CPA CHARTERED PROFESSIONAL ACCOUNTANTS

CPA COMPTABLES PROFESSIONNELS AGRÉÉS

Information Technology Multiple-Choice Questions

Chartered Professional Accountants of Canada, CPA Canada, CPA
are trademarks and/or certification marks of the Chartered Professional Accountants of Canada.
© 2019, Chartered Professional Accountants of Canada. All Rights Reserved.
2021-04-14

INFORMATION TECHNOLOGY MULTIPLE-CHOICE QUESTIONS

1. Which of the following statements about the challenges of putting an information systems plan into practice is true?

   a) The information systems plan should be determined after the business strategic plan is fully developed.
   b) The time horizon of information systems planning may be different than the time horizon of the strategic plan.
   c) Once finalized by management, the information systems plan should not be changed.
   d) It is best practice to base information systems planning on budget availability only.

   Solution:

   Option b) is **correct**. Using the same time horizon for both plans is not realistic. Longer-term business plans are necessary for outlining the plan and focusing the firm on the strategic direction of the firm, while the information systems plan time horizon may vary because of the rate of both organizational and technological change.

   Option a) is incorrect. Business strategy is not always determined before information systems strategy. While the ideal view suggests that business plans come first, the organizational reality is more iterative than this. A partnership with information systems and IT specialists needs to be developed to achieve an information systems strategy that is aligned with that of the organization as a whole.

   Option c) is incorrect. The information systems plan needs to be adjusted as business realities change and any weaknesses inherent in the assumptions on which the plans are based are identified. The plan should be viewed as a living document that is likely to change over time. An iterative approach to determining the business strategic plan and information systems plan is needed because technological changes may affect the business plan.

   Option d) is incorrect. Budget availability is only one criterion for putting an information systems plan into practice. The information systems plan needs to adjust as business realities change and the weaknesses inherent in the budget assumptions become known. The information systems plan is a living document, one that will be adjusted over time as needs demand.

2. An accounting clerk is responsible for entering all employee expense reports and travel claims into the company's financial management system, where is can be reviewed by management. Which type of information system is the accounting clerk using?

   a) Executive support system (ESS)
   b) Decision support system (DSS)
   c) Management information system (MIS)
   d) Group decision support system (GDSS)

   Solution:

   Option c) is **correct**. An MIS usually uses only internal transaction data, not data from external sources, to help managers improve the operations of a firm.

   Option a) is incorrect. An ESS normally provides support for senior executives to answer strategic and unstructured questions, not specific questions.

   Option b) is incorrect. A DSS helps consolidate information from several sources to perform what-if or sensitivity analysis and can create customized reports.

   Option d) is incorrect. A GDSS is used for group decision-making. An accounting clerk would not require a GDSS for this purpose.

3. What type of decision is a company's management making when it develops annual departmental budgets?

   a) Strategic decision
   b) Tactical decision
   c) Operational decision
   d) Structured decision

   Solution:

   Option b) is **correct.** Tactical decisions are usually short-term focused, concerned with meeting short-term objectives. Annual budgets would be considered a short-term goal.

   Option a) is incorrect. Strategic decisions tend to be a long-term and enterprise-wide. Typically, these decisions will take three to five years to implement. An annual departmental budget would be a subset of a strategic decision.

   Option c) is incorrect. Operational decisions usually focus on routine, day-to-day decisions. Annual budgets are longer-term than operational decisions.

   Option d) is incorrect. Budgeting is an example of a semi-structured decision and not an example of a structured decision, such as order processing or a general ledger transaction.

4. Which of the following is **not** a key benefit of using an enterprise resource planning (ERP) system?

   a) Improved access to data for decision-making, since all company information is located centrally
   b) Availability of extensive online support
   c) Improved business processes through use of industry best practices
   d) Replacement of many old, separate systems with a single, integrated set of software for the entire enterprise

   Solution:

   Option b) is **correct.** While ERP systems often come with extensive support, that is not one of the key benefits to implementation.

   Option a) is incorrect. Improved access to data for decision-making, since all company information is located centrally, is one of the key benefits of implementing an ERP system.

   Option c) is incorrect. Improved business processes through use of industry best practices is one of the key benefits of implementing an ERP system.

   Option d) is incorrect. Replacement of many old, separate systems with a single, integrated set of software for the entire enterprise is one of the key benefits of implementing an ERP.

