Roll No. | | | | | | | | |

(Write Roll Number from left side exactly as in the Admit Card)

Signature of Invigilator

Question Booklet Series **X**

PAPER–II

Question Booklet No.
(Identical with OMR Answer Sheet Number)

Subject Code : 22

COMPUTER SCIENCE

Time : 2 Hours *Maximum Marks: 200*

Instructions for the Candidates

1. Write your Roll Number in the space provided on the top of this page as well as on the OMR Sheet provided.
2. At the commencement of the examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and verify it:
   (i) To have access to the Question Booklet, tear off the paper seal on the edge of this cover page.
   (ii) Faulty booklet, if detected, should be got replaced immediately by a correct booklet from the invigilator within the period of 5 (five) minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.
   (iii) Verify whether the Question Booklet No. is identical with OMR Answer Sheet No.; if not, the full set is to be replaced.
   (iv) After this verification is over, the Question Booklet Series and Question Booklet Number should be entered on the OMR Sheet.
3. This paper consists of One hundred (100) multiple-choice type questions. All the questions are compulsory. Each question carries *two* marks.
4. Each Question has four alternative responses marked: (A) (B) (C) (D) . You have to darken the circle as indicated below on the correct response against each question.

   Example: (A) (B) ● (D), where (C) is the correct response.
5. Your responses to the questions are to be indicated correctly in the OMR Sheet. If you mark your response at any place other than in the circle in the OMR Sheet, it will not be evaluated.
6. Rough work is to be done at the end of this booklet.
7. If you write your Name, Phone Number or put any mark on any part of the OMR Sheet, except in the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
8. Do not tamper or fold the OMR Sheet in any way. If you do so, your OMR Sheet will not be evaluated.
9. You have to return the Original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry question booklet and duplicate copy of OMR Sheet after completion of examination.
10. **Use only Black Ball point pen.**
11. **Use of any calculator, mobile phone, electronic devices/gadgets etc. is strictly prohibited.**
12. **There is no negative marks for incorrect answer.**

PAPER II

(COMPUTER SCIENCE)

1. Which of the following memories are not possible?

(A) 10 bit address, 12 bit cell size, 1024 cells
(B) 9 bit address, 8 bit cell size, 1024 cells
(C) 11 bit address, 1024 cells
(D) 10 bit address, 8 bit cell size, 1048 cells

2. Parallel algorithms are executed on

(A) SISD system
(B) SIMD system
(C) MIMD system
(D) Both (B) and (C)

3. Let X, Y be two item sets and let Supp (X) denotes the support of item set X. Then, Lift of the rule is denoted by Lift $(X \rightarrow Y)$ is

(A) $\text{Supp}(X) * \text{Supp}(Y) / \text{Supp}(Y)$
(B) $\text{Supp}(X \cup Y) / \text{Supp}(X)$
(C) $\text{Supp}(X \cup Y) / \big(\text{Supp}(X) * \text{Supp}(Y)\big)$
(D) $\text{Supp}(X \cap Y) / \big(\text{Supp}(X) * \text{Supp}(Y)\big)$

4. What is the output of the following prolog program?

X List$\big([\ ], 0\big).$

X List$\big([H / T], S\big) : - X$ List$(T, S1)$

S is $H + S1.$

$? - X$ List$\big([2,3,4], R\big)$↵

(A) $R = 24$
(B) $R = 9$
(C) $R = 1$
(D) $R = 4$

5. The fuzzy relation given by the membership matrix $R = \begin{pmatrix} 1 & 0{\cdot}9 & 0{\cdot}5 \\ 0{\cdot}9 & 1 & 0{\cdot}5 \\ 0{\cdot}5 & 0{\cdot}5 & 1 \end{pmatrix}$ is

(A) reflexive and symmetric but not transitive.
(B) reflexive and transitive but not symmetric.
(C) symmetric but not reflexive and transitive.
(D) reflexive, symmetric and transitive.

6. Suppose a pure paging system generates 32 bit virtual addresses and page size is 128 KB. If each entry in the page map table takes 4 KB, then what will be the maximum size of the page map table?

