परीक्षेचे नांव : सहाय्यक प्राध्यापक, संगणकशास्त्र, महाराष्ट्र शिक्षण सेवा परीक्षेचा दिनांक : ९ फेब्रुवारी, २०१४
(महाविद्यालयीन शाखा), गट-अ

महाराष्ट्र लोकसेवा आयोगामार्फत "सहाय्यक प्राध्यापक, संगणकशास्त्र, महाराष्ट्र शिक्षण सेवा, (महाविद्यालयीन शाखा), गट-अ" या परीक्षेच्या प्रश्नपत्रिकेची उत्तरतालिका उमेदवारांच्या माहितीसाठी संकेतस्थळावर प्रसिध्द करण्यात आली आहे. सदर उत्तरतालिकेतील प्रश्न-उत्तरासंबंधी उमेदवारांना निवेदन करावयाचे असल्यास त्यांनी अधिप्रमाणीत स्पष्टीकरण / संदर्भ देऊन तसेच विषय, परीक्षेचे नाव, प्रश्नसंच, प्रश्नक्रमांक यांच्या उल्लेखासह आपले लेखी निवेदन उपसचिव (गोपनीय), महाराष्ट्र लोकसेवा आयोग, बँक ऑफ इंडिया बिल्डींग, ३ रा मजला, हुतात्मा चौक, मुंबई ४०० ००१ या पत्त्यावर टपालाने पाठवावे. यासंदर्भात दिनांक २१ फेब्रुवारी, २०१४ पर्यंत आयोगाकडे प्राप्त झालेल्या निवेदनांचीच दखल घेतली जाईल. तद्नंतर आलेली निवेदने विचारात घेतली जाणार नाहीत, याची कृपया नोंद घ्यावी.

MPSC

Notations:

1. Options shown in green color are correct.
2. Options shown in red color are incorrect.

Group A

Number of optional sections to be attempted: 0, Group Maximum duration : 0, Group Minimum duration : 60, Revisit allowed for view? : No, Revisit allowed for edit? : No, Break time: 0

Assistant Professor Computer Science

Section type : Online, Number of Questions to be attempted:100, Mandatory or Optional: Mandatory

Subsection : 1, Question Shuffling Allowed : Yes

Question id : 1701   Question Type : MCQ
Negative integers are generally stored in

Options :

1. 1's complement form
2. 2's complement form
3. Signed-magnitude form
4. Mantissa-exponent form

Question id : 1702   Question Type : MCQ
Which of the following is a 32-bit microprocessor?

Options :

1. iAPX 432
2. 8085
3. Z800
4. NSC800

Question id : 1703   Question Type : MCQ
If $(100)_{10} = (202)_x$, where x represents the base, then the value of x is

Options :

1. 5
2. 7
3. 8
4. 16

Question id : 1704   Question Type : MCQ

A computer uses a memory unit with 256K words of 32 bits each. A binary instruction code is stored in one word of memory. The instruction has four parts: an indirect bit, an operation code, a register code part to specify one of 64 registers, and an address part. How many bits are there in the operation code part?

Options :

1. 3
2. 5
3. 7
4. 9

Question id : 1705   Question Type : MCQ

In an 8-bit Booth's multiplication algorithm, the largest number of additions that will ever be required is

Options :

1. 2
2. 4
3. 8
4. 16

Question id : 1706   Question Type : MCQ

What will be the bit representation to store -128 using 2's complement form in 1 byte memory space?

Options :

1. 10000000
2. 11000000
3. 10111111
4. 11111111

Question id : 1707   Question Type : MCQ

How many output lines are required for a combinational circuit to multiply two three-bit binary numbers?

Options :

1. 2
2. 4
3. 6
4. 8

Question id : 1708   Question Type : MCQ

How many flip-flops must be complemented in a 10-bit binary ripple counter to reach the next count after 0110111111?