5. Which of the following components of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) control framework establishes the parameters to identify ineffective controls and recommend improvements?

   a) Risk assessment
   b) Monitoring
   c) Information policies to ensure transparency
   d) Control environment

   Solution:

   Option b) is **correct**. Continuous monitoring of control systems helps to assess deficiencies and identify the need for improvements.

   Option a) is incorrect. Risk assessments address the risks rather than the effectiveness of controls.

   Option c) is incorrect. Information policies are developed to ensure governance compliance, not to assess the effectiveness of controls.

Option d) is incorrect. The control environment establishes the processes for managing an organization. It does not evaluate the effectiveness of those processes.

6. A mobile auto service station wants to buy a new service vehicle and wants to compare costs between leasing and financing the vehicle. Which type of information system should it use?

   a) Transaction processing system (TPS)
   b) MIS
   c) ESS
   d) DSS

   Solution:

   Option d) is **correct**. DSSs support semi-structured problems such as calculating the cost of leasing versus buying.

   Option a) is incorrect. TPSs provide transaction-based information and would not be used in a lease-versus-buy decision.

   Option b) is incorrect. MISs support structured problems. This is a semi-structured problem, since it involves evaluating the alternatives of leasing versus buying.

   Option c) is incorrect. ESSs support strategic problems. This decision is tactical, not strategic.

7. Which of the following is an example of information provided on a middle-management dashboard?

   a) Customer credit limits
   b) A comparison for actual sales to budget, by product
   c) Top 10 salespeople in the company
   d) Comparison of actual performance to strategic goals

   Solution:

   Option b) is **correct**. Tactical dashboards for middle managers would perform tasks such as tracking sales variances, by product.

   Option a) is incorrect. Middle-management dashboards deal with department-level results. Customer credit would be included on an operational dashboard, reviewed by front-line managers.

   Option c) is incorrect. Middle-management dashboards deal with department or division level results. Company-wide performance metrics would be of interest to top-level management or executives.

Option d) is incorrect. Senior executive dashboards focus on measuring strategic objectives.

8. Which of the following information systems would be used to track inventory levels?

   a) Operations support system
   b) DSS
   c) MIS
   d) ESS

   Solution:

   Option a) is **correct**. Operations support systems or TPSs deal with structured activities such as tracking inventory.

   Option b) is incorrect. DSSs deal with semi-structured activities, not structured activities such as tracking inventory.

   Option c) is incorrect. MISs deal with less-structured activities. An MIS would provide reports based on the inventory movement.

   Option d) is incorrect. ESSs assist decision makers with unstructured, strategic problems, not structured activities such as tracking inventory.

9. What is the most common IT decision model for IT architecture problems?

   a) Business monarchy
   b) IT monarchy
   c) Duopoly
   d) Federal

   Solution:

   Option b) is **correct**. For IT infrastructure and architecture decisions, the most common decision model is the IT monarchy. These decisions focus on the more technical elements of IT planning and thus are most usefully located within the IT domain.

   Option a) is incorrect. The business monarchy model is most commonly used for IT investment decisions, not IT infrastructure.

   Option c) is incorrect. The duopoly model (where decisions are made jointly by senior management and IT leaders) are commonly used in IT investment and IT principles decisions.

Option d) is incorrect. The federal decision model is commonly used by individual business units or functional units to determine business application needs.

10. Information systems incorporate which of the following?

    a) IT, data and information, and business processes and procedures
    b) Hardware, software, and networks
    c) Laptops, servers, and smartphones
    d) Strategic plan, production plan, and compensation plan

    Solution:

    Option a) is **correct**. Information systems incorporate IT, data and information, and business procedures and processes.

    Option b) is incorrect. Hardware, software, and networks of computer systems relate to IT (that is, the technology on which information systems run). It is only one of three components of information systems.

    Option c) is incorrect. Laptops, servers, and smartphones are all hardware, a subset of IT. IT, data and information, and business processes and procedures together form an information system.

    Option d) is incorrect. These are planning documents, which are outputs based on the information provided by the information system.

11. Which of the following supports senior managers' and executives' strategic decisions?

    a) Service-level agreement (SLA)
    b) MIS
    c) TPS
    d) DSS

    Solution:

    Option d) is **correct**. DSSs do not support operational-level decisions. DSSs support tactical and strategic decisions.