(A) 64 MB
(B) 128 MB
(C) 256 MB
(D) None of the above

7. A stack organized computer has

(A) 3 Address instruction
(B) 2 Address instruction
(C) 1 Address instruction
(D) 0 Address instruction

8. What will be content of Accumulator (AC) and Carry flag (CY) after executing the following code?

```
XRA A
MVI B, 2AH
SUI 2FH
ANA B.
HLT.
```

(A) AC : 1 CY : 1
(B) AC : 1 CY : 0
(C) AC : 0 CY : 0
(D) None of the above

9. If you want to get a clean version of a stored noisy image, which one of the following may be used?

(A) HOP field network
(B) Simple recurrent network
(C) Linear feed forward network
(D) Multi-layer feed forward network

10. How many users or voice channels are supported for each 200kHz channel in GSM?

(A) Three
(B) Sixty four
(C) Twelve
(D) Eight

11. For time series data analysis, which of the following artificial Neural Network can be used?

(A) Self-Organizing Map
(B) Simple Recurrent Network
(C) HOP Field Network
(D) Multi-layer feed forward Network

12. A DMA controller transfers 64 bit words from an input device to memory in one clock cycle using cycle stealing. Transmission rate of input is 4800 bytes per second. Suppose 3 million instructions per second are fetched and executed by the CPU, the DMA transfer will slowed down by

(A) 0·002%
(B) 0·2%
(C) 0·02%
(D) 2·01%

13. Consider the following 'Student' relation:

Roll No.	Marks
4	55
7	65
8	70
9	80

Assume the following SQL statements were executed successfully:

I. Update student
Set marks = marks + 10

II. Select avg (marks) from student

Then the final output is

(A) 77·5
(B) 77
(C) 78
(D) 79

14. Limitation(s) of Sutherland-Hodgeman polygon clipping algorithm

(A) generates extra edge for convex shape subject polygon.
(B) generates extra edge for concave shape subject polygon.
(C) Both (A) and (B)
(D) Either (A) or (B)

15. Consider the methods used by processes $P1$ and $P2$ for accessing their critical sections whenever needed, as given below. The initial values of shared Boolean variables $S1$ and $S2$ are randomly assigned.

Method used by $P1$

while ($S1 == S2$);

Critical Section

$S1 = S2$;

Method used by $P2$

while ($S1 != S2$);

Critical Section

$S2 =$ not ($S1$);

Which one of the following statements describes the properties achieved?

(A) Mutual exclusion but not progress

(B) Progress but not mutual exclusion

(C) Neither mutual exclusion nor progress

(D) Both mutual exclusion and progress

16. Consider the relation scheme $R = (A, B, C, D, E)$ with the following tuples:

A	B	C	D	E
a_1	b_1	c_1	d_1	e_1
a_2	b_2	c_2	d_2	e_2

The relation R is decomposed into $R_1=(A,B,C)$ and $R_2=(C,D,E)$. Which one of the following about this decomposition is true?

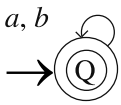
(A) The decomposition is lossless.

(B) The decomposition is lossy.

(C) Decomposition is invalid.

(D) Cannot be said without additional data.

17. Which statement is not correct about the finite automaton M?



Finite automaton M

(A) M accepts a null string.

(B) M does not accept a null string.

(C) M is a DFA.

(D) M accepts all strings over $\{a, b\}$.

18. A page fault occurs when

(A) there is an error in a specific page.

(B) a program accesses a page of main memory.

(C) a program try to access a page not currently in the main memory.

(D) a program accesses a page belonging to another program.

