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Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	CS2
Subject Name :	Computer Science and Information Technology
Creation Date :	2025-06-06 16:37:28
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Computer Science and Information Technology

Group Number :	1
Group Id :	83189668
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No

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Break time :	0
Group Marks :	120

Computer Science and Information Technology

Section Id :	83189668
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	120
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	83189668
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 8318968041 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In how many ways can a chairperson, a secretary, and a treasurer be chosen from a group of 10 people, if each person can hold only one position?

Options :

1. ✖ 840

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2. ✖ 5040

3. ✖ 1240

4. ✔ 720

Question Number : 2 Question Id : 8318968042 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A sub graph H of a graph G is called a clique if_____.

Options :

1. ✔ V (G) = V (H)

2. ✖ V (H) ⊆ V (G)

3. ✖ H contain all edges of G

4. ✖ H is also a complete graph

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Question Number : 3 Question Id : 8318968043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For a given graph G having v vertices and e edges which is connected and has no cycles, which of the following statements is true?

Options :

1. ✖ $v = e$

2. ✔ $v = e + 1$

3. ✖ $v + 1 = e$

4. ✖ $v = e - 1$

Question Number : 4 Question Id : 8318968044 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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Assume G is a simple undirected graph and some vertices of G are of odd degree. Add a node v to G and make it adjacent to each odd degree vertex of G, then the resultant graph is sure to be_____.

Options :

1. ✔ Euler

2. ✖ complete

3. ✖ Hamiltonian

4. ✖ clique

Question Number : 5 Question Id : 8318968045 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Dijkstra's algorithm fails for graphs with_____.

Options :

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1. ✔ Negative weights

2. ✖ Disconnected components

3. ✖ Directed edges

4. ✖ Self-loops

Question Number : 6 Question Id : 8318968046 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In propositional logic $P \leftrightarrow Q$ is equivalent to (~ denotes NOT)_____.

Options :

1. ✖ $\sim(P \vee Q) \wedge \sim(Q \vee P)$

2. ✔ $(\sim P \vee Q) \wedge (\sim Q \vee P)$

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3. ✖ $(P \vee Q) \wedge (Q \vee P)$

4. ✖ $\sim(P \vee Q) \rightarrow \sim(Q \vee P)$

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Question Number : 7 Question Id : 8318968047 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The Boolean function $\sim((\sim P \wedge Q) \wedge \sim(\sim P \wedge \sim Q)) \vee (P \vee R)$ is equal to the Boolean function:

Options :

1. ✖ Q

2. ✖ R

3. ✖ $P \vee Q$

4. ✔ P

Question Number : 8 Question Id : 8318968048 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A graph is self-complementary if it is isomorphic to its complement.

For all self-complementary graphs on n vertices, n is _____.

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Options :

1. ✖ a multiple of 4

2. ✖ even

3. ✖ odd

4. ✔ congruent to 0 mod 4 or 1 mod 4

Question Number : 9 Question Id : 8318968049 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Suppose R_1 and R_2 are reflexive relations on a set A.

Which of the following statements is correct?

Options :

1. ✖ $R_1 \cap R_2$ is reflexive and $R_1 \cup R_2$ is irreflexive

2. ✖ $R_1 \cap R_2$ is irreflexive and $R_1 \cup R_2$ is reflexive

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Both $R_1 \cap R_2$ and $R_1 \cup R_2$ is irreflexive

3. ✖

Both $R_1 \cap R_2$ and $R_1 \cup R_2$ is reflexive

4. ✔

Question Number : 10 Question Id : 8318968050 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

There are three cards in a box, Both sides of one card are black, both sides of one card are red, and the third card has one black side and one red side. We pick a card at random and observe only one side. What is the probability that the opposite side is the same colour as the one side we observed?

Options :

3/4

1. ✖

2/3

2. ✖

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1/2

3. ✖

1/3

4. ✔

Question Number : 11 Question Id : 8318968051 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

An 8-bit number X is 00001100, then -X is in 1 s complement is_____.

Options :

12 in binary

1. ✖

243 binary code in 8 bit

2. ✔

111011100

3. ✖

111110101

4. ✖

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Question Number : 12 Question Id : 8318968052 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Assuming 5-bit addition is done on registers, the sum 12+7 leads to_____.

