## 132/2023

Maximum : 100 marks
Time : 1 hour and 30 minutes

1. Which of the following is not true?
(A) Sum of all the elements in a symmetric matrix is zero
(B) If $A$ is a skew symmetric matrix, then $A^{2}$ is a symmetric matrix
(C) Determinant of a skew symmetric matrix of odd order is always non zero
(D) If $A$ is a skew symmetric matrix of order $n$, then $\operatorname{det}\left(A^{T}\right)=(-1)^{n} \operatorname{det}(A)$
2. The system of equations $x-2 y+3 z=17,2 x+y+2 z=6,2 x-4 y+6 z=34$ has :
(A) Unique solution
(B) No solution
(C) Infinite number of solutions
(D) None of these
3. $f(x)=5 x^{3}+2 x^{2}-3 x$. Consider the statements :
(i) $\quad f(x)$ has a local maximum at $x=\frac{3}{5}$
(ii) $f(x)$ has a local minimum at $x=\frac{-1}{3}$
(iii) $f(x)$ has a local maximum at $x=\frac{-3}{5}$
(iv) $f(x)$ has a local minimum at $x=\frac{1}{3}$. Then
(A) (i) and (iv) are true
(B) (ii) and (iii) are true
(C) (i) and (ii) are true
(D) (iii) and (iv) are true
4. Equation of tangent to a curve at $(2,3)$ is $2 x+3 y=13$. The equation of normal at $(2,3)$ is :
(A) $3 x-2 y=0$
(B) $3 x-2 y=13$
(C) $2 x-3 y=0$
(D) $2 x-3 y=13$
5. $\lim _{x \rightarrow 0} \frac{\log (1-x)+\cos x}{x^{2}}=$
(A) 0
(B) $\frac{1}{2}$
(C) $\frac{-1}{2}$
(D) -1

