Student Name: Student ID:

1. Which of the following is considered to be a major element of system design?

|  |  |
| --- | --- |
| A) | Class diagrams are mapped onto tables in a relational database management system. |
| B) | Data management classes are identified. |
| C) | Standards for code development and human computer interaction are determined. |

2.Which of the following is consistent with Buschmann’s definition of a software architecture (Buschmann et al., 1996)?

|  |  |  |  |
| --- | --- | --- | --- |
| |  |  | | --- | --- | | A) | The software architecture only determines the software sub-systems. | | |
| B) | Software architecture describes the relationships between the components of the system. |
| C) | Software architecture determines the look and feel of an application.  3 Encapsulation is best enforced by which of the following decisions regarding object visibility y?   |  |  | | --- | --- | | A) | All attributes and operations are private. | | B) | All attributes are private and all operations are public. | | C) | All attributes are private and public operations are kept to a minimum. |   4 When is a UML interface used?   |  |  | | --- | --- | | A) | It describes boundary classes | | B) | It describes an interface that a class may offer to another class | | C) | It describes the human-computer interface |   5 Good coupling is best characterized by which of the following?   |  |  | | --- | --- | | A) | Keeping the number of message types between objects to a minimum | | B) | Ensuring that sub-classes are not strongly linked to their superclass. | | C) | Ensuring that operations in the same class are linked |   6 Which of the following is a beneficial consequence of good cohesion in a class?   |  |  | | --- | --- | | A) | The attributes in the class will only be accessed by the operations of that class. | | B) | The class will exhibit high levels of encapsulation. | | C) | The operations in the class will be easier to maintain. |   7. Which of the following best describes when to use the State pattern?   |  |  | | --- | --- | | A) | The pattern may be used when a class has many states. | | B) | The pattern may be used when a class has many operations. | | C) | The pattern may be used when an object appears to change class at run-time. |   8. Which of the following is not an advantage of the State pattern?   |  |  | | --- | --- | | A) | State behaviour is localized. | | B) | The Singleton pattern may be used with the State pattern. | | C) | State transitions are made explicit. |   9. Which of the following is not an issue that should be considered before using a pattern?   |  |  | | --- | --- | | A) | If a simpler solution exists it should be used in preference to the pattern. | | B) | It is preferable to use patterns by themselves. | | C) | It is important that the context of the problem is consistent with the context of the pattern. |   10. Which of the following statements is most appropriate when using a pattern during information systems development?   |  |  | | --- | --- | | A) | The pattern must be used without any changes to its overall structure. | | B) | The pattern should be implemented with names that are meaningful in the context of the application. | | C) | The names of the classes in the pattern should be given the general names from the pattern so that their roles are unambiguous.  11. Some organisations set standards for user interface design. What are these standards called?   |  |  | | --- | --- | | A) | Ethnographic standards | | B) | GUIdes (short for ‘GUI design’). | | C) | Style guides. |   12. Which of the following is not a list of factors that affect the design of the user interface?   |  |  | | --- | --- | | A) | The nature of the task that the user is carrying out, the type of user, the amount of training the user will have undertaken, the frequency of use and the hardware and software architecture. | | B) | The nature of the task that the user is carrying out, the type of user, the amount of training the user will have undertaken, the frequency of use and the database architecture. | | C) | The nature of the task that the user is carrying out, the type of user, the choice of requirements gathering techniques, the frequency of use and the hardware and software architecture. |   13. Which of the following statements best describes what is meant by a CASE tool?   |  |  | | --- | --- | | A) | A software tool for drawing diagrams. | | B) | A software package that maintains graphical models and other data about systems, and may generate program code. | | C) | A software package that enables a developer to produce a graphical user interface by dragging and dropping components onto forms. |   14. Which of the following statements best describes what is meant by a configuration management tool?   |  |  | | --- | --- | | A) | A software package that keeps track of the dependencies between components and the versions of source code and resource files used to produce a particular release of software. | | B) | A software package that enables a developer to produce a graphical user interface by dragging and dropping components onto forms. | | C) | A software package that builds archives or zip files that can be used with an installation tool to install software onto a computer. |   15. Which of the following statements best describes what is meant by an integrated development environment?   |  |  | | --- | --- | | A) | A software package that builds archives or zip files that can be used with an installation tool to install software onto a computer. | | B) | A software package that contains a multi-window editor, mechanisms for managing the source files in a project, and links to the compiler and debugger so that they can be run from within the environment. | | C) | A software package that enables a developer to produce a graphical user interface by dragging and dropping components onto forms. |   16. Which of the following examples conforms to the standard for class names used in the book and generally in Java programming?   |  |  | | --- | --- | | A) | Sales\_Order\_Proxy. | | B) | salesOrderProxy. | | C) | SalesOrderProxy. |   17. Which of the following best describes index-sequential file access?   |  |  | | --- | --- | | A) | Records are stored in blocks. The key of the record is used to calculate which block to store the data in, either using relative addressing or using a hashing algorithm. | | B) | Records are stored in blocks. The key of the record is used to determine which block to store a record in. A block index is maintained, which lists the keys of the last record in each block. | | C) | Records are stored in blocks. records are written into blocks in the order in which they are created. If there are too many records for the number of blocks, then the excess records are held in overflow blocks. |   18. What is a hashing algorithm?   |  |  | | --- | --- | | A) | 1. A way of padding data in fixed length fields with the ASCII hash character ‘#’ | | B) | A way of separating fields in records using the ASCII has character ‘#’ as a delimiter. | | C) | A way of converting record keys into numeric block addresses in a range of values. |   19. Which of the following kinds of file would be used to store system settings?   |  |  | | --- | --- | | A) | Parameter file. | | B) | Temporary file. | | C) | Master file. |   20. Which of the following is not a disadvantage of using files to store data?   |  |  | | --- | --- | | A) | As the number of applications grows, the number of files grows, and the same data may be held in different files, creating data integrity problems. | | B) | Combining data from different applications to meet new business requirements is difficult, as data in different files may be accessed in different ways. | | C) | Files can be used to hold prompts and labels in order to localize an application for use in different countries. | | |