Options :

1. ✔ Overflow

2. ✖ -12

3. ✖ 19

4. ✖ -14

Question Number : 13 Question Id : 8318968053 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a 4-bit ripple carry adder, the worst-case delay occurs when_____.

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Options :

1. all input bits are 0 ✖

2. a carry propagates through all full adders ✔

3. no carry is generated ✖

4. the sum exceeds 15 ✖

Question Number : 14 Question Id : 8318968054 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The output of a JK flip-flop for inputs J=1, K=1 and clock transition from 1 to 0 is_____.

Options :

1. no change ✖

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2. ✖ reset

3. ✔ toggle

4. ✖ set

Question Number : 15 Question Id : 8318968055 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The IEEE 754 single-precision floating-point representation of 0.375 is_____.

Options :

1. ✖ 0 01111100 10000000000000000000000

2. ✖ 0 01111101 10000000000000000000000

3. ✖ 0 01111101 11000000000000000000000

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0 01111100 11000000000000000000000

4. ✔

Question Number : 16 Question Id : 8318968056 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a hardwired control unit, the sequence of control signals is generated by_____.

Options :

Microprogrammed ROM

1. ✖

State machine/circuitry

2. ✔

Operating system

3. ✖

Interrupt handler

4. ✖

Question Number : 17 Question Id : 8318968057 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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In DMA mode, the CPU is bypassed for data transfer between_____.

Options :

1. ✖ CPU and I/O devices

2. ✖ Registers and ALU

3. ✔ Memory and I/O devices

4. ✖ Cache and secondary storage

Question Number : 18 Question Id : 8318968058 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A 4-way set-associative cache with 256 blocks divides memory addresses into_____.

Options :

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1. ✖ 256 sets

2. ✔ 64 sets

3. ✖ 4 sets

4. ✖ 16 sets

Question Number : 19 Question Id : 8318968059 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

$AB \oplus (A+B)$ is equivalent to_____.

Options :

1. ✔ A^1B+AB^1

2. ✖ $AB+A^1B^1$

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3. ✖ A^1B+A^1B

4. ✖ $A+B$

Question Number : 20 Question Id : 8318968060 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of these flip – flops cannot be used to construct a serial shift register?

Options :

1. ✖ D – flip flop

2. ✖ SR flip – flop

3. ✔ T flip – flop

4. ✖ JK flip – flop

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Question Number : 21 Question Id : 8318968061 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

How many AND gates are required to realize Y = CD + EF + G?

Options :

1. ✖ 4

2. ✖ 5

3. ✖ 3

4. ✔ 2

Question Number : 22 Question Id : 8318968062 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The purpose of an interrupt vector table is to _____.

Options :

1. ✖ Store CPU registers during context switch

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Map interrupt requests to service routine addresses

2. ✔

Hold page tables for virtual memory

3. ✖

Cache frequently used instructions

4. ✖

Question Number : 23 Question Id : 8318968063 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What is the output of the following code fragment?

```
int x=24;
printf("%d\n",printf("%3d %3d\n",x,x));
```

Options :

24 24

1. ✖ 10

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24 24

2. ✖ 9

24 24

3. ✔ 8

Error

4. ✖

Question Number : 24 Question Id : 8318968064 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

How many times "*Hi*" message will be displayed when we execute the following for loop?

```
int i;
for(i=0;i%2?0:1;i++)
printf("Hi \n");
```

Options :

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1. ✖ 3

2. ✖ 2

3. ✔ 1

4. ✖ 0

Question Number : 25 Question Id : 8318968065 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If one wants to add and delete elements quickly without reshuffling the rest, then which data structure suits the best?

Options :

1. ✔ Linked list

2. ✖ Tree

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3. ✖ B-Tree

4. ✖ Array

Question Number : 26 Question Id : 8318968066 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The height of a binary tree with 31 nodes (assuming no single-child nodes) is _____.

Options :

1. ✔ 4

2. ✖ 5

3. ✖ 6

4. ✖ 7

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Question Number : 27 Question Id : 8318968067 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a max-heap, the largest element is always located at the_____.

Options :

1. ✖ leftmost leaf

2. ✖ rightmost leaf

3. ✔ root node

4. ✖ middle of the heap

Question Number : 28 Question Id : 8318968068 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The recurrence T(n)=2T(n/2)+n has a solution of_____.