A
6. Sum of coefficient in the expansion of $\left(1-3 x+2 x^{3}\right)^{512}$ is :
(A) 0
(B) $2^{512}$
(C) -1
(D) $\quad-2$
7. $2 i \sec \theta+\tan \theta=\sqrt{2}$, where $i^{2}=-1$. What is the value of $\sec \theta+2 i \tan \theta$ ?
(A) $2 \sqrt{2}$
(B) $+\sqrt{7}$
(C) 0
(D) $\sqrt{2} i$
8. The value of $\int_{0}^{1} x(1+x)^{99} d x$ is :
(A) $\frac{-1}{10100}$
(B) $\frac{11}{10100}$
(C) $\frac{1}{10010}$
(D) $\frac{1}{11100}$
9. Area bounded by the curve $y=\sin x$ between $x=0$ and $x=2 \pi$ and $x$-axis is :
(A) 0 sq. units
(B) 2 sq. units
(C) $\frac{3}{2}$ sq. units
(D) 4 sq. units
10. Angle between the straight lines $2 x-y+3=0$ and $x+2 y+3=0$ is :
(A) $90^{\circ}$
(B) $60^{\circ}$
(C) $45^{\circ}$
(D) $30^{\circ}$
11. A projected stone which is provided to serve as a support for trusses and beams is known as :
(A) Lintel
(B) Sill
(C) Cornice
(D) Corbel
12. The angle of intersection of two plane mirrors of an optical square is :
(A) $45^{\circ}$
(B) $90^{\circ}$
(C) $30^{\circ}$
(D) $22 \frac{1}{2}^{\circ}$
13. The Bulking of sand caused due to :
(A) Air voids
(B) Surface moisture
(C) Viscosity
(D) All of above
14. The sensitivity of bubble tube can be increased :
(A) viscosity of liquid is greater
(B) increasing the diameter of tube
(C) surface tension of the liquid is greater
(D) decrease the length of tube
15. The axis about which the lower and upper plates of a theodolite rotate is called :
(A) Trunnion axis
(B) Horizontal axis
(C) Vertical axis
(D) Level tube axis
16. Gudgeon pin connects :
(A) Crank and connecting rod
(B) Piston and connecting rod
(C) Crank and crank shaft
(D) None of the above
17. For multi cylinder engines:
(A) Lighter fly wheels are used
(B) Heavier fly wheels are used
(C) Number of cylinders does not affect
(D) None of the above
18. Which of the following act as a sort of regulating reservoir temporarily in the event of rejection of load by the turbine in hydro electric power plant?
(A) Penstock
(B) Trash rack
(C) Dam
(D) Forebay
19. Select correct statements about economiser used in steam power plants :
(i) It reduces the losses of heat with the flue gases
(ii) It is intended for heating the feed water
(iii) It increases the consumption of fuel
(A) (i) only
(B) (i) and (ii) are correct
(C) (i) and (iii) are correct
(D) (i), (ii) and (iii) are correct
20. Moderators used in nuclear power plant:
(A) Increases number of neutrons released
(B) Increases neutrons speed
(C) Reduces neutrons speed
(D) None of the above
21. A conductor of length 28 meter has a resistance of $0.84 \Omega$. If the area of cross section of the conductor is 2 meter square then its specific resistance is - $\Omega-\mathrm{m}$ :
(A) $4.7 \times 10^{-8}$
(B) $6 \times 10^{-8}$
(C) $12 \times 10^{-8}$
(D) $0.06 \times 10^{-8}$
22. The board of trade unit (BOT) represents :
(A) kWh
(B) KW
(C) KVAR
(D) KVA
23. Which of the following statement is / are correct about a Parallel Circuit?
(i) Different branch resistors have their individual currents.
(ii) The branch currents and conductance are additive.
(iii) Same voltage and current acts across all branches of the circuit.
(A) Only (i)
(B) Only (i) and (ii)
(C) Only (iii)
(D) All of the above (i), (ii) and (iii)
24. If a capacitor is connected across a 100 V dc supply for 0.2 sec with a steady current of 0.3 A , then its capacity is - Micro farad and charge is $\qquad$ Coulomb.
(A) 6000 and 0.006
(B) 60 and 0.006
(C) 0.06 and 60
(D) 600 and 0.06
25. The ratio of effective value to mean value of an alternating wave is called :
(A) Form factor
(B) Peak factor
(C) Amplitude factor
(D) Both (B) and (C)
26. Voltage across the non-conducting diode in a bridge rectifier is $\qquad$ where 6 V is the peak value of the input voltage.
(A) $0 V$
(B) 6 V
(C) 12 V
(D) None of the above
27. Function of relay is to :
(A) Break the fault current
(B) Sense the fault only
(C) Sense the fault and actuate the trip signal to CB
(D) None of the above
28. Statement which is not applicable to microcontroller :
(A) It is a general purpose digital computer
(B) It has internal RAM and ROM
(C) It has parallel and series I/O
(D) It has timer
29. Pick the statement which does not satisfy for GSM :
(A) Is less secure
(B) Operates on spread spectrum technique
(C) Uses SIM card
(D) Uses TDMA technique
30. UPS requires :
(A) Only rectifier
(B) Only inverter
(C) Both inverter and rectifier
(D) None of these
31. The following are pairs of ISO-OSI layers/sub-layers and functionalities in which one of them is incorrect. Identify the incorrect pair :
(A) Medium Access Control, Channel sharing
(B) Data Link Layer, Bit synchronization
(C) Network Layer, Routing
(D) Transport Layer, End-to-End process communication
32. A sender, which employs Stop and Wait ARQ technique, wants to send 10 packets to a receiver. Assume that the channel is noisy and every $4^{\text {th }}$ packet sent by the sender is lost. How many packets the sender will have to send in total so that the receiver receives all the 10 packets correctly?
(A) 21
(B) 12
(C) 13
(D) 20
33. Consider the message $\mathrm{M}=1010001101$. The cyclic redundancy check (CRC) code for this message using the divisor (generator) polynomial $x^{5}+x^{4}+x^{2}+1$ is :
(A) 10101
(B) 01011
(C) 01110
(D) 10110
34. A sender A, which employs Sliding Window protocol, wants to send 64 byte packets to a receiver B. Assume that the Round Trip Time is 80 milliseconds, and the maximum bandwidth of the channel connecting A and B is 64 kbps . What is the optimal window size that A should use?
(A) 10
(B) 20
(C) 40
(D) 80
35. A sender A sends an $\operatorname{IPv} 4$ packet $D$ to a receiver B. Assume that D reached B without any error. Which of the following header fields of D would have changed during transit?
(i) TTL
(ii) Checksum
(A) (i) only
(B) (ii) only
(C) Both (i) and (ii)
(D) None of these
36. Two computers A and B have IPv4 addresses 10.14.2.115 and 10.14.2.90 respectively. Which of the following should not be used as a subnet mask for both, if both A and B should belong to the same subnet?
(A) 255.255 .255 .0
(B) 255.255 .255 .128
(C) $\quad 255.255 .255 .192$
(D) $\quad 255.255 .255 .224$
37. Identify the correct sequence in which the following packets are transmitted on the network by a host when a browser requests a webpage from a remote server, assuming that the host has just been restarted :
(A) DNS query, HTTP GET, TCP SYN
(B) DNS query, TCP SYN, HTTP GET
(C) HTTP GET, DNS query, TCP SYN
(D) TCP SYN, DNS query, HTTP GET
38. Consider the following two statements :

