CHAPTER 1: BASIC CONCEPTS AND COMPUTER EVOLUTION

TRUE OR FALSE

T F 1. A computer is a complex system.

T F 2. A computer organization does not need to be designed to implement a particular architectural specification.

T F 3. Computer organization refers to attributes of a system visible to the programmer.

T F 4. Changes in computer technology are finally slowing down.

T F 5. Both the structure and functioning of a computer are, in essence, simple.

T F 6. The number of bits used to represent various data types is an example of an architectural attribute.

T F 7. Interfaces between the computer and peripherals is an example of an organizational attribute.

T F 8. Historically the distinction between architecture and organization has not been an important one.

T F 9. A particular architecture may span many years and encompass a number of different computer models, its organization changing with changing technology.

T F 10. A microcomputer architecture and organization relationship is not very close.

T F 11. Changes in technology not only influence organization but also result in the introduction of more powerful and more complex architectures.

T F 12. The hierarchical nature of complex systems is essential to both their design and their description.

T F 13. Both the structure and functioning of a computer are, in essence, simple.

T F 14. A computer must be able to process, store, move, and control data.

T F 15. When data are moved over longer distances, to or from a remote device, the process is known as *data transport.*

MULTIPLE CHOICE

1. Computer technology is changing at a _____ pace.

   A. slow B. slow to medium

   C. rapid D. non-existent

2. Computer _____ refers to those attributes that have a direct impact on the logical execution of a program.

   A. organization B. specifics

   C. design D. architecture

3. Architectural attributes include _____ .

   A. I/O mechanisms B. control signals

   C. interfaces D. memory technology used

4. _____ attributes include hardware details transparent to the programmer.

   A. Interface B. Organizational

   C. Memory D. Architectural

5. It is a(n) _____ design issue whether a computer will have a multiply instruction.

   A. architectural B. memory

   C. elementary D. organizational

6. It is a(n) _____ issue whether the multiply instruction will be implemented by a special multiply unit or by a mechanism that makes repeated use of the add unit of the system.

A. architectural B. memory

C. mechanical D. organizational

7. A _____ system is a set of interrelated subsystems.

A. secondary B. hierarchical

C. complex D. functional

8. An I/O device is referred to as a _____.

A. CPU B. control device

C. peripheral D. register

9. When data are moved over longer distances, to or from a remote device, the process is known as _____.

A. data communications B. registering

C. structuring D. data transport

10. The _____ stores data.

A. system bus B. I/O

C. main memory D. control unit

11. The _____ moves data between the computer and its external environment.

A. data transport B. I/O

C. register D. CPU interconnection

12. A common example of system interconnection is by means of a _____.

A. register B. system bus

C. data transport D. control device

13. A _____ is a mechanism that provides for communication among CPU, main memory, and I/O.

A. system interconnection B. CPU interconnection

C. peripheral D. processor

14. _____ provide storage internal to the CPU.

A. Control units B. ALUs

C. Main memory D. Registers

15. The _____ performs the computer's data processing functions.

A. Register B. CPU interconnection

C. ALU D. system bus

SHORT ANSWER

1. _____ refers to those attributes of a system visible to a programmer.
2. _____ refers to the operational units and their interconnections that realize the architectural specifications.
3. Control signals, interfaces between the computer and peripherals, and the memory technology used are all examples of _____ attributes.
4. The instruction set, the number of bits used to represent various data types, I/O mechanisms and techniques for addressing memory are all examples of _____ attributes.
5. The _____ architecture is the architecture of IBM's mainframe product line.
6. _____ is the way in which the components are interrelated.
7. _____ is the operation of each individual component as part of the structure.
8. The basic functions that a computer can perform are: data processing, data movement, control, and _____.

9. When data are received from or delivered to a device that is directly connected to the computer, the process is known as _____.

10. The four main structural components of the computer are: main memory, I/O, system interconnection, and _____.

11. Often referred to as *processor* the _____ controls the operation of the computer and performs its data processing functions.

12. A common example of system interconnection is by means of a _____, consisting of a number of conducting wires to which all the other components attach.

13. The major structural components of the CPU are: control unit, register, CPU interconnection, and _____.

14. A _____ control unit operates by executing microinstructions that define the functionality of the control unit.

15. The _____ controls the operation of the CPU and hence the computer.

Answers:

TRUE OR FALSE

1. T
2. F
3. F
4. F
5. T
6. T
7. T
8. F
9. T
10. F
11. T
12. T
13. T
14. T
15. F

MULTIPLE CHOICE

1. C
2. D
3. A
4. B
5. A
6. D
7. B
8. C
9. A
10. C
11. B
12. B
13. A
14. D
15. C

SHORT ANSWER

1. Computer architecture
2. Computer organization
3. organizational
4. architectural
5. System/370
6. Structure
7. Function
8. data storage
9. input/output (I/O)
10. central processing unit (CPU)
11. central processing unit (CPU)
12. system bus
13. arithmetic and logic unit (ALU)
14. microprogrammed
15. control unit