license basis. **Answer**: a **Reference**: p. 38
130.	The use of previously written software resources, especially objects and components, in new applications. **Answer**: b **Reference**: p. 42

Match each of the following terms with its corresponding definition.

	a. turnkey system b. outsourcing c. packaged software producer d. vendor support e. enterprise resource planning system
131.	Off-the-shelf software systems that cannot be modified to meet the specific, individual needs of a particular organization. **Answer**: a **Reference**: p. 35-36
132.	The practice of turning over responsibility of some to all of an organization's information systems applications and operations to an outside firm. **Answer**: b **Reference**: p. 32
133.	A system that integrates individual traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems. **Answer**: e **Reference**: p. 36
134.	Software companies that develop prepackaged or off-the-shelf systems. **Answer**: c **Reference**: p. 35
135.	This occurs in the form of assistance to install the software, to train user and systems staff on the software, and provide help as problems arise after installation. **Answer**: d **Reference**: p. 40

Match each of the following sources of software components with its internal staffing requirements.

	a. packaged software producers b. IT service firms c. in-house developers d. hardware manufacturers e. enterprisewide solutions f. application service providers
136.	Ideally, none. **Answer**: f **Reference**: p. 39
137.	Some IS and user staff to define requirements and evaluate packages. **Answer**: a **Reference**: p. 39
138.	Internal staff may be needed, depending on the application. **Answer**: b **Reference**: p. 39

139.	It varies.
	Answer: d **Reference**: p. 39

140.	Internal staff is necessary, though staff size may vary.
	Answer: c **Reference**: p. 39

141.	Some internal staff is necessary, but mostly need consultants.
	Answer: e **Reference**: p. 39

Indicate when software should be acquired from each of the following types of software producers.

	a. packaged software producers b. IT services firms c. in-house developers d. hardware manufacturers e. enterprisewide solutions
142.	When resources and staff are available and the system must be built from scratch.
	Answer: c **Reference**: p. 39
143.	When the task requires custom support and the system cannot be built internally.
	Answer: b **Reference**: p. 39
144.	For system software and utilities.
	Answer: d **Reference**: p. 39
145.	When the supported task is generic.
	Answer: a **Reference**: p. 39
146.	For complete systems that cross functional boundaries.
	Answer: e **Reference**: p. 39

Match each of the following terms with its corresponding description.

	a. reuse b. ad hoc reuse c. designed reuse d. managed reuse e. facilitated reuse
147.	Individuals find assets on their own, sharing with colleagues as they choose.
	Answer: b **Reference**: p. 44

148.	The use of previously written software resources, especially objects and components, in new applications. **Answer**: a **Reference**: p. 42
149.	The organization encourages and supports reuse with limited resources, infrastructure, and policies to make reuse easier. **Answer**: e **Reference**: p. 44
150.	The organization invests in carefully designing assets for reuse, choosing assets for domain or product line. **Answer**: c **Reference**: p. 44
151.	The organization enforces reuse practices through policies, resources, tools, and people. **Answer**: d **Reference**: p. 44

Essay Questions

152.	*Briefly identify six sources of software.* Software sources can be categorized as hardware manufacturers, packaged software producers, custom software producers, enterprisewide solution providers, application service providers, and in-house developers. Hardware manufacturers are among the largest producers of software. Although, generally not a source of application software, hardware manufacturers are good choices for system software and utilities. Packaged software producers are potential sources of application software. These companies develop software to run on different computer platforms. Custom software producers help firms develop custom information systems for internal use. Custom software producers are often selected when the task requires custom support and the system cannot be built internally. Enterprisewide solutions integrate individual traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems. Enterprisewide solutions are recommended for complete systems that cross functional boundaries. Application service providers are organizations that host and run computer applications for other companies, typically on a per-use or license basis. ASPs are recommended when the supported task is generic, buying and installing the system locally would be too expensive, or for instant access to an application. In-house developers develop the system internally. This method is chosen when resources and staff are available and the system must be built from scratch.