    Option a) is incorrect. SLAs help IT establish guidelines for its users on how quickly IT will respond to a variety of service requests, determined by category and severity. Help desk and trouble ticket systems help IT create these agreements, which can then be tracked and evaluated.

    Option b) is incorrect. An MIS provides a variety of reports to help managers make tactical decisions.

Option c) is incorrect. The information required for operational, tactical, and strategic decisions is first captured by the TPS.

12. Information systems planning is the translation of strategic and organizational goals into which of the following?

    a) Requirements analysis
    b) Business process re-engineering
    c) Rapid application development (RAD)
    d) Systems development initiatives

    Solution:

    Option d) is **correct**. Information systems planning is the translation of strategic and organizational goals into systems development initiatives.

    Option a) is incorrect. Requirements analysis determines end-user business requirements and information needs and helps define functions and operations of the intended system.

    Option b) is incorrect. Business process re-engineering refers to the radical reshaping of the processes an organization uses to achieve its goals.

    Option c) is incorrect. RAD is a practice of modern systems development. RAD relies heavily on rapid prototyping with little preplanning, in an effort to reduce requirements and design costs.

13. Which of the following is an advantage of using a systems development methodology?

    a) Team members abide by the same set of standards and adhere to a project schedule.
    b) Innovative ideas are deferred.
    c) Team members work independently with little structure.
    d) There is documentation if something goes wrong.

    Solution:

    Option a) is **correct**. Methodologies impose discipline on the project team, which must perform tasks, comply with standards, and adhere to a project schedule. A methodology will help keep the team focused and help them see past the unavoidable glitches along the way.

    Option b) is incorrect. Deferral of innovative ideas is a potential drawback of using a methodology. Sometimes, systems analysts may hide behind the systems development methodology as an excuse for not thinking in new directions, and they

go through projects according to the steps outlined in the methodology in the same order every time .

Option c) is incorrect. Methodologies impose discipline on the project team, which must perform tasks, comply with standards, and adhere to a project schedule. In order to adhere to standards and a project schedule, communication among team members is critical.

Option d) is incorrect. Documentation is an output of systems development, not an advantage.

14. The waterfall model of systems development includes seven common stages. Which of the following lists four of those stages in the correct linear flow?

    a) Planning, implementation, testing, maintenance
    b) Planning, development, design, testing
    c) Design, development, testing, implementation
    d) Requirements analysis, planning, implementation, testing

    Solution:

    Option c) is **correct**. The importance of the waterfall model is the sequential linear flow from phase to phase with the clear milestones and signoffs. The seven common stages are planning, requirements analysis, design, development, testing, implementation, and maintenance.

    Options a), c), and d) are incorrect. None of these options lists the stages in the waterfall model in the correct order.

15. RAD uses several programming tools to connect data sources. Which of the following lists three of those tools?

    a) Database queries, Google searches, data manipulation
    b) Report writers, data manipulation, web development
    c) Database queries, report writers, ERPs
    d) Web development, Google searches, general purpose languages

    Solution:

    Option b) is **correct**. RAD uses the following programming tools to connect to data sources: database queries, report writers, data manipulation, web development, and general purpose languages under the development of user menus and buttons and standard software.

    Options a), c), and d) are incorrect. None of these lists include three tools used in RAD. RAD uses the following programming tools to connect to data sources:

database queries, report writers, data manipulation, web development, and general purpose languages under the development of user menus and buttons and standard software.

16. Which of the following increases the economic feasibility of a project to build a management information system?

    a) The software being used for development has switched from a one-time licence fee to an annual subscription model, resulting in significant additional costs.
    b) The project manager leaves during the project and his replacement demands a higher salary.
    c) Development is ahead of schedule, with few reported issues. Significant labour savings are expected.
    d) A key server costs more than expected, but the excess can be covered by the project's contingency budget.

    Solution:

    Option c) is **correct**. Feasibility analysis is concerned with the likelihood that a system will be completed in a way that will be valuable to the firm. Economic feasibility relates to the cost-benefit ratio of a system. For a given benefit level, lower-than-expected costs increase the economic feasibility of a management information system.

    Option a) is incorrect. The additional fees would decrease, not increase, the economic feasibility of the project.

    Option b) is incorrect. Replacing the project manager with a more expensive person would decrease the economic feasibility of the project.

    Option d) is incorrect. The total costs of a project are considered, including its contingency budget. With no increase in expected costs, there is no effect on economic feasibility.

