

## Science Bowl Practice Questions – Computer Science

1. Multiple Choice: 'Push' and 'Pop' are appropriate operations for which data structure?

- w) a linked list
- x) a queue
- y) a stack
- z) a two-dimensional array

ANSWER: Y -- A STACK

2. Multiple Choice: On IBM-PC based microcomputer systems, the 'boot section' stores:

- w) information on file sizes
- x) a copy of the operating system
- y) code needed to load the operating system
- z) all of the above

ANSWER: Y -- CODE NEEDED TO LOAD THE OPERATING SYSTEM

3. Multiple Choice: The terms FIFO and LIFO would most likely arise during a discussion of:

- w) storage media
- x) binary trees
- y) compiler design
- z) queues

ANSWER: Z – QUEUES

4. Multiple Choice: A record is related to a file, as a statement is related to a

- w) procedure
- x) file
- y) program
- z) data

ANSWER: Y – PROGRAM

5. Multiple Choice: The life-cycle of most large software development projects, such as those for NASA and DOD, goes through several well-defined phases sometimes referred to as the water-fall method. A simple version of the water-fall method consists of 4 phases. Which of the following would be the second phase?

- w) software design
- x) coding
- y) requirements analysis
- z) testing

ANSWER: W -- SOFTWARE DESIGN

6. Multiple Choice: In the late 1970's, Pascal inventor Niklaus Wirth designed the language specifically for:

- w) high speed computers
- x) teaching programming to students
- y) helping market IBM personal computers
- z) use on any type of operating system

ANSWER: X -- TEACHING PROGRAMMING TO STUDENTS

7. Multiple Choice: Numbers ranging from -16,000 to +16,000 might be stored in a computer readable file as 16-bit integers, or in an ASCII (pronounced ask-ee) representation, which could be viewed with a text-editor or word processor. For a large file, how many times bigger would the ASCII file be than the binary version?

- w) no bigger
- x) twice as big
- y) four times as big
- z) eight times as big

ANSWER: Y -- FOUR TIMES AS BIG

8. Multiple Choice: What is the decimal equivalent of the binary number 10111?

- w) 21
- x) 23
- y) 39
- z) 42

ANSWER: X -- 23

9. Multiple Choice: What term is used to describe a function that calls itself?

- w) Iterative
- x) Assimilative
- y) Recursive
- z) Cooperative

ANSWER: Y -- RECURSIVE

10. Multiple Choice: "SQL" is an acronym for what computer language?

- w) Standard Quality Language
- x) Structured Query Language
- y) Serial Quotient Language
- z) Sequential Query Language

ANSWER: X -- STRUCTURED QUERY LANGUAGE

11. Multiple Choice: Which of these is a standard interface for serial data transmission?

- w) ASCII
- x) RS232C
- y) LU6.2
- z) Centronics

ANSWER: X -- RS232C

12. Multiple Choice: What is the process that uses hardware and software to "imitate" a computer system in order to run programs that would otherwise be incompatible?

- w) Mapping
- x) Cloning
- y) Migration
- z) Emulation

ANSWER: Z -- EMULATION

13. Multiple Choice: What is the term for a temporary storage area that compensates for differences in data rate and data flow between devices?

- w) Buffer
- x) Bus
- y) Channel
- z) Modem

ANSWER: W -- BUFFER

14. Short Answer: Consider the following algorithm: x is initialized to 2; x is then replaced by its double four times in sequence; x is then decremented by 2 three times in sequence. What is the final value of x?

ANSWER: 26.

15. Multiple Choice: Which of the following types of computer software is least likely to translate the commands of a computer program written in a language like BASIC into executable computer machine instructions?

- w) interpreter
- x) word processor
- y) compiler
- z) debugger

ANSWER: X -- WORD PROCESSOR

16. Short Answer: What high-ranking government official initiated legislation to build an electronic superhighway spanning the nation just as his father spearheaded the drive to build the vehicular highway system?

ANSWER: VICE-PRESIDENT AL GORE

17. Short Answer: Many scientists use random number generators to estimate the frequency of certain events. This technique is identified with the name of what famous gambling center?