Options :

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1. ✖ O(n)

2. ✔ O(nlogn)

3. ✖ $O(n^2)$

4. ✖ O(logn)

Question Number : 29 Question Id : 8318968069 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What is the time complexity to insert an element at the beginning of a dynamic array?

Options :

1. ✖ O(1)

2. ✔ O(n)

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3. ✖ O(nlogn)

4. ✖ O(logn)

Question Number : 30 Question Id : 8318968070 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The inorder traversal of a BST gives elements in_____.

Options :

1. ✖ level order

2. ✔ ascending order

3. ✖ descending order

4. ✖ random order

Question Number : 31 Question Id : 8318968071 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

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Correct Marks : 1 Wrong Marks : 0

A threaded binary tree is a binary tree in which every node that does not have right child has a thread to its _____.

Options :

1. ✖ Pre-order successor

2. ✔ In-order successor

3. ✖ In-order predecessor

4. ✖ Post-order successor

Question Number : 32 Question Id : 8318968072 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which notation represents the tightest upper bound of an algorithm's running time?

Options :

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1. ✖ $O(n)$

2. ✖ $\Omega(n)$

3. ✔ $\Theta(n)$

4. ✖ $\omega(n)$

Question Number : 33 Question Id : 8318968073 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The minimum possible time complexity to sort n integers in the range $[1,n^2]$ is_____.

Options :

1. ✔ $O(n)$

2. ✖ $O(nlogn)$

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$O(n^2)$

3. ✖

$O(\log n)$

4. ✖

Question Number : 34 Question Id : 8318968074 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The greedy approach is optimal for _____.

Options :

0/1 Knapsack

1. ✖

Fractional Knapsack

2. ✔

Longest Increasing Subsequence

3. ✖

Matrix Chain Multiplication

4. ✖

Question Number : 35 Question Id : 8318968075 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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Best case complexity of insertion sorting is_____.

Options :

1. ✔ $O(n)$

2. ✖ $O(nlogn)$

3. ✖ $O(n^2)$

4. ✖ $O(logn)$

Question Number : 36 Question Id : 8318968076 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A problem is NP-complete if it is_____.

Options :

1. ✖ solvable in polynomial time

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NP-hard and is NP

2. ✔

reducible to P

3. ✖

Non-deterministic but decidable

4. ✖

Question Number : 37 Question Id : 8318968077 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The time complexity to compute the 15^{th} Fibonacci number using dynamic programming is_____.

Options :

1. ✖ O(1)

2. ✔ O(n)

3. ✖ O(nlogn)

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O(logn)

4. ✖

Question Number : 38 Question Id : 8318968078 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

One way to build a heap is to start at the end of the array (the leaves) and push each new value up to the root. Its time complexity is

Options :

1. ✖ O(n)

2. ✖ O(log n)

3. ✔ O(n logn)

4. ✖ $O(n^2 \log n)$

Question Number : 39 Question Id : 8318968079 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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If the recursive call keeps calculating the same things over and over again, we can use _____ which stores partial results already calculated and to be used again.

Options :

1. ✖ Divide and conquer algorithm

2. ✖ Recursive

3. ✔ Dynamic Programming

4. ✖ Greedy method

Question Number : 40 Question Id : 8318968080 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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The _____ process updates the costs of all the vertices V, connected to a vertex U, if we could improve the best estimate of the shortest path to V by including (U,V) in the path to V.

Options :

1. relaxation ✔

2. improvement ✖

3. shortening ✖

4. costing ✖

Question Number : 41 Question Id : 8318968081 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The minimum number of states in a DFA accepting $L=\{w|w \text{ ends with } 01\}$ over $\Sigma=\{0,1\}$ is:

Options :

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1. ✖ 2

2. ✔ 3

3. ✖ 4

4. ✖ 5

Question Number : 42 Question Id : 8318968082 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The language L={⟨M⟩|M halts on all inputs} is_____.

Options :

1. ✖ decidable

2. ✔ undecidable but recognizable

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not recognizable

3. ✖

regular

4. ✖

Question Number : 43 Question Id : 8318968083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Inherited attributes in SDTs are used for_____.

Options :

passing information up the parse tree

1. ✖

passing information down the parse tree

2. ✔

storing symbol table entries

3. ✖

generating target code

4. ✖

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Question Number : 44 Question Id : 8318968084 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The output of a syntax-directed translation scheme is_____.