S1 : Destination MAC address of an ARP reply message is a broadcast address.
S2 : Destination MAC address of an ARP request message is a broadcast address.
Which one of the following is correct?
(A) Both S 1 and S 2 are false
(B) S 1 is false and S 2 is true
(C) S 1 is true and S 2 is false
(D) Both S1 and S2 are true
39. Consider the two well-known hard problems :
"Factorization Problem" (FP) and "Discrete Logarithm Problem" (DLP). The Security of RSA cryptosystem is $\qquad$
(A) Lost when FP has a polynomial time solution but is not affected when DLP has a polynomial time solution
(B) Lost when DLP has a polynomial time solution but is not affected when FP has a polynomial time solution
(C) Lost when either FP or DLP has a polynomial time solution
(D) Lost only when both FP and DLP have polynomial time solutions
40. Alice digitally signs a message (say, using RSA digital signature scheme) and sends it to Bob. Verification of the signature by Bob requires :
(A) Alice's public key
(B) Bob's public key
(C) Alice's private key
(D) Bob's private key
41. Consider the following two statements :

S1: A MAC provides both integrity and (data origin) authentication.
S2 : A digital signature provides both integrity and (data origin) authentication.
Which one of the following is correct?
(A) Both S1 and S2 are false
(B) $\quad \mathrm{S} 1$ is false and S 2 is true
(C) S1 is true and S2 is false
(D) Both S1 and S2 are true
42. The value of $5^{-1} \bmod 23$ is :
(A) 20
(B) 12
(C) 13
(D) None of these
43. Consider the following two statements :

S1: FDMA has less issues due to signal interference than CDMA.
S2 : FDMA can accommodate more users per unit bandwidth than CDMA.
Which one of the following is correct?
(A) Both S1 and S2 are false
(B) $\quad \mathrm{S} 1$ is false and S 2 is true
(C) S1 is true and S2 is false
(D) Both S1 and S2 are true
44. The types of logical channels supported by the protocol L2CAP of Bluetooth are :
(A) Signalling and Connection-less logical channels only
(B) Signalling and Connection-Oriented logical channels only
(C) Connection-less and Connection oriented logical channels only
(D) Signalling, Connection-less and Connection oriented logical channels
45. In a $J-K$ flip-flop, when $J=1$ and $K=1$, the output toggles continuously between 1 and 0 . This oscillation between 1 and 0 leads to a :
(A) Reset Condition
(B) Race-around Condition
(C) Set Condition
(D) Preset Condition
46. The Boolean expression $(\mathrm{X}+\mathrm{Y})(\mathrm{X}+\mathrm{Z})$ can be simplified as :
(A) $\mathrm{X}+\mathrm{YZ}$
(B) $\mathrm{XY}+\mathrm{YZ}$
(C) $(\mathrm{X}+\mathrm{Y}) \mathrm{Z}$
(D) $(X+Z) Y$
47. Which of the following values is to be considered for a "Don't Care condition"?
(A) 1
(B) 0
(C) Either 1 or 0
(D) None of the above
48. The hexadecimal equivalent of the octal number 675 is :
(A) 1 BD
(B) 2 A 3
(C) 445
(D) None of the above

