Chapter 2

1. IPOS stands for
    a. Information, programs, outcomes and signals
    b. Input, processing, output, storage
    c. Individual Priority Optimization Scheduling
    d. Iterative packet ownership servicing
    e. Interrupt processing organizational suspension

2. Main memory is used during the "S" portion of the IPOS cycle.

3. The system bus connects which of these components together?
    a. Control unit and ALU
    b. ALU and registers
    c. CPU and memory
    d. Hard disk and optical disk
    e. Data bus and control bus

4. Storage devices are part of which component of the computer?
    a. CPU
    b. Main memory
    c. I/O subsystem
    d. The bus
    e. All of the above

5. SRAM and DRAM are the same thing.

6. Computer components operate on _____ signals.
    a. digital
    b. analog
    c. binary
    d. decimal
    e. all of the above

7. During the instruction fetch portion of the fetch-execute cycle, the program instruction is passed from memory to the CPU over the _____ bus.
    a. address
    b. control
    c. data
    d. instruction
    e. system

8. The word size is often the size of which bus?
    a. address
    b. control
    c. data
    d. the sum of the address and data
    e. each of address, control and data are this size

9. Pins on the CPU connect the internal CPU bus to the external system bus.

10. What does the following assembly language code do?

>   Load   A
>   Subt   B
>   Jge   next

   a. Moves to location next if A – B <= 0
   b. Moves to location next if A - B >= 0
   c. Moves to location next if A – B = 0
   d. Moves to location next if A = 0 and B = 0
   e. Moves to location next

11. What does the following assembly language code do?

>   Load   A
>   Add   1
>   Store A

   a. Stores A+1 in memory location A
   b. Stores A+1 in memory location B
   c. Stores the value of the accumulator in memory location A
   d. Places A in the accumulator
   e. Computes A + 1 + A and stores it in the accumulator

12. During the fetch execute cycle, which piece of hardware is not used?
   a. PC
   b. Bus
   c. Memory
   d. ALU
   e. They are all used

13. In order to obtain a datum from memory, the CPU sends a _____ signal to memory.
   a. fetch
   b. read
   c. request
   d. send
   e. write

14. A computer can directly execute a program written in which of the following types of programming languages?
   a. any high level language
   b. assembly language
   c. machine language
   d. only compiled high level languages
   e. only interpreted high level languages

15. When an assembly language program is translated into machine language, there is a single machine language instruction for each assembly language instructions.

16. A machine language instruction contains two parts, the operation and the operand(s).

17. Which of the following registers stores the memory location of the next program instruction?
   a. AC
   b. IR

c. PC
    d. SF
    e. SP

18. The PC register stores a(n)
    a. instruction
    b. memory address
    c. piece of control information
    d. result
    e. could be any of the above

19. When the ALU computes a value, for instance a sum from an addition, the result is placed
    a. in the AC
    b. in the IR
    c. in the PC
    d. in the control unit
    e. could be any of the above

20. At the end of the instruction fetch stage of the fetch-execute cycle, which of the following happens?
    a. The CPU tests for an interrupt
    b. The PC is incremented
    c. The next instruction is fetched
    d. The result of the operation is stored
    e. If the instruction requires an operand fetch from memory, it is fetched

21. The instruction register is used to store the
    a. location in memory of the current program instruction
    b. location in memory of the next program instruction
    c. current instruction to be executed
    d. result of executing the current instruction
    e. operand to be used by the current instruction

22. The AC is known as a(n)
    a. data register
    b. bus
    c. memory location
    d. ALU circuit
    e. register

23. The fetch-execute cycle of every computer consists of 5 stages.

24. In a store operation, the CPU sends to memory the address to store the datum, the datum itself, and a write command.

25. Every storage location in memory has a unique address, which is a number.

26. After any ALU operation, one or more status flags is automatically set based on the result.

27. The next program instruction fetched from memory is always the next instruction in memory unless a program issues a branch instruction.

28. Which of the following is not a result stored in the status flags?
    a. even parity
    b. interrupt
    c. overflow
    d. positive
    e. all of these are results stored in the status flags

29. Which component of the CPU is responsible for handling the fetch-execute cycle?
    a. Arithmetic-logic unit
    b. Control bus
    c. Control unit
    d. Status flags
    e. System clock

30. The control unit translates a machine language instruction into
    a. an assembly language instruction
    b. a binary number
    c. a high level language instruction
    d. microcode
    e. none of the above, the control unit does not have to translate the machine instruction

31. The control unit sends out commands to other components in the computer over
    a. the address bus
    b. the control bus
    c. the data bus
    d. the network
    e. the system bus

32. The term MIPS stands for
    a. microprocessors
    b. miniprocessors
    c. millions of processors
    d. millions of instructions per second
    e. millions of floating point instructions per second

33. The best way to determine the speed of a processor is by its clock speed (e.g., the processor's gigahertz rating).

34. Cache performance will impact the execution time of the processor on a running program.

35. The typical size of a datum being processed or moved in the computer is known as the computer's _____ size.
    a. memory
    b. cache
    c. word
    d. byte
    e. MIPS