Options :

1. Abstract Syntax Tree ✖

2. Three Address Code ✖

3. Postfix Notation ✖

4. Depends on the SDT rules ✔

Question Number : 45 Question Id : 8318968085 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Subset Construction method refers to_____.

Options :

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Conversion of NFA to DFA

1. ✔

DFA minimization

2. ✖

Eliminating Null references

3. ✖

DFA to NFA

4. ✖

Question Number : 46 Question Id : 8318968086 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The maximum number of transitions which can be performed over a state in a DFA? $\sum = \{a, b, c\}$

Options :

8

1. ✖

2

2. ✖

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3. ✔ 3

4. ✖ 7

Question Number : 47 Question Id : 8318968087 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is a regular language?

Options :

1. ✖ A string whose length is a sequence of prime numbers

2. ✖ A string with substring ww^r

3. ✖ A palindrome

4. ✔ A string with even number of zero's

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Question Number : 48 Question Id : 8318968088 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The minimum number of nodes in a DFA that recognizes strings over {a, b} with length mod 3 = 0 are_____.

Options :

1. ✖ 4

2. ✖ 2

3. ✔ 3

4. ✖ 1

Question Number : 49 Question Id : 8318968089 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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If the production rules are given as:

$S \rightarrow XY \mid W$

$X \rightarrow aXb \mid \varepsilon$

$Y \rightarrow cY \mid \varepsilon$

$W \rightarrow aWc \ Z$

$Z \rightarrow bZ \mid \varepsilon$

Then the language generated by these rules is_____.

Options :

1. $\{a^i b^j c^k / i,j,k>=0\}$ ✖

2. $\{a^i b^j c^k / i,j,k>=1\}$ ✖

3. $\{a^i b^j c^k / i,j,k>=0, i=j \text{ or } i=k\}$ ✖

4. $\{a^i b^j c^k / i,j,k>=0, i=j \text{ or } i!=k\}$ ✔

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Question Number : 50 Question Id : 8318968090 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let P be a regular language and Q be a context free language such that Q is subset of P. Then which of the following is ALWAYS regular?

Options :

1. ✖ $P \cap Q$

2. ✖ $P - Q$

3. ✔ $\Sigma^* - P$

4. ✖ $\Sigma^* - Q$

Question Number : 51 Question Id : 8318968091 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which one of the following is FALSE?

Options :

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1. ✖ Every NFA can be converted to an equivalent PDA

2. ✖ Complement of every context free language is recursive

3. ✖ There is a unique minimal DFA for every regular language

4. ✔ Every nondeterministic PDA can be converted to equivalent deterministic PDA

Question Number : 52 Question Id : 8318968092 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is not a three-address code statement?

Options :

1. ✖ x = y + z

2. ✖ if x goto L

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3. ✖ x = *y

4. ✔ x = y ** z

Question Number : 53 Question Id : 8318968093 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is not shared among threads in the same process?

Options :

1. ✖ Heap memory

2. ✔ Stack

3. ✖ File Descriptors

4. ✖ Code section

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Question Number : 54 Question Id : 8318968094 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The primary advantage of user-level threads over kernel-level threads is_____.

Options :

1. lower context-switch overhead ✔

2. better parallelism on multicore CPUs ✖

3. no need for synchronization ✖

4. higher priority scheduling ✖

Question Number : 55 Question Id : 8318968095 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A program uses environment variables to_____.

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Options :

1. ✖ store data between login sessions

2. ✔ pass configuration settings to other programs

3. ✖ store data persistently

4. ✖ pass data to the operating system

Question Number : 56 Question Id : 8318968096 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which is not a CPU scheduling criterion?

Options :

1. ✖ CPU utilisation

2. ✔ Reliability

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Response time

3. ✖

Waiting time

4. ✖

Question Number : 57 Question Id : 8318968097 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Among priority inversion between two processes, one with high priority and other with low priority that share a critical section will cause which of the following problem?

Options :

High priority process executes before low priority process and finishes faster than it should.

1. ✖

Low priority process executes before high priority process and finishes faster than it should.

2. ✖

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3. ✔ High priority process waits for low priority process to finish, but the low priority process never gets scheduled.

4. ✖ Low priority process changes priority temporary to the priority of the high priority process.

Question Number : 58 Question Id : 8318968098 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A currently running process can be put on a ready queue or one of the I/O queues by each of the following except_____.