153.	*Identify the most common criteria for choosing off-the-shelf software. Which two criteria would be among the most important?* The most common criteria are cost, functionality, vendor support, vendor viability, flexibility, documentation, response time, and ease of installation. Cost involves comparing the cost of developing the same system in-house to the cost of purchasing or licensing the software package. Functionality refers to the tasks the software can perform and the mandatory, essential, and desired system features. While vendor support identifies the amount of support the vendor can be expected to provide, vendor viability examines the vendor's marketplace strength. Flexibility refers to the flexibility of customizing the software. The documentation criterion examines issues relating to the user's manual, technical documentation, and cost of acquiring additional copies of the documentation. Response time questions the length of time it takes the software package to respond to the user's requests in an interactive session and how long it takes the software to complete running a job. The ease of installation criterion examines the difficulty of loading the software and making it operational. Vendor support and viability will be among the most important.
154.	*What are enterprise resource planning systems? How do they differ from traditional approaches? Identify three enterprise resource planning system vendors.* Enterprise resource planning systems integrate individual traditional business functions into a series of modules so that a single transaction occurs seamlessly within a single information system rather than several separate systems. ERP modules focus on business processes rather than on business functional areas. SAP AG, Oracle, and PeopleSoft, Inc. are three ERP vendors.
155.	*What is an application service provider? What are the advantages and disadvantages of using an ASP?* An application service provider hosts and runs computer applications for other companies. Advantages include less need for internal information technology staff, cost savings on internal infrastructure and initial capital outlay, and access to big and complex systems. Disadvantages include less control over the application and generic solutions.
156.	*What is outsourcing? Identify two outsourcing arrangements. Identify two reasons for outsourcing.* Outsourcing is the practice of turning over responsibility of some to all of an organization's information systems applications and operations to an outside firm. A company may hire a third party to develop and run its applications on the third party's computers. Another alternative is for the third party to run the applications on-site and on your computers. Reasons for outsourcing include cost-effectiveness and the company's core mission does not involve managing a management information systems unit.
157.	*What is software reuse? Briefly describe four approaches to software reuse.* Reuse is the use of previously written software resources, especially objects and components, in new applications. Ad hoc, facilitated, managed, and designed are four approaches to reusing software. With the ad hoc approach, individuals find and develop reusable assets on their own; few, if any, organizational rewards for reusing assets exist. With the facilitated approach, developers are encouraged to practice reuse, but are not required to do so. The managed approach mandates the development, sharing, and adoption of reusable assets. The designed approach mandates reuse, measures its effectiveness, and requires assets to be designed for reuse.

158.	*Identify six sources of software. Briefly describe the internal staffing requirements.*
	Hardware manufacturers, packaged software providers, custom software providers, enterprisewide solution vendors, application service providers, and in-house development are sources of software. When software is acquired from hardware manufacturers, the internal staffing requirements vary. When acquiring software from packaged software producers, some IS and user staff are needed to define requirements and evaluate software packages. When choosing custom software, internal staff may be needed, depending on the application. When application service providers are used, ideally internal staff requirements will not be needed. When enterprisewide solutions are used, some internal staff are necessary, but mostly consultants are needed. If systems are developed in-house, internal staff are necessary, though staff size can vary.
159.	*How can a company validate purchased software information?*
	Information about the software can be obtained from the vendor in the form of marketing literature, an RFP, and software documentation. The company can use and test the software on a trial basis; speak with current users of the software, and use independent software testing and abstracting services.
160.	*For each reuse approach, briefly describe its process and policies.*
	The ad hoc approach does not have a process or policies. The facilitated approach uses incentives, an asset check-in process, and limited review before publication. The managed approach includes a reuse-adapted process, mandated with specific goals; reuse reviews and asset documentation, packaging, and certification guidelines, and specified metrics. The designed approach includes some domain analysis, reuse-oriented architecture, and specific steps to design for and with reuse.
161.	*For each reuse approach, briefly describe the roles people play.*
	For the ad hoc approach, the role is an individual effort; no reuse roles are specified. For the facilitated approach, the roles include evangelist, reuse facilitator, and web-master/librarian. For the managed approach, the roles include facilitated roles plus librarian/registrars, certifiers/reviewers, and process engineers. For the designed approach, the roles are managed, including architects, domain analysts, component developers, and component support specialists.