19. What is the output of the following prolog program?

$l([\,], 0).$

$l([H / T], R) :- \; l(T, R1), R \text{ is } R1+1.$

$?- l([1, 2, 3, 2, 1], R)\hookleftarrow$

(A) $R = 9$

(B) $R = 5$

(C) $R = 3$

(D) $R = 1$

20. Generally, any procedure that identifies those portions of a picture that are either inside or outside of a specified region of space is referred to as

(A) Transformation

(B) Rotation

(C) Clipping

(D) Over lapping

21. A relation R (A, B, C, D, E) with the following FDS:

$$A \to BC$$
$$B \to D$$
$$CD - E$$
$$E \to A$$

Then, the highest normal form of R is

(A) 1NF

(B) 2NF

(C) 3NFC

(D) BCNF

22. What is the prefix for an IPV6 Link-local address?

(A) fe80
(B) bbbb
(C) fd00
(D) 101

23. Given the following clauses in the prolog database, what is the value of Result?

Like to Read ("John", "Mathematics")
Like to Read ("John", "Comp.Sc.")
Like to Read ("Bill", "Physics")
Like to Read ("Kate", "Chemistry")
Like to Read ("Bill", X):– ("John", X).
?– Like to Read ("Bill", Result). ↵

(A) Result = Mathematics, Comp. Sc., Physics
(B) Result = Physics
(C) Result = Physics, Mathematics, Comp. Sc.
(D) Mathematics

24. We have a hash function $h(K)=K$ mod 4. The keys 1, 5, 28, 15, 19, 20, 33, 10, 12, 17 are inserted into the hash table where collision resolution is done by chaining. What will be the longest chain?

(A) 1
(B) 2
(C) 3
(D) 4

25. alpha-beta cut-off is used

(A) Agent will always win.
(B) to reduce searching time.
(C) to increase search time.
(D) opponant will always win.

26. The term 'baud' is a measure of the

(A) speed at which data travels over the Communication Lines.
(B) Memory Capacity
(C) Instruction Execution Time
(D) Data load time

27. The Language $L = \sum^*$

(A) is a regular language.
(B) is not a regular language.
(C) may or may not be regular language depending upon $\sum$.
(D) Cannot be said without additional information on $\sum$.

28. DNS can obtain the _____ of a host, if its domain name is known and vice versa.

(A) Station address
(B) IP address
(C) Port address
(D) Checksum

29. If $\neg Q$ and P–> Q is given, then we can infer

(A) Q
(B) P
(C) $\neg P$
(D) $\neg Q$

30. A process executes the code

fork ( );
fork ( );
fork ( );

The total number of child processes created are

(A) 3
(B) 4
(C) 7
(D) 8

31. In Quick sort, which one is used?

(A) Divide-and-Conquer
(B) Dynamic programming
(C) Greedy Algorithms
(D) Branch and Bound

32. In case of nested subroutines the return addresses are stored in

(A) System heap
(B) Special Memory buffer
(C) Processor stack
(D) Registers

33. The number of independent paths through program source code is

(A) Flow of the program
(B) Cyclomatic Complexity
(C) Boundary Value analysis
(D) Equivalence partition

34. The minimum number of page frames that must be allocated to a running process in a virtual memory environment is determined by

(A) the instruction set architecture.
(B) Page Size.
(C) Physical Memory Size.
(D) number of processes in memory.

35. If f and g are convex functions and g is non-decreasing, then

(A) $h(x) = g\left(f(x)\right)$ is convex

(B) $h(x) = g\left(f(x)\right)$ is concave

(C) $g\left(f(x)\right) = h(x)$ is convex

(D) $g\left(f(x)\right) = h(x)$ is concave

36. Consider a 16-way set-associative cache. Data words are 64 bits long, and words are addressed to the half-word. The cache can hold 2 Mbytes of data. Each block holds 16 data words. If physical addresses are 64 bits long, what will be the size of Tag and Index field?

(A) Tag : 49 bits and Index : 10 bits.
(B) Tag : 48 bits and Index : 10 bits.
(C) Tag : 49 bits and Index : 15 bits.
(D) Tag : 49 bits and Index : 15 bits.

