1. Which of the following describes the relationship that is always true for two (2) sets A and B? Here, (X Ι Y) represents the part that belongs to both X and Y (intersection set), and (X Υ Y) represents the part that belongs to at least one of X or Y (union set).

a) (A Υ B) is a subset of the complement of (A Ι B).

b) (A Υ B) is a subset of A.

c) (A Ι B) is a subset of (A Υ B).

d) (A Ι B) is a subset of the complement of A

1. In a queue, three elements 33, 27, and 12 are stored (i.e., enqueued) in this order. After another element 45 is enqueued to the queue, two elements are retrieved (i.e., dequeued). Which of the following is the second element that has been dequeued?

a) 12

b) 27

c) 33

d) 45

1. Which of the following is an appropriate description concerning an applet?

a) A document file that is transmitted from a Web site and saved

onto the user’s PC when the Web browser accesses the Web site

b) A language that is used for creating a Web page

c) A program that is downloaded from a Web server and embedded into a client browser, and then executed in the browser

d) A language that is used for database manipulation such as data addition, modification, deletion, and search

1. Which of the following is an appropriate description concerning the Java language?

a) It is a general-purpose language developed mainly for business applications.

b) It is a language developed for scientific and engineering calculations.

c) It is a markup language used for describing Web pages.

d) It is an object-oriented language that provides platform-independent portability.

1. In a markup language with the purpose of displaying a screen or printing, it is possible to directly embed not only the body of a document but specifications of the structure and layout of the document, and the font and size of the characters. Which of the following is classified as such a markup language?

a) CASL

b) HTML

c) SQL

d) URL

1. Which of the following is the most appropriate description concerning a compatible CPU?

a) It can run the OS or the application software that can be run on the original CPU.

b) It must not be developed nor manufactured as long as the patent of the original CPU is valid. c) A compatible CPU for single-core CPU has been developed, while one for multi-core CPU does not exist.

d) It is a CPU that is intended to improve the performance of an outdated PC, and is not adopted for a new model of PC.

1. Which of the following is designed to improve the processing efficiency of a PC by effectively reducing the time for the CPU to access the main memory?

a) SSD

b) Virtual memory

c) Cache memory

d) Defragmentation

1. Which of the following is appropriate as a description concerning Plug and Play?

a) When a peripheral device is connected to a PC, installation and settings of the device driver are performed automatically.

b) Software for enhancing the functions of application software is installed at a later stage.

c) Power is supplied from a PC to a peripheral device via a cable connecting them.

d) A specific program is executed, and the system performance is evaluated on the basis of the time taken for the processing.

1. Which of the following is the most appropriate explanation of TCO (Total Cost of Ownership), which is a major factor when any purchasing decision is made for a system?

a) It is the sum of the operation and management costs incurred after the installation of the system.

b) It is the sum of the costs required to troubleshoot software and hardware faults that occur after the installation of the system.

c) It is the sum of the costs incurred during the installation of the system and the operation and management costs incurred after the installation.

d) It is the sum of the costs incurred during the installation of the system in addition to the planning phase of the system.

10. A total of 60,000 hours has passed since a computer system was put into operation. During this operation period, a total of 100 failures occurred, and the system was repaired each time. The last repair was completed at the 60,000th hours. If the MTTR is 60 hours, how many hours is the MTBF of the system during this period?

a) 480

b) 540

c) 599.4

d) 600

11. Which of the following is an appropriate explanation of multitasking?

a) Several computers connected via a network build a system that work together to achieve a high-performance system.

b) Several processor cores composed of arithmetic circuits and other control circuits are implemented in a single CPU.

c) The CPU processing time is allocated to several processes in turn so that the processes can be executed simultaneously.

d) The same processing is performed for multiple data items by executing a single instruction.

12. Which of the following is the most appropriate method for restricting the content of database to display in accordance with the needs of each user’s business operations?

a) Setting up access rights based on the combination of data and user

b) Distributing a copy of the database limited to each user

c) Setting up a set of data items (columns) dedicated to each user

d) Setting up a password for each record in order to protect data

13. Which of the following is the term for the form of using a PC by itself without connecting it to any network?

a) thin client

b) Single processor

c) Standalone

d) Peer to peer

14. Which of the following is an appropriate explanation of plug-in software?

a) Plug-in software bridges differences between OSs, and provides more advanced and specific functions than the OSs.

b) Plug-in software does not work as a standalone program, but can be integrated into applications, such as a Web browser, to enhance their functions.

c) Plug-in software is often included in applications such as a spreadsheet, and allows the users to record and replay the series of operations performed.

d) Plug-in software is provided to replace part of a program for the purpose of modifying functions or fixing bugs.

15. Which of the following is a unit that is used to represent “resolution”, one of the performance indicators of a display or a printer?

a) bps

b) dpi

c) fps

d) psi