A
49. The minimum number of D flip-flops needed to construct a modulo- 258 counter is :
(A) 8
(B) 9
(C) 258
(D) 512
50. Which of the following is the corresponding min term when $\mathrm{A}=1, \mathrm{~B}=0, \mathrm{C}=0$ and $\mathrm{D}=1$ ?
(A) $\mathrm{A}+\mathrm{B}^{\prime}+\mathrm{C}^{\prime}+\mathrm{D}$
(B) A'. B.C. D'
(C) $\mathrm{A}^{\prime}+\mathrm{B}+\mathrm{C}+\mathrm{D}$
(D) $\mathrm{A} \cdot \mathrm{B}^{\prime} \cdot \mathrm{C}^{\prime} \cdot \mathrm{D}$
51. A combinational circuit which has a single input, ' $n$ ' selection lines and a maximum of $2^{n}$ outputs is a/an:
(A) Encoder
(B) Multiplexer
(C) Decoder
(D) Demultiplexer
52. A 16-bit address bus can handle a maximum of __ different addresses.
(A) 25622
(B) 65536
(C) 32766
(D) 65652
53. A controller that takes control of the buses and transfers data directly between source and destination bypassing the microprocessor is called :
(A) DMA Controller
(B) Master-Slave Controller
(C) Disk Controller
(D) Read-Write Controller
54. The memory address of the next instruction executed by the microprocessor 8086, when operated in real mode with value in $\mathrm{CS}=1000$ and value in $\mathrm{IP}=\mathrm{E} 000$, is :
(A) 10 E 00
(B) 1 E 000
(C) F000
(D) 1000 E
55. In 8086 assembly language, which of the following is not in the category of reserved words?
(A) directive
(B) operator
(C) label
(D) predefined symbol
56. Identify the addressing mode which is used in the following instruction :

MOV AX, [1562H]
(A) Register addressing mode
(B) Register Indirect addressing mode
(C) Direct addressing mode
(D) Immediate addressing mode
57. In 8255 PPI, which of the following modes takes only port C bits for set or reset?
(A) BSR Mode
(B) Hand Shake I/O Mode
(C) Strobed I/O Mode
(D) Bi-directional Data Bus Mode
58. For the 8279 programmable keyboard/display controller, in the __ mode, the key matrix can be interfaced using either encoded or decoded scans.
(A) Interrupt Mode
(B) Polled Mode
(C) Scanned Keyboard Mode
(D) Scanned Sensor Matrix Mode
59. A RAM chip has a capacity of 1024 words of 8 bits each $(1 \mathrm{~K} \times 8)$. The number of $2 \times 4$ decoders with enable line needed to construct a $16 \mathrm{~K} \times 16 \mathrm{RAM}$ from $1 \mathrm{~K} \times 8 \mathrm{RAM}$ is :
(A) 4
(B) 5
(C) 6
(D) None of the above
60. The reason for performing Register Renaming in pipelined processors is :
(A) It is an alternative to register allocation at compile time
(B) It is done as part of address translation
(C) It is done for efficient access to function parameters and local variables
(D) It is done to eliminate output dependences and antidependences between instructions
61. The performance of pipelined processor is badly affected if :
(A) The pipeline stages have different delays
(B) Consecutive instructions are dependent on each other
(C) The pipeline stages share a single hardware resource
(D) All of the above
62. In an instruction execution pipeline, the earliest that the data TLB (Translation Look a side Buffer) can be accessed is :
(A) before effective address calculation has started
(B) during effective address calculation
(C) after effective address calculation has completed
(D) after data cache lookup has completed
63. Increasing the RAM of a computer typically increases the performance because :
(A) Virtual Memory increases
(B) Fewer Page Faults occur
(C) Larger RAMs are faster
(D) All of the above
64. Consider a direct mapped cache of size 32 KB with block size 32 bytes. The CPU generates 32 bit addresses. The number of bits needed for cache indexing and the number of tag bits are respectively, and -
(A) 10,17
(B) 10,22
(C) 15,17
(D) 15,22