37. In DSSS, the signal is recovered using

(A) Low Pass Filtering
(B) High Pass Filtering
(C) Band Pass Filtering
(D) Band Stop Signalling

38. Which of the following ANN uses Supervised Learning?

(A) Simple Recurrent Network (SRN)
(B) Self-Organizing Map (SOFM)
(C) HOP Field Network
(D) All of the above

39. Let $m[0]...m[4]$ be mutexes (binary semaphores) and $P[0]...P[4]$ be processes. Suppose each process $P[i]$ executes the following:

wait $\left(m[i]\right)$; wait $\left(m\left[(i+1)\right] \bmod 4\right)$;
...
release $\left(m[i]\right)$; release $\left(m\left[(i+1) \bmod 4\right]\right)$;

This could cause

(A) Thrashing
(B) Deadlock
(C) Starvation, but not deadlock
(D) Either thrashing or deadlock

40. The five items 1, 2, 3, 4, 5 are pushed into a stack in sequence from 1. The stack is popped three times and each element is inserted in a queue. Then two elements are deleted from the queue and pushed back on the stack. Now one item is popped from the stack. The popped item is

(A) 1
(B) 2
(C) 3
(D) 4

41. The usual BUS structure used to connect the I/O devices is

(A) Star BUS structure
(B) Multiple BUS structure
(C) Single BUS structure
(D) Node to Node BUS structure

42. A finite automaton

(A) cannot accept a null string.

(B) can accept a null string.

(C) can accept a null string if it is an NFA.

(D) can accept a null string if it is a DFA.

43. In case of LP problem, the basic feasible solution remains at optimal

(A) when the coefficients of the objective function do not change.

(B) when all C_j-Z_j values must remain zero.

(C) when the value of the objective function do not change.

(D) all $C_j > 0$.

44. Major difficulties of IoT devices are that they are ____, ____ constraint devices. So, Big data issue is resolved in this type of system by using _____ system.

(A) security, scalebity; Dedicated servers

(B) energy, resource; Cloud

(C) energy, heterogeneity; Fog

(D) Either (A) or (B)

45. Student data in a college is maintained in the following table:

Student (rollno, name, sex, mark, deptname)

Given the following SQL query:

```
Select deptname
from student
where sex = 'F'
group by deptname
having avg (mark) >
            (select avg (mark) from student)
```

The above query returns the names of the department in which

(A) the average mark of female students is greater than the average mark of all students.

(B) the average mark of female students is greater than the average mark of all students in the same department.

(C) the average mark of female students is greater than the average mark of all female students.

(D) the average mark of female is less than that of all students.

46. _____ enables seamless integration of LOWPAN devices with internet leveraging.

(A) IETF 6 LOWPAN

(B) IEFT CoAP

(C) RFID/NFC

(D) IEEE 802·15·4· LOWPAN

47. Let $\theta(X, Y, Z)$ be the statement $(X + Y = Z)$ and let there be two quantifiers

(i) $\forall x \ \forall y \ \exists z \ \theta(x, y, z)$

(ii) $\exists z \ \forall x \ \forall y \ \theta(x, y, z)$

where x, y, z are real numbers.

Then which of the following is correct?

(A) (i) is false and (ii) is false.

(B) (i) is true and (ii) is true.

(C) (i) is false and (ii) is true.

(D) (i) is true and (ii) is false.

48. Fast Fourier Transform (FFT) uses

(A) Divide-and-Conquer

(B) Branch and Bound

(C) Dynamic Programming

(D) All of the above

49. The 'Instruction Fetch' phase ends with

(A) placing the data from the address in MAR into MDR.

(B) placing the address of the data into MAR.

(C) completing the execution of the data and placing its storage address into MAR.

(D) decoding the data in MDR and placing it in IR (Instruction Registrar).

50. Which of the following can be used to train a single layer feed forward network?

(A) Soft Competitive Learning (SCL)

(B) A Genetic Algorithm (GA)

(C) Hard Competitive Learning (HCL)

(D) All of the above

51. In parameter passing mechanisms, call-by-value is also known as

(A) Call-by-copy
(B) Call-by-reference
(C) Call-by-value result
(D) Call-by-name

52. The KB in Expert system contains

(A) both declarative knowledge and procedural knowledge.
(B) earlier knowledge and updated knowledge.
(C) theoretical knowledge and recursive knowledge.
(D) only declarative knowledge.