17. Testing a new system should be done on the most current hardware or software that reflects the environment the system will be used in. Which of the following is not part of the testing process?

    a) Define the conditions of the test.
    b) Create test data.
    c) Arbitrate end-user disputes.
    d) Evaluate the results.

Solution:

Option c) is **correct**. Arbitrating end-user disputes is not part of the testing process. During the testing phase of a new system, end-users should not have access to the system.

Option a) is incorrect. Defining the conditions of the test is part of the testing process. Testing should adhere to the following steps: define the conditions of the test, walk through the conditions in the simulation, create test data in the simulation, perform the tests, evaluate the results.

Option b) is incorrect. Creating test data is part of the testing process. Testing should adhere to the following steps: define the conditions of the test, walk through the conditions in the simulation, create test data in the simulation, perform the tests, evaluate the results.

Option d) is incorrect. Evaluating the results is part of the testing process. Testing should adhere to the following steps: define the conditions of the test, walk through the conditions in the simulation, create test data in the simulation, perform the tests, evaluate the results.

18. Which of the following statements is accurate with respect to maintaining systems?

a) Extra time spent in design will increase maintenance costs.
b) Regular systems maintenance helps avoid major problems in the future.
c) Intermittent errors are easy to identify and address.
d) Maintenance is expensive, but costs decrease as the system ages.

Solution:

Option b) is **correct**. Systems maintenance is the process of fixing errors and adapting the system to changing requirements. All systems need to be maintained, if for no other reason than to ensure that they continue to achieve the objectives they were designed for. *Regular system maintenance helps to avoid major problems in the future*.

Option a) is incorrect**.** Systems maintenance is the process of fixing errors and adapting the system to changing requirements. All systems need to be maintained, if for no other reason than to ensure that they continue to achieve the objectives they were designed for. Extra time spent in design *can reduce* maintenance costs. If a system is well designed and well documented to begin with, it will save programming time and cost with respect to maintenance.

Option c) is incorrect. The most difficult bugs to identify are intermittent errors. Intermittent errors are hard to replicate and can be caused by software faults in other running programs, hardware errors, user errors, or combinations of all three.

Option d) is incorrect. Maintenance is expensive, *and costs increase* as the system ages.

19. Business process re-engineering refers to the radical reshaping of the processes an organization uses to achieve its goals. Michael Hammer created seven principles to guide re-engineering efforts. Which of the following is one of those principles?

    a) Avoid having those who use the output of the process involved in the review.
    b) Treat centralized resources as if they were dispersed.
    c) Organize around outcomes, not tasks.
    d) Integrate parallel activities.

    Solution:

    Option c) is **correct**. The seven principles to guide re-engineering efforts are:

    - Organize around outcomes, not tasks.
    - Have those who use the output of the process perform the process.
    - Subsume information processing work into the real work that produces the information.
    - Treat geographically dispersed resources as if they were centralized.
    - Link parallel activities rather than integrate them.
    - Put the decision point where the work is performed, and build control into the process.
    - Capture information once, at the source.

    Options a), b), and d) are incorrect. These are the inverse of Hammer's seven principles.

20. Which of the following is a reason to celebrate short-term wins during a long-term information systems project?

    a) To boast to other departments
    b) To reinforce existing power relationships
    c) To build momentum and support by attracting the attention of those not already involved
    d) To give cynics a chance to air their grievances

    Solution:

    Option c) is **correct**. Too often, long-term projects are celebrated only upon completion. For longer projects, it can be difficult for people to maintain the required

motivation and energy over an extended period of time. Short-term wins give recognition to those working on the project and motivation to continue to do so.

Option a) is incorrect. Celebrating short-term wins provide feedback as to validity of vision and strategies for the whole organization, not department versus department.

Option b) is incorrect. Although change will often reshape power relationships, this is not a reason to celebrate short-term wins. Individuals who think that a change will compromise their own interests are more likely to resist, both overtly and covertly. Short-term wins create momentum to *change* existing power relationships, not reinforce them.

Option d) is incorrect. Short-term wins build momentum and support by attracting the attention of those not already actively involved, and *limiting* the impact of cynics..

21. Which of the following forms of resistance to change is the most difficult to detect?

a) Resource diversion
b) Problem expansion
c) Public debate
d) Benign neglect

Solution:

Option d) is **correct**. Simply ignoring the problem and hoping it will go away can also be an effective form of resistance to change. It can be difficult to detect and thus difficult to counter: Is the individual delaying because they are busy with other things (a legitimate constraint) or because they are trying to resist what you are doing?