Options :

1. 2
2. 7
3. 8
4. 10

Question id : 1709   Question Type : MCQ

The Boolean expression (W'XZ+XY'Z + WXZ) is equivalent to

Options :

1. X
2. Y
3. XZ
4. YZ

Question id : 1710   Question Type : MCQ

Which of the following binary coding scheme is a self-complement coding scheme?

Options :

1. BCD
2. Excess-3
3. Biquinary
4. EBCDIC

Question id : 1711   Question Type : MCQ

How many RS flip flops is needed to design a counter with the following binary sequence: 0, 1, 3, 2, 6, 4, 5, 7 and repeat?

Options :

1. 8
2. 7
3. 5
4. 3

Question id : 1712   Question Type : MCQ

Which of the followings ensures the "atomicity" of an transaction?

Options :

1. Recovery management component of DBMS
2. Transaction management component of DBMS

3. Concurrency control component of DBMS
4. Security management component of DBMS

Question id : 1713   Question Type : MCQ

Let, R1(A, B, C, D, P) contains 15 tuples and R2(P, X, Y, Z) contains 20 tuples. The degree of the relation

obtained after applying "Natural Join" on R1 and R2 will be:

Options :

1. 8
2. 9
3. 20
4. 300

Question id : 1714   Question Type : MCQ

In relational algebra, the expressions

$$\sigma_C(\pi_A(R)) \text{ and } \pi_A(\sigma_C(R)).$$

Options :

1. always produce the same result
2. produce the same result if R has a primary key
3. are equivalent when A uses attributes only in C
4. are equivalent when C uses attributes only in A

Question id : 1715   Question Type : MCQ

For correct behavior during recovery, undo and redo operations must be

Options :

1. idempotent
2. commutative
3. associative
4. transitive

Question id : 1716   Question Type : MCQ

In SQL 3-valued logic, what is the value of the following expression?

$$(X>Y \text{ OR } X \le Y \text{ OR } Z=3)?$$

Options :

1. TRUE or FALSE, but never UNKNOWN
2. FALSE or UNKNOWN, but never TRUE
3. TRUE or UNKNOWN, but never FALSE
4. TRUE, FALSE, or UNKNOWN

Question id : 1717   Question Type : MCQ

Suppose we have a relation R(A, B, C, D, E) and the Functional Dependencies A→D, B→C, D→E, and CE→B. If we project R (and therefore its FDs) onto schema S(A, B, C), what is true about the key(s) for S?

Options :

1. Only A is a key
2. Only AB is a key
3. Only AB and AC are keys
4. Only AB, AC and BC are keys

Question id : 1718   Question Type : MCQ

In the following, the results of Q1 and Q2 should be taken to be the result of the final SELECT * FROM R. Assume that the schema of relation R is R(x, y).

Q1: UPDATE R SET y = 10 WHERE x = 20;

SELECT * FROM R;

Q2: DELETE FROM R WHERE x = 20;

INSERT INTO R VALUES (20,10);

SELECT * FROM R;

Options :

1. Q1 and Q2 produce the same answer
2. The answer to Q1 is always contained in the answer to Q2
3. The answer to Q2 is always contained in the answer to Q1
4. Q1 and Q2 produce different answers

Question id : 1719   Question Type : MCQ

Which of the following is true about an SQL query?

Options :

1. Every query has a unique representation
2. A natural join operation has to be explicitly stated as an equality predicate over a Cartesian product
3. It cannot support nested queries
4. It can not perform numeric operations in predicates

Question id : 1720   Question Type : MCQ

In two-phase locking protocol

Options :

1. only exclusive locks are available and no record can be shared by two transactions
2. all shared locks have to be released before acquiring exclusive locks
3. all exclusive locks have to be released before acquiring shared locks
4. lock release follows lock acquisition and the two phases cannot overlap

Question id : 1721   Question Type : MCQ
Advantage of indexed allocation method over linked allocation for storing files on disk is due to the fact that

Options :

1. indexed allocation uses less space than linked allocation
2. indexed allocation uses contiguous blocks to store a file
3. linked allocation cannot support insertion into a file
4. indexed allocation is more reliable than linked allocation

Question id : 1722   Question Type : MCQ
In order to store black and white images, black and white pixels are represented in the frame buffer by

Options :

1. 0 and 1, respectively
2. 1 and 0, respectively
3. 1 and -1, respectively
4. -1 and 1, respectively

Question id : 1723   Question Type : MCQ
Which of the following transformation operation can change the shape of an object?