53. The utility program used to bring the object code into memory for execution is

(A) Loader
(B) Fetcher
(C) Extractor
(D) Linker

54. In exception handling of object-orient programming, the control is passed to the first handler (catch) whose exception declaration signature matches

(A) Try block
(B) Universal handler
(C) The throw exception
(D) All of the above

55. Page fault occurs when

(A) the page is corrupted by application software.
(B) the page is in the main memory.
(C) the page is not in the main memory.
(D) one tries to devide a number by zero

56. Which one of the following is not correct?

(A) 3-SAT is NP-complete
(B) SAT in CNF is NP-complete
(C) Integer programming is NP-complete
(D) All of the above

57. The most important feature of spiral model is

(A) Requirement analysis
(B) Configuration management
(C) Risk management
(D) Quality management

58. Transition networks are based on the application of

(A) acyclic graphs
(B) digraphs
(C) routed graphs
(D) tree structure

59. The maximum degree of any vertex in a simple graph with n vertices is

(A) n
(B) $n+1$
(C) $n-1$
(D) $2n-1$

60. DTD definition is used along with XML to specify

(A) the data types of the contents of XML document.
(B) the front page of XML document.
(C) the links of XML to other documents.
(D) the links of XML document from other documents.

61. Which type of search can go on and on, deeper and deeper in the state space and we may not get a solution?

(A) A*
(B) AO*
(C) DFS
(D) BFS

62. The assembler stores all the names and their corresponding values in

(A) Special Purpose Register
(B) Symbol Table
(C) Value Map Set
(D) Literal table

63. Two finite automata are equivalent if

(A) their character set is the same.
(B) the number of states in them is the same.
(C) their string recognition behaviour is the same.
(D) they contain the same number of states and their character set is the same.

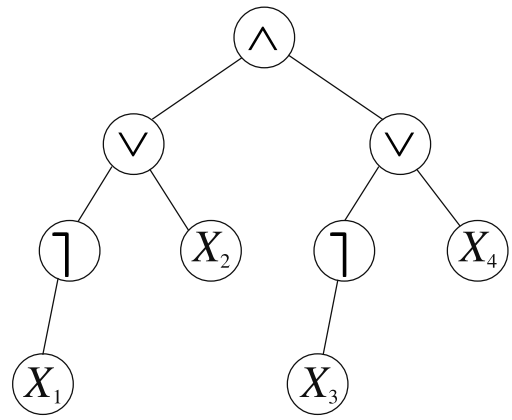
64. In a software requirement specification (SRS) document, which one of the following is *not* desirable?

(A) Non-functional requirements
(B) Functional requirements
(C) Goals of implementations
(D) Proposed algorithm for coding

65. The WC command in Unix is used

(A) to count number of characters in a file.
(B) to count number of characters, words and lines in a file.
(C) to count number of words in a file.
(D) only number of lines.

66. Equivalent formula given by the tree



(A) $(\neg X_1 \vee X_2) \wedge (X_3 \vee X_4)$
(B) $\wedge \vee X_2 \vee X_1 \neg X_3 \neg X_4$
(C) $(X_2 \vee \neg X_1) \wedge (X_3 \vee X_4)$
(D) $\neg X_1 \vee X_2 \wedge \neg X_3 \vee X_4$

67. In IPv6 addresses, addresses starting with eight zeros are called

(A) Unicast addresses
(B) Multicast addresses
(C) Anycast addresses
(D) Reserved addresses

68. The worst case time complexity of Quick sort is _____, where n is the number of elements in the array.

(A) O (log n)
(B) O (n)
(C) O (n log n)
(D) O (n^2)

69. For the basic feasible solution to remain optimal

(A) all C_j-Z_j values must remain zero.

(B) no objective function coefficients are allowed to change.

(C) the value of objective function must not change.

(D) All of the above

70. The student records in a college is maintained in the following relation:

student (rollno, name, sex, mark, deptname)

The underlined attribute represents the key attribute.

Given the following SQL query:

```
select deptname
from student
where sex = 'F'
group by deptname
having avg (mark) >
(select avg(mark)
from student)
```

The above query returns the names of the department in which

(A) the average mark obtained by female students is more than the average mark of all female students.

(B) the average mark obtained by female students is more than the average mark of all students.

(C) the average mark obtained by female students is more than the average mark of all students in the same department.