A
65. Consider the following two resource allocation policies (to processes) :

P1: Make a process to release all resources before requesting a new resource.
P2: Make a process to request and get allocated all the required resources before execution.
Which of the policies will lead to deadlock prevention?
(A) Both P1 and P2
(B) P 1 only
(C) P2 only
(D) Neither P1 nor P2
66. In a uniprocessor system, three processes P1, P2, and P3 having overall execution time of 10, 20 and 30 units respectively, arrive at the zeroth instant. Each process spends the first $20 \%$ of the overall execution time doing I/O operations, the next $70 \%$ of time doing computation, and the last $10 \%$ of time doing I/O operations again. The operating system employs Shortest Remaining Time First scheduling algorithm and schedules a new process either when the running process gets blocked due to its I/O operations or when the running process finishes its computing. Assume that all I/O operations of the processes can be overlapped. For what percentage of the total time (from the zeroth instant till all processes finish) does the CPU remain idle?
(A) $0 \%$
(B) $4.26 \%$
(C) $10.64 \%$
(D) $30.03 \%$
67. Which of the following scheduling algorithms is most suitable for a time-sharing operating system?
(A) First Come First Serve
(B) Shortest Job First
(C) Shortest Remaining Time First
(D) Round Robin
68. A process executes the equivalent executable code of the following code:
for $(\mathrm{i}=0 ; 1<\mathrm{n} ; \mathrm{i}++$ ) fork $($;
The number of child processes created which do not further create any child processes is :
(A) $2^{\mathrm{n}}-1$
(B) $2^{\mathrm{n}}$
(C) $2^{\mathrm{n}-1}-1$
(D) $2^{\mathrm{n}-1}$
69. The arrival time and processing time of four processes, in the pattern (Process name, Arrival time, Processing time) are as follows: (P1, 0, 6), (P2, 2, 12), (P3, 8, 8), (P4, 12, 4). Which of the following process scheduling algorithms will give the lowest average turnaround time?
(A) First Come First Serve
(B) Shortest Job First (Without Preemption)
(C) Shortest Remaining Time First
(D) Round Robin with slot size of four time units
70. Belady's anomaly may occur if $\qquad$ page replacement policy is employed.
(A) FIFO
(B) LRU
(C) MRU
(D) Optimal
71. There are three processes in a system. Each requires access to four units of a non-sharable $\mathrm{I} / \mathrm{O}$ device for their computation. What is the minimum number of instances of the I/O device required so that the processes will never face a deadlock?
(A) 4
(B) 10
(C) 12
(D) None of these
72. Consider the following two statements regarding Magnetic Disks with concentric circular tracks :

S1: The highest share of Disk Service Time is contributed by rotational latency.
S2 : All tracks have the same storage capacity.
Which of the following is correct?
(A) Both S 1 and S 2 are false
(B) S 1 is false and S 2 is true
(C) S 1 is true and S 2 is false
(D) Both S1 and S2 are true
73. class Parent $\{$
final public void fun1 () \{
\}
public void fun2 () \{
\}
\}
class Child extends Parent \{
// <overriding instructions>
\}
Which of the functions in the Parent class can be overridden by the Child class?
(A) fun1() only
(B) both fun1 () and fun2 () can be overridden
(C) fun2 () only
(D) no method can be overridden
74. Which of the following statements is true in case of multiple catch blocks in JAVA?
(A) Either of the superclass or subclass can be caught first
(B) The superclass exception must be caught first
(C) The superclass exception cannot be caught first
(D) None of these
75. Which of the following contains only unimplemented methods?
(A) An Child Class
(B) An Interface
(C) An Abstract class
(D) None of these

A
76. Which is/are valid constructor(s) for Thread in JAVA?

