Telangana State Council Higher Education

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 :	Computer Science and Information Technology 22nd Sept 2020 Shift 2
Subject Name :	Computer Science and Information technology
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Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
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Computer Science and Information Technology

Group Number :	1
Group Id :	88039689

Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No

Mathematics

Section Id :	880396162
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	880396162
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 88039610561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let a 3 x 3 matrix A has the Eigen values 1, 2, −1, then the trace of the matrix $B = A - A^{-1} + A^2$ is equal to

Options :

88039642241. ✖ 1/2

88039642242. ✖ 9/4

88039642243. ✔ 15/2

88039642244. ✖ 17/2

Question Number : 2 Question Id : 88039610562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Let $f(x)=\begin{cases} ax^2+b, & \text{for all} \quad b\neq 0,\ x\leq 1 \\ bx^2+ax+c, & \text{for all} \quad x>1 \end{cases}$. Then, $f(x)$ is continuous and differentiable at $x=1$ if

Options :

88039642245. ✔ $c=0, a=2b$

88039642246. ✖ $c\in R, a=b$

88039642247. ✖ $c=0, a=b$

88039642248. ✖ $c\neq 0, a=b$

Question Number : 3 Question Id : 88039610563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If $\int \frac{\cos 4x+1}{\cot x-\tan x}dx = K\cos 4x + B$, then the constant K is equal to

Options :

88039642249. ✖ 1/4

88039642250. ✖ 1/2

88039642251. ✖ −1/5

88039642252. ✔ −1/8

Question Number : 4 Question Id : 88039610564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of ways in which the letters of the word *FRACTION* be arranged so that no two vowels are together is

Options :

88039642253. ✖ 17330

88039642254. ✔ 14400

88039642255. ✖ 16440

88039642256. ✖ 15330

Question Number : 5 Question Id : 88039610565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let R be a relation defined by R = $\{(a, b): a \geq b, a \text{ and } b \text{ are real numbers}\}$. Then the relation R is

Options :

88039642257. ✖ an equivalence relation

88039642258. ✔ reflexive, transitive but not symmetric

88039642259. ✖ symmetric, transitive but not reflexive

88039642260. ✖ neither transitive nor reflexive but symmetric

Question Number : 6 Question Id : 88039610566 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If the mean and variance of a binomial variate X are 2 and 1 respectively, then the probability that X takes the value greater than 1 is

Options :

88039642261. ✖ 5/16

88039642262. ✖ 8/17

88039642263. ✖ 3/5

88039642264. ✔ 11/16

Question Number : 7 Question Id : 88039610567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If from a city population , the probability of selecting (i) a male or a smoker is 7/10, (ii) a male smoker is 2/5, and that of (iii) a male , if a smoker is already selected is 2/3, then the probability of selecting a non- smoker would be?

Options :

88039642265. ✖ 5/6

88039642266. ✖ 4/5

88039642267. ✔ 2/5

88039642268. ✖ 1/3

Question Number : 8 Question Id : 88039610568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of "K" for which the function $f(x)=Kx(1-x)$, $0\le x\le 1$, represents a probability density function of a continuous random variable X is

Options :

88039642269. ✔ 6

88039642270. ✖ 5

88039642271. ✖ 4

88039642272. ✖ 1

Question Number : 9 Question Id : 88039610569 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The set of cube roots of unity is an abelian group under the binary operation

Options :

88039642273. ✖ addition

88039642274. ✔ multiplication

88039642275. ✖ scalar multiplication

88039642276. ✖ division

Question Number : 10 Question Id : 88039610570 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$A = \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix} \Rightarrow A^8 =$

one of the following matrix (Here I stands for unit matrix of order 2)

Options :

88039642277. ✖ 5I

88039642278. ✖ 25I

88039642279. ✖ 125I

88039642280. ✔ 625I

Computer Science and Information Technology

Section Id :	880396163
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	880396163
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 88039610571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An element in an array X is called a leader if it is greater than all elements to the right of it in X. The best algorithm to find all leaders in an array

Options :

88039642281. ✖ solves it in linear time using a left to right pass of the array.

