**Chapter 12:**

**instruction sets: characteristics and functions**

**MULTIPLE CHOICE**

1. The \_\_\_\_\_\_\_\_ specifies the operation to be performed.

A. source operand reference B. opcode

C. next instruction reference D. processor register

1. A(n) \_\_\_\_\_\_\_\_\_ expresses operations in a concise algebraic form using variables.

A. opcode B. high-level language

C. machine language D. register

1. There must be \_\_\_\_\_\_\_\_ instructions for moving data between memory and the registers.

A. branch B. logic

C. memory D. I/O

1. \_\_\_\_\_\_\_\_ instructions operate on the bits of a word as bits rather than as numbers, providing capabilities for processing any other type of data the user may wish to employ.

A. Logic B. Arithmetic

C. Memory D. Test

1. \_\_\_\_\_\_\_\_\_ instructions provide computational capabilities for processing number data.

A. Boolean B. Logic

C. Memory D. Arithmetic

1. \_\_\_\_\_\_\_ instructions are needed to transfer programs and data into memory and the results of computations back out to the user.

A. I/O B. Transfer

C. Control D. Branch

1. The x86 data type that is a signed binary value contained in a byte, word, or doubleword, using twos complement representation is \_\_\_\_\_\_\_\_\_.

A. general B. ordinal

C. integer D. packed BCD

1. The most fundamental type of machine instruction is the \_\_\_\_\_\_\_\_\_ instruction.

A. conversion B. data transfer

C. arithmetic D. logical

1. The \_\_\_\_\_\_\_\_\_ instruction includes an implied address.

A. skip B. rotate

C. stack D. push

1. Which of the following is a true statement?
2. a procedure can be called from more than one location
3. a procedure call can appear in a procedure
4. each procedure call is matched by a return in the called program
5. all of the above
6. The entire set of parameters, including return address, which is stored for a procedure invocation is referred to as a \_\_\_\_\_\_\_\_\_.

A. branch B. stack frame

C. pop D. push

1. Which ARM operation category includes logical instructions (AND, OR, XOR), add and subtract instructions, and test and compare instructions?

A. data-processing instructions B. branch instructions

C. load and store instructions D. extend instructions

1. In the ARM architecture only \_\_\_\_\_\_\_\_\_ instructions access memory locations.

A. data processing B. status register access

C. load and store D. branch

1. Which data type is defined in MMX?

A. packed byte B. packed word

C. packed doubleword D. all of the above

1. A branch instruction in which the branch is always taken is \_\_\_\_\_\_\_\_\_.

A. conditional branch B. unconditional branch

C. jump D. bi-endian

**SHORT ANSWER**

1. The operation of the processor is determined by the instructions it executes, referred to as \_\_\_\_\_\_\_\_\_ or *computer instructions.*
2. The collection of different instructions that the processor can execute is referred to as the processor’s \_\_\_\_\_\_\_\_\_.
3. The \_\_\_\_\_\_\_\_\_\_ reference tells the processor where to fetch the next instruction after the execution of this instruction is complete.
4. Source and result operands can be in one of four areas: main or virtual memory, immediate, I/O device, and \_\_\_\_\_\_\_\_\_.
5. Opcodes are represented by abbreviations, called \_\_\_\_\_\_\_\_\_\_ that indicate the operation.
6. Instruction types can be categorized as: data processing, data storage, control, and \_\_\_\_\_\_\_\_.
7. Zero-address instructions are applicable to a special memory organizations called a \_\_\_\_\_\_\_\_\_, which is a last-in-first-out set of locations.
8. The most important general categories of data are: addresses, numbers, characters, and \_\_\_\_\_\_\_\_\_.
9. Today the most commonly used character code is the IRA, referred to in the United States as \_\_\_\_\_\_\_\_\_\_\_\_\_.
10. \_\_\_\_\_\_\_\_ instructions are those that change the format or operate on the format of data.
11. \_\_\_\_\_\_\_\_\_ instructions are those that can be executed only while the processor is in a certain privileged state or is executing a program in a special privileged area of memory.
12. A self-contained computer program that is incorporated into a larger program is a \_\_\_\_\_\_\_\_\_\_.
13. The x86 provides four instructions to support procedure call/return: CALL, ENTER, LEAVE, and \_\_\_\_\_\_\_\_\_.
14. \_\_\_\_\_\_\_\_\_ are bits in special registers that may be set by certain operations and used in conditional branch instructions.
15. Intel’s \_\_\_\_\_\_\_\_ technology is a set of highly optimized instructions for multimedia tasks.