1. Thread (Runnable r, String name)
2. Thread ()
3. Thread (int priority)
4. Thread (Runnable r , int priority)
(A) 1 only
(B) 3 and 4
(C) 2 and 4
(D) 1 and 2
5. Consider the following code snippet in JAVA :

String str1 = new String ("Kerala") ;
String str2 = new String ("Kerala") ;
String str3 = "Kerala" ;
String str4 = "Kerala" ;
How many objects are created?
(A) 1
(B) 2
(C) 3
(D) 4
78. What is the time complexity of the algorithm to check whether an edge exists between a given pair of nodes, if the graph is represented as an adjacency list?
(A) $\quad \mathrm{O}(\mathrm{V})$
(B) $\mathrm{O}(\mathrm{E})$
(C) $\mathrm{O}(\mathrm{V}+\mathrm{E})$
(D) $\quad \mathrm{O}\left(\mathrm{V}^{2}\right)$
79.


If the post order traversal of the above graph gives $p q+r s^{*}-$ then the label of the nodes 1,2 , $3,4,5,6,7$ will be :
(A) $-,+, *, p, q, r, s$
(B) $p,+, q,-, r,{ }^{*}, s$
(C) $p, q, r, s,+, *,-$
(D) $+, p, q,-,{ }^{*}, r, s$
80. A priority queue is implemented using a binary max heap. Which of the following is a valid level order traversal of the heap and the content of the heap after two delete operations?
(A) $[35,22,26,23,20,18,24] \&[26,23,20,18,24]$
(B) $[35,24,23,26,20,18,22] \&[24,23,20,18,22]$
(C) $[35,24,26,23,20,18,22] \&[24,23,22,18,20]$
(D) $[35,24,22,23,20,18,26] \&[24,23,22,20,18]$
81. Local variables of a function are stored in :
(A) Heap
(B) Stack
(C) Free Memory
(D) Registers
82.