Options :

1. ✖ the process issued an i/o request

2. ✔ the process did an illegal memory access

3. ✖ there was an interrupt

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the process issued a system call

4. ✖

Question Number : 59 Question Id : 8318968099 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following component of program state is shared across threads in a multithreaded process?

Options :

Registers

1. ✖

Auto variables

2. ✖

Heap memory

3. ✔

Stack memory

4. ✖

Question Number : 60 Question Id : 8318968100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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Which of the following frees the CPU from having to deal with transfer of memory to or from I/O device?

Options :

1. ✖ Interrupts

2. ✔ Direct Memory Access

3. ✖ Buffer cache

4. ✖ Device Driver

Question Number : 61 Question Id : 8318968101 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In FCFS, I/O bound processes may have to wait long in the ready queue waiting for a CPU bound job to finish. This is known as_____.

Options :

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1. ✖ Aging

2. ✔ Convoy effect

3. ✖ Priority inversion

4. ✖ Belady's anomaly

Question Number : 62 Question Id : 8318968102 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In general, there will be _____ inodes than directories in Unix File system.

Options :

1. ✖ zero

2. ✖ less

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same

3. ✖

more

4. ✔

Question Number : 63 Question Id : 8318968103 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

To ensure that the_____ condition never occurs in the system, we must guarantee that, whenever a process requests a resource, it does not have any other resource.

Options :

mutual exclusion

1. ✖

no-preemption

2. ✖

circular wait

3. ✖

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hold and wait

4. ✔

Question Number : 64 Question Id : 8318968104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A _____ architecture assigns only a few essential functions to the kernel, including address spaces, Interprocess communication (IPC) and basic scheduling.

Options :

monolithic kernel

1. ✖

micro kernel

2. ✔

macro kernel

3. ✖

mini kernel

4. ✖

Question Number : 65 Question Id : 8318968105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

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Correct Marks : 1 Wrong Marks : 0

Among the four criteria for synchronization mechanism, which of the two criteria are mandatory?

Options :

1. ✔ Mutual Exclusion and Progress

2. ✖ Progress and Architectural neural

3. ✖ Bounded wait and mutual exclusion

4. ✖ Bounded wait and progress

Question Number : 66 Question Id : 8318968106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which SQL operation is not part of the ACID properties?

Options :

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1. ✖ COMMIT

2. ✖ ROLLBACK

3. ✔ CREATE INDEX

4. ✖ SAVEPOINT

Question Number : 67 Question Id : 8318968107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A B+ tree is preferred over a B-tree for databases because_____.

Options :

1. ✔ it supports range queries efficiently

2. ✖ it has a smaller node size

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it allows faster insertion/deletion

3. ✖

it uses less disk space

4. ✖

Question Number : 68 Question Id : 8318968108 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A relation R(A,B,C,D) with functional dependencies {A→B,B→C}

is in_____.

Options :

1NF but not 2NF

1. ✖

2NF but not 3NF

2. ✔

3NF but not BCNF

3. ✖

BCNF

4. ✖

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Question Number : 69 Question Id : 8318968109 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In two-phase locking (2PL), a transaction must be_____.

Options :

1. release all locks before acquiring new ones ✖

2. acquire all locks before releasing any ✔

3. use only shared locks ✖

4. avoid deadlocks by timeouts ✖

Question Number : 70 Question Id : 8318968110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The isolation level that prevents dirty reads but allows non-repeatable reads is_____.

Options :

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read uncommitted

1. ✖

read committed

2. ✔

repeatable read

3. ✖

serializable

4. ✖

Question Number : 71 Question Id : 8318968111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The maximum number of keys in a B-tree of order 5 with height 3 is_____.

Options :

31

1. ✖

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2. ✔ 156

3. ✖ 624

4. ✖ 3125

Question Number : 72 Question Id : 8318968112 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In _____ relation, each tuple has relation R within it.

Options :

1. ✖ primary

2. ✖ prime

3. ✔ nested

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4. ✖ atomic

Question Number : 73 Question Id : 8318968113 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The rule which states that addition of same attributes to the right side and left side will result in other valid dependency is classified as _____.

Options :

1. ✔ Augmentation rule

2. ✖ Inference rule

3. ✖ Referential rule

4. ✖ Reflexive rule

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Question Number : 74 Question Id : 8318968114 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The separation of the data definition from program is known as_____.