ANSWER: MONTE CARLO

18. Multiple Choice: A virtual memory system (VMS) means:

- w) data are copied from slower R-O-M to faster R-A-M
- x) the hard drive is accessed as if it were R-A-M
- y) R-A-M is accessed as if it were a hard drive
- z) there is no upper limit on the amount of R-A-M addressed

ANSWER: X -- THE HARD DRIVE IS ACCESSED AS IF IT WERE R-A-M

19. Multiple Choice: In the context of microcomputer memory, what number does "K" represent in bytes?

- w) 1024
- x) 1000
- y) 1023
- z) 1048

ANSWER: W -- 1024

20. Multiple Choice: In a microcomputer, what benefit does a coprocessor provide?

- w) Supports both color and monochrome monitors
- x) Allows multi-user operations
- y) Increases the speed of floating point mathematical computations
- z) Handles network communication protocols

ANSWER: Y -- INCREASES THE SPEED OF FLOATING POINT MATHEMATICAL COMPUTATIONS

21. Short Answer: What does RISC stand for?

ANSWER: REDUCED INSTRUCTION SET COMPUTER

22. Multiple Choice: What computer programming language was developed in the 1970's for the purpose of creating the UNIX operating system?

- w) FORTRAN
- x) COBOL
- y) ADA
- z) C

ANSWER: Z -- "C"

23. Multiple Choice: What is the two's complement of 1010?

- w) 0101
- x) 0111
- y) 0110
- z) 1100

ANSWER: Y -- 0110

24. Short Answer: What does PROM mean?

ANSWER: PROGRAMMABLE READ-ONLY MEMORY

25. Short Answer: How many characters are there in the official standard ASCII character set?  
(pronounced ask-ee)

ANSWER: 128

26. Short Answer: Who invented the computer architecture that put program memory and data memory in the same memory unit?

ANSWER: VON NEUMANN (Pronounced noy-man)

27. Multiple Choice: The analytical engine plan was a product of whose design?

- w) Babbage
- x) Jacquard
- y) Leibnitz
- z) Pascal

ANSWER: W – BABBAGE

28. Multiple Choice: Which type of network is best suited for businesses which must carefully control and coordinate the operations of distributed branch outlets?

- w) hierarchical
- x) local area
- y) ring
- z) star

ANSWER: Z -- STAR

29. Multiple Choice: The language that has become the most widely used microcomputer high level language is:

- w) PASCAL
- x) COBOL
- y) BASIC
- z) Small talk

ANSWER: Y -- BASIC

30. Short Answer: What is the decimal number equivalent of the hexadecimal number "AB"?

ANSWER: 171

31. Multiple Choice: Modular programming relates to the use of which of the following:

- w) Data files
- x) Subroutines
- y) Conditional IF statements
- z) Do loops

ANSWER: X – SUBROUTINES

32. Multiple Choice: Which inherent intrinsic property is common to both C++ and C?

- w) polymorphism
- x) inheritance
- y) classes
- z) structures

ANSWER: Z -- STRUCTURES

33. Short Answer: The term used to indicate, in bits per second, the transmission speed of a modem is?

ANSWER: BAUD

34. Multiple Choice: An eight bit byte is capable of representing how many different characters?

- w) 64
- x) 128
- y) 256
- z) 512

ANSWER: Y -- 256

35. Multiple Choice: The language that is the lowest level is:

- w) assembly
- x) high-level
- y) machine
- z) application generator

ANSWER: Y -- MACHINE

36. Multiple Choice: The person credited with designing the Harvard Mark I Computer is:

- w) Aiken
- x) Atanasoff
- y) Eckert
- z) Mauchly

ANSWER: W – AIKEN

37. Multiple Choice: Which of the following transmission directions listed is not a legitimate channel?

- w) full duplex
- x) double-duplex
- y) half-duplex
- z) simplex

ANSWER: X -- DOUBLE-DUPLEX

38. Short Answer: What programming language was named after the first programmer?

ANSWER: ADA (AFTER ADA LOVELACE)