Options :

1. Translation
2. Rotation
3. Reflection
4. Scaling

Question id : 1724   Question Type : MCQ
The coordinates of the origin of a display screen is computed as

Options :

1. (X_{max}, Y_{max})
2. $(X_{max}/2, Y_{max}/2)$
3. $(X_{max}/4, Y_{max}/4)$
4. $(X_{max}-X_{min}, Y_{max}-Y_{min})$

Question id : 1725   Question Type : MCQ
In scaling transformation $x' = xS_x$ and $y' = yS_y$, if the picture is to be enlarged to twice its original size, the values of S_x and S_y will be:

Options :

1. $S_x = 2, S_y = 2$
2. $S_x = 1, S_y = 2$
3. $S_x = 2, S_y = 1$
4. $S_x = 1, S_y = 1$

Question id : 1726   Question Type : MCQ

The elements of a two-dimensional array are stored in

Options :

1. column-major order
2. left-diagonal major order
3. right-diagonal major order
4. row-major order

Question id : 1727   Question Type : MCQ

A static variable is one

Options :

1. which is initialized at the commencement of execution and cannot be changed at run time
2. which is same as an automatic variable but is placed at the head of the program
3. retains its value throughout the life of the program
4. which cannot be initialized

Question id : 1728   Question Type : MCQ

Which of the following programming languages implementation approach is used for C++ ?

Options :

1. Compilation
2. Pure interpretation
3. Hybrid
4. Just-In-Time (JIT) compilation

Question id : 1729   Question Type : MCQ

Which of the following is not a valid reason to separate lexical analysis from syntax analysis?

Options :

1. Simplicity
2. Efficiency
3. Portability
4. Reliability

Question id : 1730   Question Type : MCQ

Program relocation is the process of

Options :

1. resolving external references to symbols
2. modifying addresses used in address sensitive instructions of a program
3. relocating a program to free area in memory
4. loading a program from hard disk to RAM

Question id : 1731   Question Type : MCQ

E-mail id and passwords are the simplest example of

Options :

1. Symmetric and asymmetric keys
2. Root and public keys
3. Public and private keys
4. Asymmetric and private keys

Question id : 1732   Question Type : MCQ

In order to establish a connection, TCP uses a

Options :

1. two-way handshake
2. three-way handshake
3. four-way handshake
4. eight-way handshake

Question id : 1733   Question Type : MCQ

Which of the following allows devices on one network to communicate with devices on another network?

Options :

1. Multiplexer
2. Gateway
3. T-Switch
4. Modem

Question id : 1734   Question Type : MCQ

Attenuation is a kind of transmission impairments which refers to

Options :

1. delay distortion
2. unwanted energy from sources other than the transmitter
3. gain of energy as the signal propagates outward
4. loss of energy as the signal propagates outward

Question id : 1735   Question Type : MCQ

Two machines are on the same subnet if the following parts of each machine's IP address are the same

Options :

1. First one numbers
2. First two numbers
3. First three numbers
4. Last three numbers

Question id : 1736   Question Type : MCQ

Cross talk is caused by

1. inductive coupling between two wires that are close to each other
2. the random motion of the electrons in a wire
3. spikes on the power line
4. attenuation

Question id : 1737   Question Type : MCQ

If the baud rate is 400 for a QPSK (quadrature phase shift keying) signal then the bit rate is

Options :

1. 100 bps
2. 400 bps
3. 800 bps
4. 1600 bps

Question id : 1738   Question Type : MCQ

To guarantee the **detection** of up to 5 errors in all cases, the minimum Hamming distance in a block code must be

Options :