Option a) is incorrect. Diverting resources can take the form of refusing to commit money or staff time, or providing inadequate resources for a task (such as inexperienced staff members). Both of these means are subtle, though the absence of resources becomes most obvious over time.

Option b) is incorrect. Problem expansion involves tying up the aims of the system with other, even larger goals, to the point where nothing can be accomplished because the problem is too broad. Since these larger goals are typically more important than the specific change at issue, the approach gives an impression of legitimacy that is easy to identify but difficult to counter.

Option c) is incorrect. In public debate, people challenge the value of the system openly and loudly, and it is the most obvious form of resistance. Because it is open, it is often the easiest form of resistance to counter.

22. Which of the following is a characteristic of data security?

    a) Data confidentiality
    b) Ability to transfer information from one application to another application
    c) Commonly accepted data element definitions
    d) Correct information

    Solution:

    Option a) is **correct**. Data confidentiality is a characteristic of data security.

    Option b) is incorrect. The ability to transfer data between different applications relates to data integration, not data security.

    Option c) is incorrect. Commonly accepted data element definitions improve data integration, not data security.

    Option d) is incorrect. Correct information is a characteristic of data integrity, not data security.

23. Your company is currently in the requirements-gathering phase of developing a new customer relationship management system. Which of the following statements is an example of a predictive expectation for the new system?

    a) The new system should be faster than the old system.
    b) There should be extensive training for all staff before the new systems goes live.
    c) The new system needs to be integrated with the existing IT systems.
    d) The new system will not have all of the features the project team claims it will because the IT department has a history of only delivering core requirements.

    Solution:

    Option d) is **correct**. This is a predictive expectation. It is a statement of opinion about what will happen in the future, based on past experience.

    Option a) is incorrect. This is normative expectation. Normative expectations are stakeholders' opinions about what the system should do.

    Option b) is incorrect. This is normative expectation. Normative expectations are stakeholders' opinions about what the system should do.

    Option c) is incorrect. This is normative expectation. Normative expectations are stakeholders' opinions about what the system should do.

24. A relational database contains two tables: invoice and client. The invoice table includes invoice number, order date, client code, inventory item description, quantity, and total amount by item field information.

    The customer table includes client code, client name, address, town, postal code, and telephone number fields. Which field is the foreign key?

    a) Client name
    b) Invoice number
    c) Client code
    d) Order number

    Solution:

    Option c) is **correct**. The foreign key, in this case the client code, is a unique identifier that is common to both tables and links the two tables.

    Option a) is incorrect. The client name is not a common attribute or field in both tables.

    Option b) is incorrect. The invoice number is not a common attribute or field in both tables.

    Option d) is incorrect. The order number is not a common attribute or field in both tables.

25. Which of the following phases of the data process chain involves extracting, transforming, and loading data?

    a) Data discovery
    b) Information model building
    c) Data collection
    d) Problem-solving

    Solution:

    Option c) is **correct**. The data collection phase involves extracting, transforming, and loading data. Transformation includes activities such as profiling, cleaning, restructuring, and integrating.

    Option a) is incorrect. The data discovery phase involves exploring what data is available, its relevance, and its affordability.

    Option b) is incorrect. Information model building involves calculating the information needed for decision-making purposes.

Option d) is incorrect. The problem-solving phase involves using, not identifying, the insights from the analytics phase as part of the decision-making process.

26. Which of the following questions can the data life cycle help to answer?

    a) What is the year-over-year cost variance in the IT department?
    b) What is the cost to get the data and to process the data?
    c) What was the source of the data breach?
    d) What is the least-cost option for the new system?

    Solution:

    Option b) is **correct.** The data life cycle is an excellent framework for analyzing different data scenarios.

    Option a) is incorrect. This statement describes an accounting process.

    Option c) is incorrect. This statement refers to data lineage systems, which have proven to be excellent solutions for documenting compliance with regulations in industries such as accounting, banking, and health care.

    Option d) is incorrect. This statement describes an accounting process.

27. Which of the following data-building methodologies uses statistical techniques to determine the probability of a future outcome or event?

    a) Descriptive analytics
    b) Predictive analytics
    c) Diagnostic analytics
    d) Prescriptive analytics

    Solution:

    Option b) is **correct**. Predictive analytics uses statistical techniques to determine the probability of a future outcome or event. This model looks for patterns in historical data to identify risks and opportunities, not the reason for a particular outcome.