39. Multiple Choice: How many color dots make up one color pixel on a screen?

- w) 256
- x) 16
- y) 3
- z) 1

ANSWER: Y -- 3

40. Short Answer: What is the value fourteen in Base 10 equal to in Base 16?

ANSWER: E

41. Multiple Choice: Which of the following is not a PASCAL data type?

- w) float
- x) integer
- y) char
- z) real

ANSWER: W -- FLOAT

42. Short Answer: How many columns did the Hollerith Punch card have?

ANSWER: 80

43. Multiple Choice: OS/2 is

- w) single-user, single tasking
- x) multi-user, single tasking
- y) multi-user, multitasking
- z) single-user, multitasking

ANSWER: Z -- SINGLE-USER, MULTITASKING

44. Multiple Choice: In BASIC programming "text" characters are contained in what kind of variable?

- w) Hyper
- x) Fixed
- y) String
- z) Nodal

ANSWER: Y -- STRING

45. Multiple Choice: "Parity bits" are used for which of the following purposes?

- w) Encryption of data.
- x) To transmit faster.
- y) To detect errors.
- z) To identify the user.

ANSWER: Y -- TO DETECT ERRORS



46. Multiple Choice: An electrical pathway within a computer is called:

- w) circuit
- x) line
- y) bus
- z) track

ANSWER: Y – BUS

47. Multiple Choice: Substances in the read heads of computer disk drives use a property known as magnetoresistance to access a floppy disk. A new class of magnetoresistant substances has been made from

- w) uranium and lead
- x) aluminum and iron
- y) copper and barium
- z) silver and cobalt

ANSWER: Z -- SILVER AND COBALT

48. Multiple Choice: Which computer pioneer was also a Rear Admiral of the U.S. Navy?

- w) Steve Jobs
- x) John Backus
- y) John von Neumann
- z) Grace Hopper

ANSWER: Z -- GRACE HOPPER

49. Short Answer: This seventeenth century scientist, mathematician and philosopher is credited with having built the first adding machine; a programming language is also named after him. What is his name?

ANSWER: (BLAISE) PASCAL

50. Multiple Choice: How many bits are sent when using the synchronous transmission mode if your character being transmitted is 8 bits long?

- w) 3
- x) 8
- y) 10
- z) 12

ANSWER: X – 8

51. Multiple Choice: Electronic wire connector cables can be of two types, Serial and ?

- w) Duplexed
- x) Parallel
- y) Linking
- z) Expanded

ANSWER: X -- PARALLEL

52. Multiple Choice: One of the things that separates a "Terminal" from a "PC" is that the terminal does not have a what?

- w) Keyboard
- x) Monitor
- y) Power cord
- z) CPU

ANSWER: Z -- CPU

53. Multiple Choice: The "First Generation" of computers used?

- w) Gears
- x) Vacuum Tubes
- y) Transistors
- z) No Electricity, Mechanical

ANSWER: X -- VACUUM TUBES

54. Short Answer: In communications an extra bit is added to each byte to aid in checking data for accuracy. This bit is known as what?

ANSWER: PARITY

55. Short Answer: What does the acronym GIGO mean?

ANSWER: GARBAGE IN, GARBAGE OUT

56. Multiple Choice: Data is stored on diskettes in what form?

- w) ink
- x) laser bubbles
- y) magnetism
- z) circuits

ANSWER: Y – MAGNETISM

57. Multiple Choice: The smallest visual element on a video monitor is called what?

- w) Character
- x) Pixel
- y) Byte
- z) Kwerk

ANSWER: X -- PIXEL

58. Multiple Choice: In the language BASIC, which statement allows comments, annotations or notes?

- w) GOSUB
- x) DATA
- y) REM
- z) READ

ANSWER: Y -- REM

59. Multiple Choice: The first general-purpose commercially available computer system was called?

- w) HAL
- x) UNIVAC I
- y) ENIAC
- z) MARK I

ANSWER: X -- UNIVAC I

60. Multiple Choice: In computer science what does the acronym JCL stand for?

- w) Justified Computer Language
- x) Justified Complete Language
- y) Job Computerized Language
- z) Job Control Language