1. 4
2. 5
3. 6
4. 11

Question id : 1739   Question Type : MCQ

To guarantee the **correction** of up to 5 errors in all cases, the minimum Hamming distance in a block code must be

Options :

1. 4
2. 5
3. 6
4. 11

Question id : 1740   Question Type : MCQ

The checksum of 1111 and 1111 is

Options :

1. 1111
2. 0000
3. 1100
4. 0011

Question id : 1741   Question Type : MCQ

The class of the IPv4 address 229.1.2.3 is

Options :

1. A
2. B
3. C
4. D

Question id : 1742   Question Type : MCQ

A graph which has two independent sets of vertices A and B, with edges defined only between vertices of A and vertices of B is called a

Options :

1. complete graph
2. planar graph
3. non-planar graph
4. bipartite graph

Question id : 1743   Question Type : MCQ

Which of the following Data Structure is used in depth first search traversal of a graph?

Options :

1. Stack
2. Queue
3. Red-Black Tree
4. AVL Tree

Question id : 1744   Question Type : MCQ

Minimum number of nodes in a complete binary tree of height 10 will be

Options :

1. 1000
2. 1024
3. 1023
4. 512

Question id : 1745   Question Type : MCQ

In a binary search tree the degree of inorder successor of a node of two children may be

Options :

1. 0 or 1
2. 0 or 2
3. 1 or 2
4. 2

Question id : 1746   Question Type : MCQ

Merge sort algorithm is not suitable for main memory sort because

Options :

1. it needs extra memory
2. its average performance is always O(n2)
3. it is a recursive algorithm
4. it follows divide and conquer approach

Question id : 1747   Question Type : MCQ

To sort a list of n objects using Quick Sort the additional auxiliary memory requirement is:

Options :

1. n
2. log n
3. n log n
4. n^2

Question id : 1748   Question Type : MCQ

Solving the traveling salesman problem is equivalent to finding a

Options :

1. Hamiltonian circuit in the graph
2. Euler circuit in the graph
3. DFS path in the graph
4. BFS path in the graph

Question id : 1749   Question Type : MCQ

The worst technique to sort an almost reverse-order sorted list of numbers is

Options :

1. Merge Sort
2. Insertion Sort
3. Quick Sort
4. Bubble Sort

Question id : 1750   Question Type : MCQ

The best technique to sort an almost sorted list of numbers is

Options :

1. Merge Sort
2. Quick Sort
3. Insertion Sort
4. Bubble Sort

Question id : 1751   Question Type : MCQ

In order to search 5 in a list of following numbers stored in a binary search tree the maximum number of comparisons will be:
50, 21, 89, 13, 40, 23, 12, 70, 42, 65, 9, 10, 8

Options :

1. 2
2. 4
3. 6
4. 8

Question id : 1752   Question Type : MCQ

The time complexity of which of the following functions can be determined using Master's theorem?

Options :

1. $T(n)=2^n T(n/2)+nn)$
2. $T(n)=64T(n/8)-n^2\log n$
3. $T(N)=T(n/2) + (2-\cos n)$
4. $T(n)=T(n/2)+2^n$

Question id : 1753   Question Type : MCQ

The time complexity of the following function is

$$T(n) = 4T\left(\frac{n}{2}\right)+\frac{n}{\log n}$$

Options :

1. $q(n^2)$
2. $q(n \log n)$
3. $q(n)$
4. $q(\log n)$

Question id : 1754   Question Type : MCQ

Let h be the height of a red-black tree (excluding external nodes), n be the number of internal nodes in the tree, r be

the rank of the root then which of the following relation is true?

Options :

1. $n \geq 2^r - 1$
2. $n \geq 2^h - 1$
3. $h \leq 2n$
4. $h \geq 2r$

Question id : 1755   Question Type : MCQ

If an algorithm has running time $T(n)=8T(n/2)+n^3$, then what is the value of T(n)?

