Engineering Problem Solving with C, 4th Edition, Chapter 1 Test Bank

Match the following people with their contribution to the field of Computer Science, where a name can be used more than once.

A. John Atanasoff and Cilfford Berry
B. Augusta Ada Byron
C. Charles Babbage
D. Luigi F. Menabrea
E. John Mauchly and J. Presper Eckert.
F. John von Neumann

    __C__   Inventor of the Analytical Engine
    __D__   Published a paper describing the Analytical Engine in French
    __A__   Inventor of the ABC
    __B__   Wrote detailed instructions for numerical computations, thought to be the first computer program.
    __F__   proposed a computing model used in most digital computers
    __E__   Inventor of the ENIAC
    __B__   envisioned the multidisciplinary potential of the Analytical Engine

2. Place the following computers in order from oldest to most recent.
  middle   ABC
  oldest   Analytical Engine
  newest   ENIAC

3. List the five steps of the problem solving methodology given in this chapter.
        (1) Problem Statement
        (2) Input/Output Description
        (3) Hand Calculations
        (4) Algorithm Development
        (5) Testing

4. Convert the decimal number -91 to two's complement using 8 bits, showing all work.

        2) 91 |
        2) 45 | 1
        2) 22 | 1
        2) 11 | 0
        2) 5 | 1
        2) 2 | 1
        2) 1 | 0
        2) 0 | 1

        0 1 0 1 1 0 1 1   is 91

        1 0 1 0 0 1 0 0   is the one's complement of 91
        0 0 0 0 0 0 0 1   add one
        1 0 1 0 0 1 0 1   is the two's complement representation of -91

5. Convert the binary number 1010110001010111 to hexadecimal, showing any work.

    1 0 1 0|1 1 0 0|0 1 0 1|0 1 1 1
       A   C   5   7 1010110001010111_2 is $AC57_{16}$

6. Which of the following is not computer hardware?
    A. a printer
    B. the hard disk
    C. the operating system
    D. the mouse

7. Which of the following is not computer software?
    A. a USB memory stick
    B. the operating system
    C. a C++ compiler
    D. a spreadsheet

8. Which of the following is responsible for interpreting the instructions stored in memory?
    A. the ALU (arithmetic logic unit)
    B. the control unit
    C. the software
    D. the accumulator

9. High-speed registers for the temporary storage of values are found in …
    A. the computers hard disk
    B. the computer's primary memory
    C. the accumulator
    D. the C++ program

10. Which of the following is not a function of a utility provided by an operating system?
    A. copying files
    B. listing files
    C. printing files
    D. translating C++ programs

11. Which of the following is not a part of a GUI (Graphical User Interface)?
    A. icons
    B. menus
    C. a mouse
    D. text boxes

12. Which of the following is not considered to be application software?
    A. database management software
    B. spreadsheet programs
    C. an operating system
    D. mathematical computation software

13. Which of the following is not an example of mathematical computation software?
    A. Maple
    B. MATLAB
    C. Mathematica
    D. MySQL

14. Which of the following languages is unique to a computer design where the instructions are binary strings?
    A. assembly language
    B. Basic
    C. C++
    D. machine language

15. Semantics are the set of grammar rules for a high-level language.
    A. true
    B. false

16. The CPU refers to the control unit and the ALU.(arithmetic logic unit)
    A. true
    B. false

17. A modern digital computer represents values in memory in base 10.
    A. true
    B. false

18. A compiler is hardware used to translate a C++ program into machine language.
    A. true
    B. false

19. The source file is the machine language version of a C++ program.
    A. true
    B. false

20. Linking is the process of combining the object file with other machine language statements and loading the executable program into memory.
    A. true
    B. false

21. Program bugs are errors which occur during the compilation step for preparing a C++ program for execution.
    A. true
    B. false

22. The word size is the size of the registers in the ALU, and therefore depends on the design of the processor.

A. true
B. false

23. A byte is by definition 8 bits.
    A. true
    B. false

24. Every real number can be represented exactly in binary in the computer's memory.
    A. true
    B. false