

COMPUTER SCIENCE HSST (Sr/Jr) - 2011

98/2011

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Which of the following proposition is a tautology?
(A) $p \vee q \rightarrow p$ (B) $p \rightarrow (q \rightarrow p)$
(C) $p \vee (q \rightarrow p)$ (D) none of these
2. $p \rightarrow q \rightarrow r$ is equivalent to :
(A) $p \rightarrow q \rightarrow r$ (B) $p \rightarrow (q \rightarrow r)$
(C) $p \vee (q \rightarrow r)$ (D) none of these
3. Why do we go for Normalization of Data Bases?
(A) To avoid the repetitions (B) To prevent fragmentation
(C) Avoid redundancy (D) To prevent replication
4. Name the component carrying the ALU and Control Unit in Digital Computer :
(A) Microprocessors (B) Nano chips
(C) MEMS (D) Hybrid Computer
5. Give the name of the Linear list in which elements can be added at ends but not in the middle :
(A) Array (B) Queue,
(C) Tree (D) Circular Queue
6. The switching devices used in First Generation computer's were :
(A) Transistors (B) SSI chips
(C) VLSI chips (D) Vacuum Tubes.
7. The Automaton accepting the regular expression of any number of a 's is :
(A) a^* (B) ab^*
(C) $(a/b)^*$ (D) $a^*b^*c^*$

8. Flip-flop is the basic structure of the device :
- (A) Hard disk (B) Memory
(C) Cells (D) Speakers
9. In C language data type of "3" is :
- (A) an integer (B) a word
(C) a character (D) a digit
10. If every node "a" in a graph G is adjacent to every node "b" in G, then the graph is :
- (A) Isolated graph (B) Connected graph
(C) Eulerian graph (D) Complete graph
11. In C language an user defined header is identified by the inclusion :
- (A) # include "test.h" (B) # include <test.h>
(C) include "test.h" (D) none of these
12. Number of locations that could be addressed by a microprocessor with 12 address lines is
- (A) 1024 (B) 64K
(C) 4096 (D) 2048
13. Number of bit width of any memory chip is :
- (A) 16 (B) 64
(C) 32 (D) 8
14. The command that lists the last few lines from a file named "file" :
- (A) tail file (B) end file
(C) grep file (D) cat file - last25
15. The percentage of time that a computer system is not available for use is :
- (A) down time (B) seek time ,
(C) delay time (D) access time

16. By the thread of the same process, sharing is not allowed in :
- (A) queue (B) message
(C) stack (D) address space
17. How to declare an interface class in C++ ?
- (A) by declare all methods pure virtual in a class
(B) make all methods abstract in a class
(C) declare the class as interface
(D) none of the above three
18. Which device translates between data formats?
- (A) Hub (B) Switch
(C) Bridge (D) Gateways
19. If a relation is in BCNF then it is in :
- (A) 2 NF (B) 3 NF
(C) 1 NF (D) 1 NF and 2 NF
20. Minimum Hamming distance method is used for correction of :
- (A) syntactic errors (B) semantic errors
(C) algorithmic errors (D) programming errors
21. Full Binary tree with n leaves contain :
- (A) n nodes (B) $2n - 1$ nodes
(C) $n - 1$ nodes (D) $\log n$ nodes
22. Which is not possible in a thread?
- (A) Ready (B) Wait
(C) Suspended (D) Running
23. The Margin of a word document can be displayed on the horizontal or vertical ruler with the mouse and the :
- (A) FONT SIZE button (B) ALT key
(C) DELETE key (D) CTRL key

24. The 2's complement of the binary value 10 is :
- (A) 10 (B) 11
(C) 01 (D) 110
25. The property that the OOPs will permit the same operation to be carried out differently, based on the object is :
- (A) inheritance (B) polymorphism
(C) function overloading (D) data abstraction
26. The IP address 127.0.0.1 is named as :
- (A) Loopback address (B) IP address in a standard network
(C) LAN server address (D) Default router address
27. The Virtual Memory is located logically :
- (A) in the CPU (B) in main Memory
(C) in between CPU and primary memory (D) in the Hard disk
28. The Banker's algorithm in resource allocation deals with :
- (A) Dead lock prevention (B) Dead lock recovery
(C) Dead lock avoidance (D) Mutual exclusion
29. Thrashing occurs in :
- (A) large computers
(B) a natural consequence of the virtual memory system
(C) can always be avoided by swapping
(D) poor paging algorithm
30. Compilers can identify :
- (A) syntax errors (B) semantic errors
(C) logical errors (D) mathematical errors
31. What was the first Scientific Computer Programming Language?
- (A) COBOL (B) LISP
(C) ADA (D) FORTRAN