Options :

1. $T(n) = \Theta(n^2 \log_2 n)$

$T(n) = \Theta(n^2)$

2. $T(n) = O(n^2)$

3. $T(n) = \Theta(n^3)$

4. $T(n) = \Theta(n^3 \log_2 n)$

Question id : 1756   Question Type : MCQ

What will be the minimum number of multiplication operations in a matrix chain product whose sequence of dimension is

<5, 2, 3, 4, 6, 7, 8>?

Options :

1. 392
2. 528
3. 348
4. 320

Question id : 1757   Question Type : MCQ

If a planer graph having 5 nodes is colored using three colors in such a way that no adjacent nodes have same color, then what will be the total number of nodes in state space tree generated using the 3-coloring Backtracking algorithm to color the graph?

Options :

1. 64
2. 63

3. 364
4. 365

Question id : 1758   Question Type : MCQ

Suppose that a connected planar simple graph has 20 vertices, each of degree 3. Then the number of regions into which the graph splits the plane is

Options :

1. 54
2. 10
3. 60
4. 12

Question id : 1759   Question Type : MCQ

Counting sort is a linear time sorting algorithm. To sort an array A(1, 0, 10, 25, 3, 24) by using this algorithm we require two other arrays – an array B to hold sorted output and an array C to provide temporary working storage. What will be the minimum size of the array C?

Options :

1. 6
2. 24
3. 25
4. 26
Question id : 1760   Question Type : MCQ
How many comparisons and swaps may take place, while sorting the following list of strings alphabetically using selection sort?
TRIANGLE, SQUARE, PENTAGON

Options :

1. 3,2
2. 3,1
3. 3,3
4. 1,3
Question id : 1761   Question Type : MCQ
How will you access an instance variable of a C++ class in its member function, if parameter name is same to the instance variable?

Options :

1. by using resolution operator (::)
2. by using dot operator (.)
3. by using "this" keyword
4. by using class name
Question id : 1762   Question Type : MCQ

Number of parameters that the insertion (<<) operator function of a C++ class can take is?

Options :

1. 0
2. 1
3. 2
4. 3
Question id : 1763   Question Type : MCQ
Virtual Base class is used to resolve the problem of

Options :

1. multiple inheritance
2. virtual function
3. abstract class
4. all of these
Question id : 1764   Question Type : MCQ
Which of the following operators in C++ can be implemented as a friend function only?

Options :

1. Plus operator (+)
2. Dot operator (.)
3. Extraction operator (>>)
4. Increment operator (++)

Question id : 1765   Question Type : MCQ

How many destruction functions can be defined in a C++ class?

Options :

1. Maximum one destruction function
2. Maximum two destruction functions
3. Unlimited destruction functions
4. Maximum four destruction functions

Question id : 1766   Question Type : MCQ

In Object-oriented paradigm the concept of generic programming is achieved through the use of

Options :

1. Constructors and Destructors
2. Template
3. Abstract class
4. Virtual class

Question id : 1767   Question Type : MCQ

In structural testing, a test engineer tests

Options :

1. the data structures used in the module
2. the correctness of the module
3. the efficiency of the module
4. the reliability of the module

Question id : 1768   Question Type : MCQ

The additional code written for module testing is known as

Options :

1. Stub
2. Driver
3. Mutants
4. Test case

Question id : 1769   Question Type : MCQ

The module in which instructions are related through the flow of control is said to have

Options :

1. Temporal cohesion
2. Logical cohesion
3. Procedural cohesion
4. No cohesion

Question id : 1770   Question Type : MCQ

Which of the following statements is true?

Options :

1. Mutation testing is a fault-based testing
2. Mutation testing is a functional testing
3. Mutation testing is nothing but fault checking
4. White-box and black-box testing are same

Question id : 1771   Question Type : MCQ

Which of the following is not true about Banker's algorithm?

Options :

1. It is a resource allocation and deadlock avoidance algorithm
2. It needs a priori information about maximum resource usage by the processes
3. It breaks deadlock by killing some processes
4. It can run by the operating system whenever a process requests resources

Question id : 1772   Question Type : MCQ

Which of the following page replacement algorithms may throw out important pages for bringing required page in the memory?