    Option a) is incorrect. Descriptive analytics looks specifically at historical data and events for insights into what could happen in the future. It looks at patterns within this historical data to attempt to determine the reason for a particular outcome.

    Option c) is incorrect. Diagnostic analytics examines data to answer the question “Why did it happen?” and attempts to understand what is causing the issue.

    Option d) is incorrect. Prescriptive analytics combines descriptive, predictive, and diagnostic analytics to provide beneficial recommendations and to identify

implications from the various recommendations. Prescriptive analytics looks beyond the *what* and *when* and incorporates the *why* — that is, why will this happen?

28. Which of the following statements describes business intelligence?

    a) Assists humans in decision-making
    b) Aims to increase accuracy rather than success
    c) Is defined as acquiring and applying knowledge
    d) Is an all-encompassing term that describes using many analytical tools to help make business decisions

    Solution:

    Option d) is **correct**. Business intelligence is an all-encompassing term that includes descriptive analytics, big data, benchmarking, and more to help management analyze information to make business decisions.

    Option a) is incorrect. Artificial intelligence, not business intelligence, assists humans in decision-making.

    Option b) is incorrect. Machine learning, not business intelligence, aims to increase accuracy rather than success.

    Option c) is incorrect. This describes artificial intelligence, which can be defined as acquiring and applying knowledge.

29. A gap between expectations and reality creates several problems. Which of the following is not one of these problems?

    a) Uncertainty
    b) Dissatisfaction
    c) Sabotage
    d) Loss of credibility

    Solution:

    Option c) is **correct**. Sabotage is a problem that can arise if there is resistance to change.

    Option a) is incorrect. When users are led to predict how things will occur and they turn out differently, uncertainty is created.

    Option b) is incorrect. If features that users want are not present in a system, the users will be dissatisfied, regardless of how their expectations are managed.

Option d) is incorrect. If users are led to expect something that does not occur, next time they will be less likely to believe what they are told.

30. Which of the following is an advantage of relational databases?

    a) Security is improved.
    b) Data is stored in multiple places.
    c) Simplified queries can be created.
    d) The structure is rigid.

    Solution:

    Option a) is **correct**. Security is improved. The concept of data residing in tables means that data can be split across many tables. This is a security benefit.

    Option b) is incorrect. In a relational database, data is stored once. Any change to field data occurs only once, and all linked tables will show the change.

    Option c) is incorrect. In a relational database, complex queries can be created. Creating, inserting, updating, and deleting table records is done in a query language called structured query language (SQL).

    Option d) is incorrect. Relational databases are flexible. The relational model is naturally scalable and extensible, which means that it can easily meet changing or increasing data requirements.

31. Data structure refers to how data is organized. Which of the following is an example of unstructured data?

    a) A data source exported into Excel
    b) Data stored in a relational database
    c) Data that has been formatted using an extensible markup language (XML)
    d) Images from Instagram

    Solution:

    Option d) is **correct**. The key characteristic of unstructured data is the lack of an underlying data model, which makes processing and therefore analysis challenging.

    Option a) is incorrect. This is an example of semi-structured data.

    Option b) is incorrect. This is an example of structured data.

Option c) is incorrect. The use of tags, such as XML, represents a vocabulary for the computer to understand and makes data readable by both humans and machines.

32. In Canada and the United States, which group is responsible for publicly reporting on the strength of an organization's internal controls and their effect on financial reporting?

    a) Internal auditors
    b) Board of directors
    c) External auditors
    d) Shareholders

    Solution:

    Option c) is **correct**. Under Section 404 of the Sarbanes-Oxley Act of 2002 (SOX) and similar provisions in Canada, both management and external auditors must publicly report on the strength of a company's internal controls in relation to its financial reporting.

    Option a) is incorrect. Internal auditors regularly test controls and assess their effectiveness, but they provide that information internally within the organization. They are not responsible for external reporting.

    Option b) is incorrect. While the board of directors is ultimately accountable for safeguarding an organization's assets, it typically *receives* these reports; it does not prepare them.

    Option d) is incorrect. Shareholders delegate responsibility for overseeing their assets to members of the board of directors. They are not responsible for reporting on internal controls.