Options :

1. Data dictionary ✖

2. Data independence ✔

3. Data integrity ✖

4. Referential integrity ✖

Question Number : 75 Question Id : 8318968115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which is the candidate key for the relation R(ABCDE) with functional dependencies F={A→BC, B→D, CD→ E, E→ A}

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Options :

1. ✔ A

2. ✖ CD

3. ✖ B

4. ✖ E

Question Number : 76 Question Id : 8318968116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Natural Join can also be termed as _____.

Options :

1. ✖ combination of Union and Cartesian Product

2. ✖ combination of Selection and Cartesian Product

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3. ✔ combination of Projection and Cartesian Product

4. ✖ combination of Projection and Union

Question Number : 77 Question Id : 8318968117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If A → B has trivial functional dependency, then_____.

Options :

1. ✔ B is a subset of A

2. ✖ A is a subset of B

3. ✖ A is a subset of A'

4. ✖ B is a subset of B'

Question Number : 78 Question Id : 8318968118 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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Which of the following commands is used to delete all rows and free up space from a table?

Options :

1. ✖ Drop

2. ✖ Delete

3. ✔ Truncate

4. ✖ Alter

Question Number : 79 Question Id : 8318968119 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

_____ uses Quantifiers that can be either Existential (*) or Universal (∀).

Options :

1. ✖ Domain Relational Calculus

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Tuple Relational Calculus

2. ✔

Distributed Relational Calculus

3. ✖

NoSQL

4. ✖

Question Number : 80 Question Id : 8318968120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The database design that consists of multiple tables that are linked together through matching data stored in each table is called a_____.

Options :

Relational database

1. ✔

Network database

2. ✖

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3. ✖ Object oriented database

4. ✖ Hierarchical database

Question Number : 81 Question Id : 8318968121 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The incremental model of software development is_____.

Options :

1. ✖ a reasonable approach when requirements are well defined

2. ✔ a good approach when a working core product is required quickly

3. ✖ the best approach to use for projects with large development teams

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a revolutionary model that is not used for commercial products

4. ✖

Question Number : 82 Question Id : 8318968122 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The cyclomatic complexity metric provides the designer with information regarding number of_____.

Options :

cycles in the program

1. ✖

errors in the program

2. ✖

independent logic paths in the program

3. ✔

statement in the program

4. ✖

Question Number : 83 Question Id : 8318968123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

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Correct Marks : 1 Wrong Marks : 0

In the spiral model of software development, the primary determinant in selecting activities in each iteration is_____.

Options :

1. ✖ iteration size

2. ✖ cost

3. ✔ risk

4. ✖ adopted process such as rational unified process or extreme programming

Question Number : 84 Question Id : 8318968124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The optimizer that explores the space of all query-evaluation plans is called _____.

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Options :

1. ✔ cost-based

2. ✖ plan-based

3. ✖ estimate-based

4. ✖ count-based

Question Number : 85 Question Id : 8318968125 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The term that optimizes subexpressions shared by different expressions in a program is called _____.

Options :

1. ✖ multiple subexpression elimination

2. ✔ common subexpression elimination

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parametric subexpression elimination

3. ✖

shared subexpression elimination

4. ✖

Question Number : 86 Question Id : 8318968126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Frequency of failure and network recovery time after a failure are measures of the _____ of a network.

Options :

performance

1. ✖

reliability

2. ✔

security

3. ✖

feasibility

4. ✖

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Question Number : 87 Question Id : 8318968127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A Gantt chart is least useful for tracking_____.

Options :

1. task dependencies ✖

2. resource allocation ✖

3. critical path ✖

4. code complexity ✔

Question Number : 88 Question Id : 8318968128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which phase of the SDLC typically consumes the most resources?

Options :

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Requirements gathering

1. ✖

Testing

2. ✖

Maintenance

3. ✔

Coding

4. ✖

Question Number : 89 Question Id : 8318968129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Regression testing is performed to ensure that_____.

Options :

new code doesn't break existing functionality

1. ✔

all paths are covered

2. ✖

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users accept the system

3. ✖

compliance with laws

4. ✖

Question Number : 90 Question Id : 8318968130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The COCOMO model estimates_____.

Options :

project risk

1. ✖

software cost

2. ✔

team productivity

3. ✖

user satisfaction

4. ✖

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Question Number : 91 Question Id : 8318968131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

At which OSI layer does MAC address filtering occur?