Options :

1. Least Recently Used (LRU)
2. Not Recently Used (NRU)
3. Not Frequently Used (NFU)
4. First-In-First-Out (FIFO)

Question id : 1773   Question Type : MCQ

The partition table contains

Options :

1. the starting and ending addresses of each partition on the disk
2. the starting address of each partition on the disk
3. the ending address of each partition on the disk
4. the size of each partition on the disk

Question id : 1774   Question Type : MCQ

Which of the followings represents a situation that results when dynamic data is not deallocated after it is no longer needed?

Options :

1. Memory waste
2. Memory usage
3. Garbage collection
4. Memory leak

Question id : 1775   Question Type : MCQ

A deadlock is characterized by

Options :

1. a circular waiting for preemptive resources
2. processes using shared resources simultaneously
3. a circular hold and wait for non-preemptive resources to be used mutually exclusively
4. critical section

Question id : 1776   Question Type : MCQ

In best-fit storage allocation memory is allocated from the

Options :

1. largest hole
2. smallest hole large enough to satisfy the application requirement
3. first hole large enough to satisfy the application requirements

4. last hole large enough to satisfy the application requirements

Question id : 1777   Question Type : MCQ

You meet two people, A and B. Each person either always tells the truth (i.e., the person is a knight) or always lies (i.e., the person is a knave). Person A tells you, "We are not both truthtellers." Determine, if possible, which type of person each one is.

Options :

1. A is a truth teller and B is a liar
2. B is a truth teller and A is a liar
3. Both A and B are truth teller
4. Both A and B are truth liar

Question id : 1778   Question Type : MCQ

The principal disjunctive normal form of $\neg P \lor Q$ is

Options :

1. $(P \land \neg Q) \lor (\neg P \land \neg Q) \lor (P \land Q)$

2. $(\neg P \land Q) \lor (P \land \neg Q) \lor (P \land Q)$

3. $(\neg P \land Q) \lor (\neg P \land \neg Q) \lor (P \land Q)$

4. $(\neg P \wedge Q) \vee (\neg P \wedge Q) \vee (P \wedge Q)$

Question id : 1779   Question Type : MCQ

Consider the predicate Q(x): x is less than 5. For which of the following universe of discourse, the statement

$(\exists x)Q(x)$ is false?

Options :

1. {-1, 0, 1, 4}
2. {5, 10, 15}
3. {-5, 0, 3, 7, 8}
4. {-5, 10, 15}

Question id : 1780   Question Type : MCQ

Horn clause is a clause having

Options :

1. at least one positive literal
2. exactly one positive literal

3. at most one positive literal
4. all literal as positive literal

Question id : 1781   Question Type : MCQ

Dempster-Shafer theory (DST) is a mathematical theory of evidence, which is used for

Options :

1. probabilistic reasoning
2. uncertain reasoning
3. certain reasoning
4. statistical reasoning

Question id : 1782   Question Type : MCQ

Which of the following statements about A* algorithm is false?

Options :

1. It uses a best-first search
2. It finds a least-cost path from a given initial node to a goal node
3. It achieves better time performance by using heuristics
4. It can not be used for graph traversal

Question id : 1783   Question Type : MCQ

Which of the following conversion is not possible from algorithmic point of view?

Options :

1. Non-deterministic FSA to deterministic FSA
2. Non-deterministic PDA to deterministic PDA
3. Regular grammar to context-free grammar (CFG)
4. Non-deterministic TM to deterministic TM

Question id : 1784   Question Type : MCQ

Which of the following statements about context-free languages is false?

Options :

1. Context-free languages are closed under string reversal
2. Context-free languages are closed under concatenation
3. Context-free languages are closed under homomorphism
4. Context-free languages are closed under set intersection

Question id : 1785   Question Type : MCQ

Consider the following Context-Free Grammar (CFG):

$S \rightarrow aBB$

$B \rightarrow bAA$

$B \rightarrow b$

$A \rightarrow a$

Which of the following statement is true about this CFG?