ANSWER: Z -- JOB CONTROL LANGUAGE

61. Multiple Choice: A Field is a related group of

- w) Records
- x) Files
- y) Characters
- z) Cables

ANSWER: Y – CHARACTERS

62. Multiple Choice: In DOS, what command allows a ASCII file to be viewed?

- w) TYPE
- x) SHOW
- y) DISPLAY
- z) VIEW

ANSWER: W -- TYPE

63. Short Answer: LOTUS 1-2-3, QUATTRO PRO and EXCEL are examples of what type of software?

ANSWER: SPREADSHEETS

64. Multiple Choice: The type of data storage that is considered to be non-volatile is?

- w) R-O-M
- x) R-A-M
- y) TAPE
- z) DISK

ANSWER: W -- R-O-M

65. Multiple Choice: The first generation of computers used vacuum tubes to perform digital switching. What electronic device replaced the vacuum tube and greatly improved the dependability of computing machines?

- w) Integrated Circuit
- x) Diode
- y) Transistor
- z) Relay

ANSWER: Y -- TRANSISTOR

66. Multiple Choice: What computer programming language was developed in the 1970's by AT&T for the purpose of creating the UNIX operating system?

- w) FORTRAN
- x) COBOL
- y) C
- z) ADA

ANSWER: Y -- "C"

67. Multiple Choice: Which of the following is NOT a programming language?

- w) C
- x) Pascal
- y) Babbage
- z) Lisp

ANSWER: Y -- BABBAGE

68. Multiple Choice: The letters UPC stand for:

- w) United Parcel Corporation
- x) Universal Product Code
- y) Universal Price Code
- z) Universal Personal Computer

ANSWER: X -- UNIVERSAL PRODUCT CODE

69. Multiple Choice: There are two symbols used for exponentiation in BASIC programs. One is a caret and the other is:

- w) an asterisk
- x) two asterisks
- y) an ampersand
- z) a backslash

ANSWER: X -- TWO ASTERISKS

70. Short Answer: The following are a set of lines from a BASIC program.  $X = -4$ ;  $X = \text{ABS}(X)$  (read: X equals A-B-S open parenthesis X close parenthesis). What is the value of X?

ANSWER: 4 (ABS means absolute value)

71. Short Answer: You just won the lottery and you want to purchase the most scientifically advanced personal computer system that your money can buy. From each of the following pairs, select the device which would give your system the greatest power or output capabilities.

- w) a hard disk or a floppy disk
- x) EGA or CGA graphics
- y) dot-matrix or laser printer

ANSWER: HARD DISK, EGA, LASER PRINTER

72. Multiple Choice: What natural element is the primary ingredient in computer chips?

- w) silicon
- x) carbon
- y) iron
- z) uranium

ANSWER: W – SILICON

73. Multiple Choice: A prescribed set of well-defined instructions for solving mathematical problems is called

- w) a compiler
- x) a code
- y) a description
- z) an algorithm

ANSWER: Z -- ALGORITHM

74. Multiple Choice: In order to write on a floppy disk with your IBM PC, (Pronounced I B M P Y) you must first

- w) digitize it
- x) format it
- y) compile it
- z) hardware it

ANSWER: X -- FORMAT IT

75. Multiple Choice: An electrical pathway within a computer is called:

- w) buffer
- x) sector
- y) bus
- z) track

ANSWER: Y -- BUS

76. Multiple Choice: When programming in BASIC, which of the following mathematical operations comes last in the order of precedence?

- w) addition
- x) division
- y) exponentiation

ANSWER: W – ADDITION

77. Multiple Choice: The ability of a computer to learn from experience by storing information and applying it to new situations is referred to as

- w) artificial intelligence
- x) automated data processing
- y) asynchronous transmission
- z) encryption

ANSWER: W -- ARTIFICIAL INTELLIGENCE

78. Multiple Choice: When you boot a computer you are

- w) submitting a batch job
- x) debugging a program
- y) loading the operating system
- z) kicking it in frustration

ANSWER: Y -- LOADING THE OPERATING SYSTEM

79. Multiple Choice: Where do you find a write protect notch?

- w) on a computer chip
- x) on a punched card
- y) in a read only memory
- z) on a floppy disk

ANSWER: Z -- ON A FLOPPY DISK

80. Multiple Choice: Some programs allow the computer's video display to be divided into separate areas in order to look at more than one item or portions of an item simultaneously. These are called?