Options :

1. ✖ Network

2. ✔ Data Link

3. ✖ Transport

4. ✖ Physical

Question Number : 92 Question Id : 8318968132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Token Ring networks avoid collisions by_____.

Options :

1. ✖ CSMA/CD

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2. ✔ Token passing

3. ✖ Exponential backoff

4. ✖ Priority queuing

Question Number : 93 Question Id : 8318968133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which routing algorithm guarantees shortest paths even with negative edge weights?

Options :

1. ✖ Dijkstra's

2. ✔ Bellman-Ford

3. ✖ Link-State

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4. ✖ OSPF

Question Number : 94 Question Id : 8318968134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A TCP header includes all except_____.

Options :

1. ✖ Sequence number

2. ✖ Checksum

3. ✔ TTL

4. ✖ Window size

Question Number : 95 Question Id : 8318968135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The three-way handshake in TCP ensures_____.

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Options :

1. ✖ Encryption setup

2. ✔ Synchronized sequence numbers

3. ✖ QoS negotiation

4. ✖ Multicast membership

Question Number : 96 Question Id : 8318968136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

An IPv4 datagram with header length=5 and total length=400 bytes carries_____.

Options :

1. ✔ 380 bytes payload

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2. ✖ 400 bytes payload

3. ✖ 20 bytes header

4. ✖ 320 bytes payload

Question Number : 97 Question Id : 8318968137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which protocol uses port 53 by default?

Options :

1. ✖ HTTP

2. ✖ FTP

3. ✔ DNS

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4. ✖ SMTP

Question Number : 98 Question Id : 8318968138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A switch differs from a hub because, it_____.

Options :

1. ✖ operates at Layer 1

2. ✖ broadcasts all frames

3. ✔ uses MAC tables for forwarding

4. ✖ only supports half-duplex

Question Number : 99 Question Id : 8318968139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Digital signatures provide_____.

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Options :

1. confidentiality ✖

2. non-repudiation ✔

3. key exchange ✖

4. firewall bypass ✖

Question Number : 100 Question Id : 8318968140 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In asynchronous transmission, the gap time between bytes is _____.

Options :

1. fixed ✖

2. variable ✔

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3. ✖ a function of the data rate

4. ✖ zero

Question Number : 101 Question Id : 8318968141 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In Java, when we implement an interface method, it must be declared as_____.

Options :

1. ✖ private

2. ✖ protected

3. ✔ public

4. ✖ friend

Question Number : 102 Question Id : 8318968142 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

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Correct Marks : 1 Wrong Marks : 0

Which of the following control fields in TCP header is used to specify whether the sender has no more data to transport.

Options :

1. ✔ FIN

2. ✖ RST

3. ✖ SYN

4. ✖ PSH

Question Number : 103 Question Id : 8318968143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In XML, DOCTYPE declaration specifies to include a reference to _____ file.

Options :

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document type declaration

1. ✖

document type definition

2. ✔

document type language

3. ✖

document transfer definition

4. ✖

Question Number : 104 Question Id : 8318968144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The CSS used inside HTML elements alongside style attribute is called_____.

Options :

external CSS

1. ✖

internal CSS

2. ✖

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3. ✔ inline CSS

4. ✖ outline CSS

Question Number : 105 Question Id : 8318968145 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A web client sends a request to a web server. The web server transmits a program to that client and is executed at client which creates a web document. Such web documents are_____.

Options :

1. ✖ dynamic

2. ✖ static

3. ✔ active

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4. ✖ passive

Question Number : 106 Question Id : 8318968146 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Cascading Style Sheets define style and appearance using_____.

Options :

1. ✖ functions with parameters and return values

2. ✔ rules with selectors, properties and their values

3. ✖ techniques with block and inline elements

4. ✖ heuristics with rules and maps

Question Number : 107 Question Id : 8318968147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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What is the correct HTML for making a hyperlink?

Options :

1. ✔ abc

2. ✖ abc

3. ✖ <http://abc.com

4. ✖ url="http://abc.com">

Question Number : 108 Question Id : 8318968148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What is the correct HTML for adding a background color?