32. Which is the first Object Oriented Language?
- (A) ADA (B) COBOL
(C) LISP (D) FORTRAN
33. Producer consumer problem is example for application of :
- (A) Monitors
(B) For Monitors, Semaphores and Event counters
(C) Semaphores
(D) Event counters
34. What was the data transmission method in which bi-directional data flow is allowed?
- (A) Simplex (B) Duplex
(C) Analog (D) Single side mode
35. Yahoo was developed by :
- (A) Dennis Ritchie and Ken Thompson (B) Vint Cerf and Robert Kahn
(C) David Filo and Jerry Yang (D) Steve Case and Jeff Bezos
36. Resolution of Video display unit does not depend on :
- (A) Raster scan rate (B) Band width
(C) Vertical and horizontal Scans (D) Screen size
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38. The true statement for parallel transmission is :
- (A) simultaneous transmission of all bits (B) speed is specified in bps
(C) slower than serial (D) micro computers use this
39. Gray code for the decimal number 7 is :
- (A) 0111 (B) 0100
(C) 0101 (D) 1011

40. Evaluate the pre-fix expression $-\ast 63-41$ will result in :
- (A) 25 (B) 23
(C) 15 (D) 12
41. Error correction in the data link layer is achieved by :
- (A) Equalization (B) Cyclic redundancy codes
(C) Hamming codes (D) Bit stuffing
42. The system program that set up executable program in RAM, ready for execution is :
- (A) Loader (B) Linker
(C) Linkage editor (D) Compiler
43. File transfer protocol that uses UDP is :
- (A) FTP (B) TFTP
(C) TELNET (D) NFS
44. To check the presence of a computer in the network, use the command :
- (A) ping (B) cmd
(C) check (D) ipconfig
45. In cryptology the code STUDYING is written as RUTEXJMH, then the code for OTHER is :
- (A) TOHRE (B) ROHTE
(C) NUGFQ (D) MOTHR
46. The Number of the equivalent relations of the set $\{1,2,3,4\}$ is :
- (A) 4 (B) 15
(C) 16 (D) 24
47. Which of the sets are empty?
- (A) $\{x:x= /x\}$ (B) $\{x:x=x\}$
(C) $\{x:x= /x^2\}$ (D) $\{x:x= /xx\}$

48. In any undirected graph, the sum of the degrees of all nodes is :
- (A) must be even (B) is always ODD
(C) need not be even (D) is twice number of edges
49. An undirected graph is Eulerian if and only if all vertices of G are of the sum of the degrees of all nodes is :
- (A) Same degree (B) ODD degree
(C) Need not be ODD (D) Is twice number of edges
50. An undirected graph G has n vertices $n - 1$ edges then G is :
- (A) Cyclic (B) Addition of edge will make it cyclic
(C) Eulerian (D) Is a Tree
51. Graph having every pair of vertices connected is called :
- (A) Cycle graph (B) Complete graph
(C) Peterson graph (D) Is a Tree
52. The Eigen vectors of a real symmetric matrix corresponding to different Eigen values are :
- (A) Orthogonal matrix (B) Singular matrix
(C) Non-singular matrix (D) Inverse matrix
53. The system of equations $4x + 6y = 8$, $3x + 2y = 1$, $7x + 8y = 9$ has :
- (A) only one solution (B) infinite solutions
(C) two solutions (D) none of these
54. The Eigen values of the square matrix are :
- (A) positive (B) imaginary
(C) real (D) negative
55. The Equations will have :
- (A) no unique solution (B) only one solution
(C) has only two solutions (D) has infinite

56. Which is fastest?
(A) DTL (B) TTL
(C) ECL (D) CMOS
57. Which is commutative but not associative?
(A) NOT (B) NOR
(C) XOR (D) NAND
58. Which is Universal gate?
(A) AND (B) NOR
(C) XOR (D) NOT
59. How many NAND gates are needed to perform $X \cdot Y$?
(A) 3 (B) 4
(C) 2 (D) 1
60. Which is non-volatile?
(A) RAM (B) PROM
(C) EPROM (D) ROM
61. Which is the access method to take data from tape memory?
(A) Direct (B) Sequential
(C) Parallel (D) Serial
62. The cycle time for a memory system is :
(A) access time (B) longer than access time
(C) less than access time (D) sub multiple of access time
63. How many RAM chips are needed to generate the (256K X 1 bit)?
(A) 8 (B) 12
(C) 32 (D) 64
64. T flip-flops are generally used for :
(A) counter (B) delay switch
(C) counter and frequency divider (D) decoder