33. Which information system control ensures that source documents are valid and authorized?

    a) Audit trail
    b) Source data control
    c) Data transmission control
    d) Completeness check

    Solution:

    Option b) is **correct**. Source data control ensures that source documents are valid and authorized.

    Option a) is in**correct**. Audit trails are digital records of business transactions in a system. Audit trails often show before-and-after snapshots of transactions.

Option c) is incorrect. Data transmission control is a form of processing control that ensures the correctness and completeness of data. Typical examples include echoing, batch totals, and checksums.

Option d) is incorrect. A completeness check ensures that all required data items have been entered (for example, that Canadian postal codes contain six characters in the form A9A9A9).

34. Which of the following IT security principles determines what users can see and do in their environment?

    a) Authorization
    b) Authentication
    c) Permissions
    d) Personnel policies

    Solution:

    Option a) is **correct**. Authorization is the process of determining what users can see and do in their environment. It presupposes that their identities have already been confirmed.

    Option b) is incorrect. Authentication is the process that confirms a user's identity.

    Option c) is incorrect. Permissions are what users are able to see and do in their environment. They presuppose that users' identities have already been confirmed.

    Option d) is incorrect. Clearly expressed and well-written human resource policies outlining the use of technological assets are a key part of an organizational risk mitigation strategy, but they do not ensure you are who you say you are.

35. Which of the following describes a physical backup centre, not far from the business, where office equipment and hardware is already installed, set up, and running a recent backup of applications?

    a) The cloud
    b) Hot site
    c) Cold site
    d) Helpdesk

    Solution:

    Option b) is **correct**. A **hot site** has office equipment and hardware already installed, set up, and running a recent backup of applications, and can be ready and running in a matter of hours.

Option a) is incorrect. The cloud essentially offers a virtual hot site: a location that is remote from your physical business, internet-based, and always accessible.

Option c) is incorrect. A **cold site** is a physical facility that is nearby but requires substantially more setup time. Recovery time may be several days instead of hours.

Option d) is incorrect**.** A helpdesk service provides information and support to computer users, especially within a company.

36. General controls ensure that an organization's control environment is stable and well managed. Requiring users to enter a password before accessing data is an example of which type of control?

    a) Output controls
    b) Software controls
    c) Hardware controls
    d) Operations controls

    Solution:

    Option b) is **correct**. Software controls in the form of passwords restrict network access. There are controls to the operating system, to applications, to web services, and to encrypted drives.

    Option a) is incorrect. Output controls ensure that output generated is complete and distributed to authorized parties.

    Option c) is incorrect. Hardware controls physically restrict access to computers, servers, and other network equipment.

    Option d) is incorrect. Operations controls ensure that proper roles and responsibilities have been assigned, which results in appropriate segregation of duties.

37. E-commerce software can generally be categorized into five groups. Software that helps buyers build a desired product is known as which of the following?

    a) Catalogue management software
    b) Data analysis software
    c) Shopping cart software
    d) Product configuration software

    Solution:

    Option d) is **correct**. Product configuration software helps buyers build the desired product, such as a computer system.

Option a) is incorrect. Catalogue management software usually runs in a real-time environment and refers to the maintenance of product information in a structured and organized manner to help customers as well as channel partners understand product benefits.

Option b) is incorrect. Data analysis software turns data that is captured by the business's website into useful information.

Option c) is incorrect. Shopping cart software allows buyers to add items, change them, and build a total order, and then it leads to checkout procedures for order completion and payment information.

38. Which of the following describes a public network?

a) A wide area network (WAN) linking sites from the same organization
b) A Wi-Fi hotspot provided by a local coffee shop
c) A local area network (LAN) owned and maintained by a local business
d) A virtual private network (VPN)

Solution:

Option b) is **correct**. A Wi-Fi hotspot intended for use by anyone is a public network.

Option a) is incorrect. A private network is one where all the elements are owned (or leased) by a single entity, such as a company or an industry consortium, and designed for use by that entity. A WAN used by a specific organization is typically a distributed private telecommunications network.

Option c) is incorrect. LANs are typically private networks, owned and maintained by companies, which operate in a confined geographic space (such as an office building).

Option d) is incorrect. A VPN is software that encrypts communication over the internet so that it is reasonably private and secure. For example, if an employee works from home, they would typically connect to the office using a VPN.