36. Today's computers have both on-chip and off-chip caches.

37. A computer's performance will differ between a system running multiple programs versus an unloaded system.

38. Memory speed has increased over time at roughly the same rate that processor speed has increased.

39. Which of the following forms of memory cannot be written to?
    a. DRAM
    b. SRAM
    c. ROM
    d. Registers
    e. flash memory

40. SRAM is faster than DRAM.

41. SRAM is cheaper than DRAM.

42. The type of memory at the top of the memory hierarchy is
    a. registers
    b. DRAM
    c. removable storage
    d. SRAM
    e. virtual memory

43. As you move down the memory hierarchy, you expect the hit rate to
    a. improve
    b. worsen
    c. stay about the same
    d. improve in the top two levels and then worsen
    e. it could be any of the above

44. As you move up the memory hierarchy, which of the following is not true?
    a. the technology for that level becomes more costly
    b. the type of memory becomes faster
    c. the amount of storage at that level decreases
    d. the type of technology shifts from volatile to non-volatile
    e. they are all true

45. Swap space is stored on/in
    a. SRAM
    b. DRAM
    c. hard disk
    d. flash memory
    e. could be any of the above

46. The hard disk is an example of
    a. input
    b. memory
    c. output
    d. storage
    e. all of the above

47. Cache memory is always stored on the motherboard with main memory.

48. Which of the following provides a faster access time?
    a. flash memory
    b. on-chip cache
    c. off-chip cache
    d. DRAM
    e. swap space

49. Order the following memory units based on where they appear in the memory hierarchy from top to bottom: on-chip cache, hard disk storage, virtual memory, main memory, off-chip cache, registers, removable storage

50. Most peripheral devices today are designed using principles from
    a. artificial intelligence
    b. human-computer interaction
    c. free software foundation
    d. open system interconnection
    e. all of the above

51. List 4 types of pointing devices.

52. Which of the following is not a form of input device?
    a. bar code reader
    b. microphone
    c. MIDI device
    d. scanner
    e. speaker

53. A repetitive stress injury can arise because of repeatedly misusing
    a. the computer mouse
    b. the computer monitor
    c. your chair back
    d. computer memory
    e. the computer microphone

54. Because of the Rehabilitation Act of 1973 amendment section 508, all computer operating systems today are required to have the capability of changing screen resolution to help support people with visual impairments.

55. The idea that we can immerse ourselves in an illusionary world created by the computer, using various I/O devices like goggles, a body suit and data gloves, is known as
    a. virtual memory
    b. human-computer interaction
    c. artificial intelligence
    d. virtual reality
    e. sensor networks

56. The idea that you can connect a new peripheral device to your computer and have it recognized without rebooting is called
    a. a device driver

    b. USB
    c. plug and play
    d. ROM BIOS
    e. human-computer interaction

57. When working with chips and the motherboard of your computer, you should do several things. Which of the following is not necessarily one of them?
    a. Wear a grounding strap that is connected to something metallic
    b. Turn the computer off and disconnect the power
    c. Wear loose clothing that will not conduct static electricity
    d. Wear protective goggles
    e. You should do all of the above

58. The motherboard contains several slots by which you can insert expansion cards that control I/O devices like printers, disk drives and a modem.

59. Which of the following devices do you use to help keep your CPU from overheating?
    a. A ceiling fan
    b. A system fan
    c. A cooling unit
    d. Dry ice
    e. A radiator

60. Before affixing the cooling unit to the CPU, which of the following would you do?
    a. Add the superconductor cable
    b. Apply cooling transfer paste to the CPU
    c. Apply heat transfer paste to the CPU
    d. Place a cover over the CPU
    e. Raise the CPU socket's lift arm

61. If you are using IDE storage devices, you cannot also SATA storage devices in your computer.

62. When assembling a computer, the CPU will be inserted into a special socket. There is only one orientation that the CPU can be positioned in when inserting it.

63. What does section 508 in the Rehabilitation Act of 1973 require.

64. What types of peripheral devices are most likely to cause a repetitive stress injury?

65. Explain the danger that static electricity might provide when operating on the internal components of a computer and ways to reduce the danger.

Answers:

1. b
2. false (memory is used during processing, not storage)
3. c
4. c
5. false
6. a

7. c
8. c
9. true
10. b
11. a
12. d
13. b
14. c
15. true
16. true
17. c
18. b
19. a
20. b
21. c
22. a
23. false
24. true
25. true
26. true
27. true
28. e
29. c
30. d
31. b
32. d
33. false
34. true
35. c
36. true
37. true
38. false
39. c
40. true
41. false
42. a
43. a
44. d
45. c
46. d
47. false
48. b
49. registers, on-chip cache, off-chip cache, main memory, virtual memory, hard disk storage, removable storage
50. b
51. mouse, touch pad/point, touch screen, trackball, also pen tablet
52. e
53. a
54. true
55. d
56. c

57. d
58. true
59. c
60. c
61. false
62. true
63. IT products must include provisions for handicap assistance.
64. Mouse, keyboard, possibly trackball or joystick to a lesser extent
65. Static discharge can damage or destroy chips on the motherboard, particularly the CPU but also memory chips and other components on the motherboard. To prevent static discharge, wear the grounding strap which attaches from your wrist to a grounded piece of metal, wear loose clothes that do not accrue static charges, wear shoes that will not build up a charge, operate on the computer on a surface and flooring that does not cause static charges.