65. Register used as working area in CPU is :
(A) Program counter (B) Stack
(C) Instruction register (D) Accumulator
66. A microprocessor can be :
(A) Programmable (B) Non Programmable
(C) Micro-programmable (D) All of the above
67. Which is 16 bit microprocessor?
(A) Z 80 (B) Motorola 6800
(C) Intel 8086 (D) Intel 80486
68. "n" flip-flops will divide the frequency into a factor of :
(A) n (B) 1/n
(C) 2 to the power of 'n' (D) log(n)
69. 8 2 4 1 is the :
(A) BCD code (B) Gray code
(C) Excess -3 code (D) ASCII code
70. (1001000010011001) base 2; equivalent in base 16 is :
(A) 9899 (B) 9989
(C) 8999 (D) 9999
71. Which is a programmable interval timer?
(A) 8253 (B) NE 555
(C) 8275 (D) 8251
72. Negative number cannot be represented in :
(A) Signed magnitude form (B) 1's complement form
(C) 2's complement form (D) None of the above forms
73. Which of the following interrupt is both level and edge sensitive?
(A) RST 5.5 (B) INTER
(C) TRAP (D) RST 7.5

74. What is a BUFFER?

- (A) Convert input data to output
- (B) CPU stores program counter
- (C) An Interphase between CPU and peripheral
- (D) Convert program to EXE form

75. By default any real number in C is represented as :

- (A) a float
- (B) a double
- (C) a long double
- (D) long float

76. Integer division in "C" program results in :

- (A) Truncation
- (B) Rounding
- (C) Overflow
- (D) None of above

77. The function *sprintf()* works like *printf()*, but operates on :

- (A) data in a file
- (B) stderr
- (C) stdin
- (D) string

78. The function *exit()* causes an exit from :

- (A) from loop
- (B) from the block
- (C) from the function
- (D) from program

79. The complexity of linear search algorithm of an array of n elements is :

- (A) $O \log(n)$
- (B) $O(n)$
- (C) $O n \log(n)$
- (D) $O(n \times n)$

80. How many elements can array $A(-1..m, 1..m)$ have?

- (A) $m \times m$
- (B) $(m + 1)(m + 1)$
- (C) $m \times (m - 1)$
- (D) $(m - n) \times n$

81. Which is useful to implement quick sort?

- (A) List
- (B) Set
- (C) Stack
- (D) Queue

82. Recursively enumerable languages are closed under :
- (A) Union (B) Intersection
(C) Complementation (D) Concatenation
83. The Grammar that produce more than one Parse tree for same sentence is :
- (A) Ambiguous (B) Unambiguous
(C) Complementation (D) Concatenation Intersection
84. The number of the external states of a Turing Machine should be atleast :
- (A) 1 (B) 2
(C) 3 (D) 4
85. Give name of the database in the general model of a compiler :
- (A) Literal table (B) Terminal table
(C) SYMTAB (D) Productions
86. A file is :
- (A) an abstract data type. (B) logical storage unit
(C) usually non volatile (D) volatile
87. What property of the files prevent sharing of files and directories?
- (A) Tree structure (B) One level structure
(C) Two level structure (D) Length
88. E-R modeling technique is :
- (A) Tree structure (B) Top-down method
(C) Bottom-up method (D) Right-left approach
89. Data items stored as grouped items is :
- (A) Record (B) List
(C) Strings (D) Title list
90. Data items are fragmented, replicated and propagated in :
- (A) DBMS (B) RDBMS
(C) DDBMS (D) DML
91. In data manipulation the first element of T[5] is :
- (A) T[1] (B) T[0]
(C) T[5] (D) T[3]

92. Processed data is called :
- (A) Data base (B) File
(C) Information (D) Sample
93. Which factor of coding is most important?
- (A) Productivity (B) Cost
(C) Readability (D) Less memory usage
94. Main container for <TR>, <TD> and <TH> is :
- (A) <TABLE> (B) <GROUP>
(C) <DATA> (D) <CAPTION>
95. Which of the following is the non-polling system?
- (A) Stop and wait (B) Daisy chain
(C) DMA (D) TDMA
96. What is the working Principle of a Digital Computer?
- (A) De Morgan's Principle (B) Len's Principle
(C) Von Neumann's Principle (D) Euler's Principle
97. Give the unique name of the combination of Analog and Digital computer :
- (A) Cray XMP 120 Computer (B) Param 2000 Computer
(C) IBM 320 Computer (D) Hybrid Computer
98. Why RAM is kept near to the Processor in a Digital Computer?
- (A) Reduce the cost (B) Get maximum speed
(C) To minimize the memory access time (D) Increase frequency
99. Who designed the First Digital computer using the Binary system?
- (A) Blaise Pascal (B) Agutha Ada
(C) Isaac Newton (D) Dr. Sakunthala Devi
100. Give the name of the first Operating system for Personal Computers :
- (A) Linux (B) Windows 3.2
(C) CP/M (D) Disk operating system