Options :

1. It is in weak Chomsky normal form but not in Chomsky normal form
2. It is in Chomsky normal form but not in strong Chomsky normal form
3. It is in Greibach normal form
4. It is in strong Chomsky normal form

Question id : 1786   Question Type : MCQ

The language

$$L = \{a^n b^n \mid n \geq 1\}$$

is

Options :

1. CSL but not CFL

2. CFL but not regular
3. Regular
4. type-0 language but not type-1 language
Question id : 1787   Question Type : MCQ
Which of the following statements about entropy is false?

Options :

1. Entropy is a measure of the uncertainty in a random variable
2. Entropy is a measure of unpredictability of information content
3. The entropy rate for a fair coin toss is two bits per toss
4. Entropy is typically measured in bits
Question id : 1788   Question Type : MCQ
Which of the following is not a valid technique to find the initial basic feasible solution to solve transportation problem?

Options :

1. Vogel's approximation method (VAM)

2. Least cost cell method
3. Bisection method
4. Northwest corner cell method
Question id : 1789   Question Type : MCQ
Which of the following statements is not valid?

Options :

1. Assignment problem is a special kind of transportation problem
2. Transportation problem is a special kind of assignment problem
3. An assignment problem can be classified into balanced assignment problem and unbalanced assignment problem
4. An assignment problem can be solved by applying Hungerian method
Question id : 1790   Question Type : MCQ
Which of the following is not a valid method to find the shortest path in a distance network?

Options :

1. Dijkstra's algorithm
2. Floyd's algorithm
3. Kruskal's algorithm
4. Systematic method
Question id : 1791   Question Type : MCQ
Which of the following problems deals with the distribution of goods from several sources to several destinations?

Options :

1. Network problem
2. Assignment problem

3. Transportation problem
4. Transshipment problem
Question id : 1792   Question Type : MCQ
If a transportation problem has N origins and M destinations, then the Linear Programming (LP) formulation of the problem will have

Options :

1. N + M constraints
2. N × M constraints
3. N^M constraints
4. M^N constraints
Question id : 1793   Question Type : MCQ
A perceptron is

Options :

1. a type of non-linear classifier
2. a double-layered autoassociative neural network
3. a single-layered feed-forward neural network with preprocessing
4. an autoassociative neural network
Question id : 1794   Question Type : MCQ
A 3-input neuron is trained in such a way that it output 0 for the input value 110, and 1 for the input value 111. After generalization, the output will be 0 when and only when the input is:

Options :

1. 011 or 110 or 111 or 101
2. 111 or 010 or 110 or 100
3. 011 or 010 or 110 or 100
4. 000 or 010 or 110 or 100
Question id : 1795   Question Type : MCQ
Which of the following statements about Fuzzy Logic is false?

Options :

1. It only permits propositions having a value of truth or falsity
2. It is a form of many-valued logic
3. It deals with reasoning which is approximate rather than fixed and exact
4. It was introduced by Lotfi A. Zadeh
Question id : 1796   Question Type : MCQ
Which of the following is a valid ls command option in Unix to know the inode number of a file?

Options :

1. –inode

2. –num
3. –i
4. –in

Question id : 1797   Question Type : MCQ

In Unix, which of the following messages is displayed when you attempt to change directory to a directory for which you don't have Read permission?

Options :

1. Permission denied
2. Invalid directory
3. Access denied
4. Read denied

Question id : 1798   Question Type : MCQ

The purpose of PATH variable in Unix is to

Options :

1. Show the current directory
2. Tells the shell what directories to search when a command is entered
3. Show the root directory
4. Show the directory path of a file

Question id : 1799   Question Type : MCQ

In Unix, which special variable contains the PID of its own process?

Options :

1. $
2. $ps
3. $job
4. $$

Question id : 1800   Question Type : MCQ

Which of the following is Unix scheduling utility?

Options :

1. cron
2. sched
3. sc
4. timer