- w) disks
- x) windows
- y) fonts
- z) directories

ANSWER: X – WINDOWS

81. Short Answer: You are programming in BASIC on your PC. You want to see all of your program statements on the CRT. What command do you type? (Pronounced: P C and C R T)

ANSWER: LIST or L (accept "LIST RETURN" or "L RETURN")

82. Short Answer: You are programming in BASIC on your PC. What statement do you use in your program if you want the program to stop so that you can assign a value to a variable.

ANSWER: INPUT (also accept GET or INKEY)

83. Short Answer: What standard procedure in Pascal opens a file for writing?

ANSWER: REWRITE

84. Short Answer: What command in BASIC is used to delete a file from your disk?

ANSWER: KILL

85. Short Answer: What 4-letter command is used in BASIC to resume execution of a program at the point it was interrupted by a STOP or END statement?

ANSWER: CONT

86. Multiple Choice: Which programming language is most commonly used for complex scientific programming?

- w) BASIC
- x) Cobol
- y) Fortran
- z) R-P-G

ANSWER: Y – FORTRAN

87. Multiple Choice: The smallest unit of information is

- w) a byte (Pronounced: bite)
- x) a bit
- y) a nibble
- z) a block

ANSWER: X -- A BIT

88. Multiple Choice: Which of the following is not usually considered a high level programming language?

- w) BASIC
- x) PL/1 (Pronounced: "P L 1")
- y) PASCAL (Pronounced: pas kal')
- z) machine language

ANSWER: Z -- MACHINE LANGUAGE



89. Multiple Choice: A program that enables you to perform calculations involving rows and columns of numbers is called a

- w) spreadsheet program
- x) word processor
- y) graphics package
- z) window

ANSWER: W -- SPREADSHEET PROGRAM

90. Multiple Choice: Which of the following is NOT characteristic of the first generation of computers?

- w) vacuum tubes
- x) integrated circuits
- y) magnetic drums
- z) punched cards

ANSWER: X -- INTEGRATED CIRCUITS

91. Short Answer: One language commonly used in computer programming is BASIC. What does the acronym BASIC stand for?

ANSWER: BEGINNER'S ALL-PURPOSE SYMBOLIC INSTRUCTION CODE

92. Multiple Choice: Which of the following is NOT one of the internal components of a CPU?

- w) control - sequencer
- x) M-D-R
- y) M-A-R
- z) floppy disk

ANSWER: Z -- FLOPPY DISK

93. Short Answer: What is the name of the base 16 number system?

ANSWER: HEXADECIMAL

94. Short Answer: Third generation computers replaced transistors with what?

ANSWER: INTEGRATED CIRCUITS or IC's or CHIPS

95. Short Answer: Mathematical operations commonly encountered in programming are: addition, multiplication, and exponentiation. When programming in BASIC, which of these operations takes precedence?

ANSWER: EXPONENTIATION

96. Multiple Choice: Which of the following does NOT belong?

- w) printer
- x) plotter
- y) monitor
- z) keyboard

ANSWER: Z -- KEYBOARD (Keyboard is input, others are output devices)

97. Short Answer: Computers are playing a major role in today's communication revolution. What is the technological field involved in the control and intercommunication of information handling machines, the nervous systems of animals and man in order to improve communication?

ANSWER: CYBERNETICS

98. Short Answer: What reserved word in Pascal is used to define constants?

ANSWER: CONST

99. Multiple Choice: Which of the following is NOT characteristic of the second generation of operating systems of the early 1960's:

- w) real time computing
- x) multiprogramming
- y) multiprocessing
- z) networking

ANSWER: Z -- NETWORKING

100. Short Answer: What does the acronym C-A-M refer to?

ANSWER: COMPUTER AIDED (OR ASSISTED) MANUFACTURING