Which is the correct DFS search sequence of the above graph if the search starts from node 5 and reverse lexicographic ordering of the adjacent vertices are chosen for search?
(A) $5,4,3,2,1,0$
(B) $5,1,2,3,0,4$
(C) $5,4,2,3,1,0$
(D) $5,4,3,1,2,0$
83. A software project involves execution of FIVE tasks $T_{1}, T_{2}, T_{3}, T_{4}$ and $T_{5}$ each of duration $8,10,13,25$ and 30 hours respectively. The tasks $T_{2}$ and $T_{4}$ can start only after $T_{1}$ is complete. Task $T_{3}$ can start only after $T_{2}$ is complete. Task $T_{5}$ can start only after both $T_{3}$ and $T_{4}$ are complete:
(A) 0
(B) 3
(C) 13
(D) 18
84. What is the primary determinant of selecting activities in each iteration in the Spiral model of software development?
(A) Risk
(B) Iteration size
(C) Cost
(D) Adopted process
85. In a software project COCOMO is used to estimate :
(A) effort and duration based on the size of the software
(B) effort and cost based on the duration of the software
(C) size and duration based on the effort of the software
(D) size, effort and duration based on the cost of the software
86. The measure of the time between observed system failures is :
(A) Probability of Failure on Demand (POFOD)
(B) Rate of Failure Occurrence (ROCOF)
(C) Mean Time to Failure (MTTF)
(D) Availability (AVAIL)
87. Which of the following statement are TRUE about an SQL query?
(i) An SQL query can contain a HAVING clause even if it does not have a GROUP BY clause
(ii) An SQL query can contain a HAVING clause only if it has GROUP BY clause
(iii) All attributes used in the GROUP BY clause must appear in the SELECT clause
(iv) Not all attributes used in the GROUP BY clause need to appear in the SELECT clause
(A) (i) and (iii)
(B) (i) and (iv)
(C) (ii) and (iii)
(D) (ii) and (iv)
88. Consider the schema $R=(A, B, C, D)$ and the dependencies $A \rightarrow B, B \rightarrow C, C \rightarrow D$ and $D \rightarrow A$. Let $R=(R 1$ and $R 2)$ be a decomposition such that $R_{1} \cap R_{2} \neq \varnothing$. The decomposition is :
(A) Not in 2 NF
(B) In 2 NF but not in 3 NF
(C) In 3NF but not in 2 NF
(D) In both 2 NF and 3 NF
89. When a transaction $T_{i}$ requests a data item currently held by $T_{j}, T_{i}$ is allowed to wait only if it has a timestamp larger than that of $T_{j}$ (that is $T_{i}$ is younger than $T_{j}$ ). Otherwise, $T_{j}$ is rolled back. The scheme is :
(A) Wait-die
(B) Wait-wound
(C) Wound-wait
(D) Wait
90. Which of the following is the correct way to register a jdbcOdbcDriver?
(A) jdbc. odbc. JdbcOdbcDriver obj $=$ new sun . jdbc. odbc. JdbcOdbcDriver () ;
(B) odbc. JdbcOdbcDriver obj $=$ new sun . odbc. JdbcOdbcDriver () ;
(C) jdbc. JdbcOdbcDriver obj = new sun.jdbc. JdbcOdbcDriver () ;
(D) jdbc. odbc. JdbcOdbc obj = new sun. jdbc. odbc. JdbcOdbc ();
91. Given the basic ER and relational models, which of the following is correct?
(A) An attribute of an entity can have only one value
(B) An attribute of an entity cannot be composite
(C) In a row of a relational table, an attribute can have more than one value
(D) In a row of a relational table, an attribute can have exactly one value or a NULL value
92. If a join operation J1 preserves those tuples which might get lost in join operation J2 :
(A) J1 is Natural Join and J2 is Outer Join
(B) J 1 is Outer Join and J2 is Natural Join
(C) J1 is Left Outer Join and J2 is Right Outer Join
(D) J1 is Left Outer Join and J2 is Natural Join
93. Which of the following file organizations helps in fast retrieval of data?
(A) Sequential
(B) B-Tree
(C) Heap
(D) Hash
94. What is the correct syntax to write an HTML comment?
(A) $/ *$ Comment */
(B) // Comment
(C) <!- - Comment -->
(D) \# Comment
95. Which of these tags is used for embedding CSS in an HTML page?
(A) $<$ css>
(B) <!DOCTYPE css>
(C) <script>
(D) <style>

A
96. What is the correct output for the following JavaScript code snippet?
$\operatorname{var} a=6$
$\operatorname{var} \mathrm{b}=1$
var obj $=\{\mathrm{a}: 50\}$
with (obj)
\{ alert (b)
\}
(A) Error
(B) 1
(C) 50
(D) 6
97. <? php :
\$var1 = 10;
\$var2 = 20;
$\$$ var3 = 1;
if (\$var1 > \$var2 \&\& \$var3|| \$var 3)
print "TRUE";
else
print "FALSE"
?>
(A) No Output
(B) TRUE
(C) FALSE
(D) Syntax Error
98. Which of the following statements is true?
(A) A web cookie is a small piece of data sent from the website and stored in the user's web browser while browsing
(B) A web cookie is a small piece of data sent from the user's browser to the server for session management
(C) A web cookie is a small piece of data shared across the servers managing the website
(D) None of the above
99. The right to use domain names delegated by the domain name registrars are accredited by :
(A) Internet Society (ISOC)
(B) Internet Research Task Force
(C) Either (A) or (B)
(D) Internet Corporation for Assigned Names and Numbers
100. Which port number does FTP use for a data connection?
(A) 20
(B) 21
(C) 22
(D) 23

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