(D) Both (B) & (C)

71. Frame Relay operates in _____ Layer.

(A) Physical

(B) Data Link

(C) Physical and Data Link

(D) Physical, Data Link and Network

72. The following is an example of precedence grammar:

(A) $B \rightarrow (S) \mid a / b \mid c / d$

(B) $A \rightarrow A \times B \mid A / B \mid B$

(C) $S \rightarrow S + A \mid S - A \mid A$

(D) All of the above

73. The algorithm that will effectively sort an array of numbers that is nearly sorted except the interchange of some adjacent pairs of numbers like $\{6,4,5,2,3,1\}$ —

(A) Quick Sort

(B) Merge Sort

(C) Bubble Sort

(D) Selection Sort

74. Consider $R_1(\underline{A},\underline{B},C,D,E)$ and $R_2(\underline{A},\underline{B},F,G)$ are two relations. The keys are underlined. Which of the following Relational Algebra expressions are equivalent?

I. $\Pi_A(R_1 \bowtie R_2)$

II. $\Pi_A(R_1) \bowtie \Pi_A(R_2)$

III. $\Pi_A(\Pi_{A,B}(R_1) \cap \Pi_{A,B}(R_2))$

IV. $\Pi_A(\Pi_{A,B}(R_1) - (\Pi_{A,B}(R_1) - \Pi_{A,B}(R_2)))$

(A) Only I and II

(B) Only I and III

(C) Only I, II and III

(D) Only I, III and IV

75. The CFL $L = \{a^n b^n \mid n > 0\}$ can be generated by the following CFG:

(A) $S \to ab \mid aSb$

(B) $S \to \varepsilon \mid ab \mid aSb$

(C) $S \to \varepsilon \mid aSb$

(D) All of the above

76. Which two files are used during operation of DBMS?

(A) Data dictionary and transaction Log

(B) Query Language and DML

(C) Query Language and utilites

(D) Data dictionary and query Language

77. To implement a top-down parsar using push down automata (PDA) which one is correct?

(A) The corresponding CFG should be converted to LL(1) grammar.

(B) Left factoring should be removed.

(C) Left recursion should be removed.

(D) All of the above

78. What type of system is normally associated with application services?

(A) Distributed

(B) Peer to Peer

(C) Client-server

(D) Object-oriented

79. Given the following KB of propositional calculus expressions:

$$Q \Rightarrow R$$
$$P \Rightarrow S$$
$$\sim S \wedge \sim R$$

Using Resolution Refutation the value of $\sim P \wedge \sim Q$ is _____.

(A) True

(B) False

(C) Cannot be deduced without additional information

(D) Cannot be deduced at all

80. An operating system uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider the arrival times and execution times for the following processes:

Process	Execution time	Arrival time
P_1	20	0
P_2	25	15
P_3	10	30
P_4	15	45

What is the total waiting time for Process P_2?

(A) 5

(B) 15

(C) 40

(D) 55

81. A box contains 5 Red balls and 5 Green balls. 4 balls are selected at random. What is the probability that two of the selected balls are Red and two are Green?

(A) $\frac{5}{63}$

(B) $\frac{6}{63}$

(C) $\frac{5}{7}$

(D) $\frac{4}{63}$

82. Consider the following relation scheme:

$$R(A,B,C)$$

and $S(D,E,F)$

Given the following relational algebra expression:

$$\Pi_{A,F}\left(\sigma_{C=D}\left(R\times S\right)\right)$$

The equivalent tuple relational calculus for the above expression is

(A) $\{t \mid \exists p \in R \exists q \in S(t[A]=p[A] \wedge t[F]=q[F] \wedge p[C]=q[D]\}$

(B) $\{t \mid \exists p \in R \exists q \in S(t[A]=p[A] \wedge t[F]=p[F] \wedge p[C]=q[D]\}$

(C) $\{t \mid \exists p \in R \exists q \in S(t[A]=p[A] \vee t[F]=q[F] \vee p[C]=q[D]\}$

(D) $\{t \mid \exists p \in R \exists q \in S(t(A)=p(A) \vee t(F)=q(F)\}$

83. The reserved memory or private space of the subroutine gets deallocated when

(A) the stop instruction is executed by the routine.
(B) the pointer reaches the end of the space.
(C) the routine's return statement is executed.
(D) Both (B) and (C)

84. What is needed by K-means Clustering?

(A) Number of clusters
(B) Initial guess to the cluster centroids
(C) Distance metrices
(D) All of the above

85. The production $A \rightarrow Ba$

(A) can be associated with a finite automaton.
(B) cannot be associated with a finite automaton.
(C) can be associated with a DFA only.
(D) can be associated with a NFA only.