39. Which of the following is application software?

    a) Device driver
    b) Operating system
    c) Firmware
    d) Word processor

    Solution:

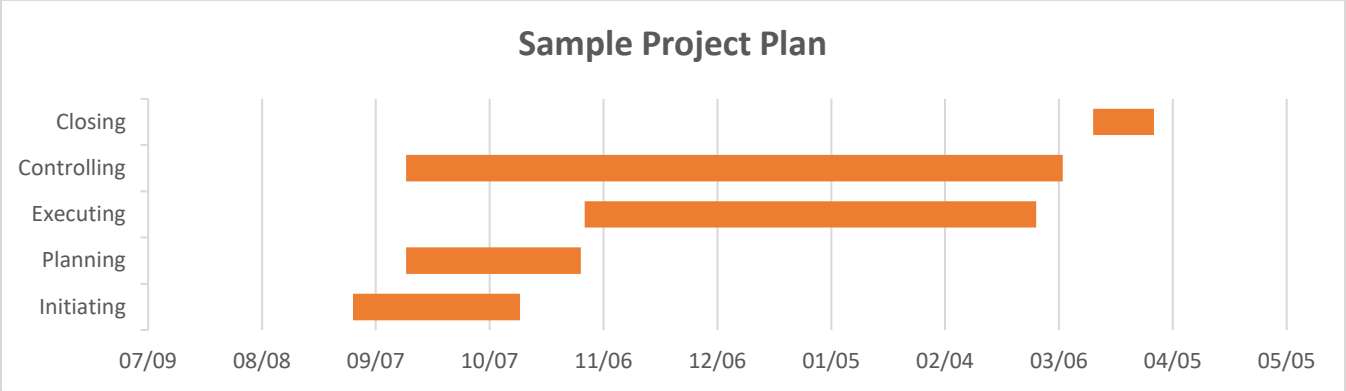
    Option d) is **correct**. A word processor is a type of application software. Application software refers to computer programs that are designed to solve specific problems.

    Option a) is incorrect**.** This is an example of system software. System software is made up of the operating system and the utility programs for managing the use of the hardware. A device driver is a type of utility program for managing hardware.

    Option b) is incorrect. This is an example of system software. An operating system (OS) is a set of computer programs that controls the computer hardware and acts as an interface with application programs. Common OSs for desktop computers include Windows, Linux (in several varieties), and macOS.

    Option c) is incorrect. Firmware is the operational software embedded within a memory chip on a piece of hardware for the OS to identify. It directly manages and controls all activities of that device's specific hardware.

40. In the following Gantt chart, which tasks are planned to be ongoing on October 7 (10/07)?



    a) Closing, Controlling, Executing
    b) Closing, Executing, Planning
    c) Initiating, Planning, Controlling
    d) Executing, Initiating, Planning

Solution:

Option c) is **correct**. The timeline column labelled “10/07” identifies October 7. The timeline steps that cross this column are the following three tasks: Initiating, Planning, and Controlling. These represent the tasks that are planned to be ongoing at October 7.

Option a) is incorrect. Although these tasks are all planned to complete (finish) after October 7, Closing does not start until mid-March of the following year, and Executing does not start until late October / early November. Neither is ongoing at October 7.

Option b) is incorrect. While Planning will be ongoing on October 7, Closing does not start until mid-March of the following year, and Executing does not start until late October / early November. Neither is ongoing at October 7.

Option d) is incorrect. While Initiating and Planning will be ongoing on October 7, Executing does not start until late October / early November. It will not be ongoing at October 7.

41. Which information systems planning approach looks at a small number of future possibilities and examines their implications for the current information systems plan?

a) Porter’s Five Forces
b) Portfolio analysis
c) Scenario planning
d) Strategic analysis

Solution:

Option c) is **correct**. Scenario planning involves looking at a small number of future possibilities and examining their implications for the current information systems plan.

Option a) is incorrect. Porter’s Five Forces describes the forces that affect competition in the marketplace, and it is a strategic analysis tool. Used in information systems planning, Porter’s Five Forces looks primarily at the external environment (not at the organization’s set of IT projects and investments).

Option b) is incorrect**.** Portfolio analysis looks at both risk management and cost/benefit evaluation within the IT area for projects and investments.

Option d) is incorrect. Strategic analysis uses tools such as the value chain or Porter’s Five Forces to determine the processes that deliver the greatest value to the organization and the opportunities to use information systems to support these processes.