Options :

1. ✖ <body color="yellow">

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<body bgcolor="yellow">

2. ✔

<background>yellow</background>

3. ✖

<body background="yellow">

4. ✖

Question Number : 109 Question Id : 8318968149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which is the correct syntax to link XML file with CSS?

Options :

<?xml type="text/css" href="file.css"?>

1. ✖

<?xml type="text/css" src="file.css"?>

2. ✖

<?xml-stylesheet type="text/css" href="file.css"?>

3. ✔

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<?xml-stylesheet type="text/css" src="file.css"?>

4. ✖

Question Number : 110 Question Id : 8318968150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A Session variable is created_____.

Options :

when the application is first placed on a web server.

1. ✖

when the web server is first started.

2. ✖

when the first client requests a URL resource.

3. ✖

every time a new client interacts with the web application.

4. ✔

Question Number : 111 Question Id : 8318968151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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Let A, B be two events and $\overline{A}$ be the complement of A. If

$P(\overline{A}) = 0.7$, $P(B) = 0.7$ and $P(B|A) = 0.5$, then $P(A \cup B) =$ ___

Options :

1. ✖ 0.65

2. ✔ 0.85

3. ✖ 0.75

4. ✖ 0.50

Question Number : 112 Question Id : 8318968152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let a random variable X have a binomial distribution with mean 8 and standard deviation 2. If $P(X < 2) = \frac{k}{2^{16}}$, then the value of k is _____

Options :

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1. ✔ 17

2. ✖ 16

3. ✖ 136

4. ✖ 137

Question Number : 113 Question Id : 8318968153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let $A = \{1,2,3\}$. Which of the following is the number of distinct relations on A?

Options :

1. ✖ 256

2. ✖ 158

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3. ✔ 512

4. ✖ 1024

Question Number : 114 Question Id : 8318968154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In any Lattice L, $(((a \wedge b) \vee a) \wedge b)$ = _____

Options :

1. ✖ $a \vee b$

2. ✔ $a \wedge b$

3. ✖ $(a \wedge b) \vee a$

4. ✖ $((a \vee b) \wedge a) \vee b$

Question Number : 115 Question Id : 8318968155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

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If the system of linear equations $x + 2y + z = 5, 2x + \lambda y + 4z = 12,$ $4x + 8y + 12z = 2\mu$ have infinite number of solutions, then the values of λ and μ are _____

Options :

1. $\lambda = 4,\ \mu = 28$ ✖

2. $\lambda = 4,\ \mu = 14$ ✔

3. $\lambda = 8,\ \mu = 14$ ✖

4. $\lambda = 8,\ \mu = 28$ ✖

Question Number : 116 Question Id : 8318968156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If the product and sum of eigenvalues of a 2×2 matrix $\begin{pmatrix} 3 & x \\ x & y \end{pmatrix}$ are -3 and 5, respectively, then $x + y =$ _____

Options :

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1. ✖ -5

2. ✖ $-6 \pm i3\sqrt{2}$

3. ✖ $-2 \pm i3$

4. ✔ -1

Question Number : 117 Question Id : 8318968157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Given that the value of the integral $\int_1^9 (x^2 - 2)\, dx$ calculated using the Simpson's 1/3 rule with four uniform subintervals over the interval [1,9] is given by $f(1) + \alpha^2 + \frac{8}{3}$, then the possible value of α is _____

Options :

1. ✔ $\alpha = 15$

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2. ✖ $\alpha = 14$

3. ✖ $\alpha = 13$

4. ✖ $\alpha = 12$

Question Number : 118 Question Id : 8318968158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \to 1} \left(\frac{x^x - x}{x - 1 - \log x} \right) = \_\_\_\_\_$$

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

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4. ✖ 1/2

Question Number : 119 Question Id : 8318968159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following integral is un-bounded?

Options :

1. ✖ $\int_0^{\pi/4} \tan(x)\, dx$

2. ✖ $\int_0^{\infty} xe^{-x}\, dx$

3. ✔ $\int_0^{a} \frac{1}{a-x} dx$

4. ✖ $\int_0^{\infty} xe^{x}\, dx$

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Question Number : 120 Question Id : 8318968160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let $f(x) = x^3 - \frac{9}{2}x^2 + 6x - 2$ be a function defined on the closed interval [0,3]. Then, the global maximum value of $f(x)$ is _____

Options :

1. ✖ 4.5

2. ✖ 0.5

3. ✔ 2.5

4. ✖ 3.0

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