86. Consider the following scheduled S consisting of transactions T_1, T_2 and T_3:

T_1	T_2	T_3
Read (A)		
	Write (A)	
Write (A)		Write(A)

Then, S is

(A) view serializable but not conflict serializable.
(B) conflict serializable but not view serializable.
(C) both view and conflict serializable schedule.
(D) neither conflict nor view serializable.

87. The analysis performed to uncover the interesting statistical association between attribute value pairs is known as the _____.

(A) Mining of Association
(B) Mining of Correlations
(C) Mining of Clusters
(D) None of the above

88. In sliding window flow control, if the window size is 63, what is the range of sequence?

(A) 0 to 63
(B) 1 to 63
(C) 0 to 64
(D) 1 to 64

89. A design is said to be a good design if the modules are

(A) strongly coupled.
(B) strongly coupled and strongly cohesive.
(C) strongly coupled and weakly cohesive.
(D) strongly cohesive and weakly coupled.

90. For analog and digital signals, the multiplexing techniques are used. Find the wrong technique used for digital signals.

(A) Frequency Division Multiplexing
(B) Wavelength Division Multiplexing
(C) Time Division Multiplexing
(D) Both (A) and (B)

91. Usually heuristic rules are used in the form of

(A) Query Tree
(B) Query Graph Data Structure
(C) Both (A) and (B)
(D) Either (A) or (B)

92. Which two of these statements are true for IPV6 address representation?

(a) A single interface may be assigned multiple IPV6 addresses of any type.
(b) Every IPV6 interface contains at least one loopback address.
(c) Leading zeros in an IPV6 16 bit hexadecimal field are mandatory.
(d) The first 64 bits represent the dynamically created interface ID.

(A) (c), (d)
(B) (a), (b)
(C) (a), (d)
(D) (b), (c)

93. If (rear = = maxsize –1
rear = 0;
else
rear = rear +1;
is required in

(A) Linear queue
(B) Circular queue
(C) Stack
(D) Dequeue

94. The process of "Smoothing" a noisy time series is done by

(A) mean
(B) moving average
(C) moving sum
(D) None of the above

95. Which of the following is not a recovery technique in Database Management System?

(A) Immediate update
(B) Deferred update
(C) Two-phase commit
(D) Recovery Management

96. Which of the following is a statement after which you cannot issue a COMMIT command?

(A) Insert
(B) Select
(C) Update
(D) Delete

97. Black-box testing is also called

(A) Specification-based testing
(B) Structural testing
(C) Stress testing
(D) Intelligent testing

98. A software company wants to develop a customised software for a client. Let the expected LOC for the software is 36000. The estimated efforts in person-month using basic COCOMO model is

[Given the multiplicative factor is 2·6 and exponential factor is 1·3]

(A) 288·31
(B) 274·26
(C) 942·43
(D) 122·26

99. Consider the following relational instance:

A	B	C
8	1	14
8	1	16
10	2	16
10	2	14
12	4	20
14	5	22

Which of the following functional dependencies hold for the above instance?

I. $B \rightarrow A$

II. $A \rightarrow B$

III. $A \rightarrow C$

IV. $AB \rightarrow C$

V. $C \rightarrow A$

VI. $B \rightarrow C$

(A) I, II, IV

(B) I, II

(C) I, II, VI

(D) I, V, VI

100. The learning which is used to mine the hidden pattern in unlabelled data is called _____ in data mining.

(A) Supervised Learning

(B) Unsupervised Learning

(C) Ensemble Learning

(D) Reinforcement Learning

Space for Rough Work

Space for Rough Work

Space for Rough Work

Space for Rough Work

Space for Rough Work