88039642282. ✖ solves it using divide and conquer in time Θ (n log n).

88039642283. ✔ solves it in linear time using a right to left pass of the array.

88039642284. ✖ solves it in time $\Theta(n^2)$.

Question Number : 12 Question Id : 88039610572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following functions asymptotically grows the fastest as 'n' goes to infinity?

Options :

88039642285. ✖ $(\log \log n)!$

88039642286. ✔ $(\log \log n)^{\log n}$

88039642287. ✖ $2^{\sqrt{\log \log n}}$

88039642288. ✖ $(\log n)^{\log \log n}$

Question Number : 13 Question Id : 88039610573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let W(n) and A(n) denote respectively, the worst case and average case running time of an algorithm executed on an input of size n. Which of the following is always true?

Options :

88039642289. ✖ $A(n) = \Omega(W(n))$

88039642290. ✖ $A(n) = \Theta(W(n))$

88039642291. ✔ $A(n) = O(W(n))$

88039642292. ✖ $A(n) = o(W(n))$

Question Number : 14 Question Id : 88039610574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider two strings A="qpqrr" and B="pqprqrp". Let x be the length of the longest common subsequence (not necessarily contiguous) between A and B and let y be the number of such longest common subsequences between A and B. Then $x + 10y =$

Options :

88039642293. ✔ 34

88039642294. ✖ 24

88039642295. ✖ 32

88039642296. ✖ 22

Question Number : 15 Question Id : 88039610575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following algorithm design techniques is used in finding all pairs of shortest distances in a graph?

Options :

88039642297. ✔ Dynamic Programming

88039642298. ✖ Backtracking

88039642299. ✖ Greedy

88039642300. ✖ Divide and Conquer

Question Number : 16 Question Id : 88039610576 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Let G (V, E) be an undirected graph with positive edge weights. Dijkstra's single source shortest path algorithm can be implemented using the binary heap data structure with time complexity

Options :

88039642301. ✖ $O(|V|2)$

88039642302. ✖ $O(|E|+|V|\log|V|)$

88039642303. ✖ $O(|V|\log|V|)$

88039642304. ✔ $O((|E|+|V|)\log|V|)$

Question Number : 17 Question Id : 88039610577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

How many address lines are needed to address each memory locations in a 2048 x 4 memory chip?

Options :

88039642305. ✖ 12

88039642306. ✔ 11

88039642307. ✖ 10

88039642308. ✖ 8

Question Number : 18 Question Id : 88039610578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A depth-first search is performed on a directed acyclic graph. Let d[u] denote the time at which vertex u is visited for the first time and f[u] the time at which the DFS call to the vertex u terminates. Which of the following statements is always TRUE for all edges (u, v) in the graph ?

Options :

88039642309. ✖ $d[u] < d[v]$

88039642310. ✖ $d[u] < f[v]$

88039642311. ✖ $f[u] < f[v]$

88039642312. ✔ $f[u] > f[v]$

Question Number : 19 Question Id : 88039610579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The concatenation of two lists can be performed in O(1) time. Which of the following variation of linked list can be used?

Options :

88039642313. ✖ Singly linked list

88039642314. ✖ Doubly linked list

88039642315. ✔ Circular doubly linked list

88039642316. ✖ Array implementation of list

Question Number : 20 Question Id : 88039610580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many flip-flops are required to make a MOD-32 binary counter?

Options :

88039642317. ✖ 3

88039642318. ✔ 5

88039642319. ✖ 6

88039642320. ✖ 32

Question Number : 21 Question Id : 88039610581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If h is any hashing function and is used to hash n keys into a table of size m, where n<=m, the expected number of collisions involving a particular key x is?

Options :

88039642321. ✔ less than 1

88039642322. ✖ less than n

88039642323. ✖ less than m

88039642324. ✖ less than n/2

Question Number : 22 Question Id : 88039610582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which order traversal can convert a binary tree into its mirror image by traversing it?

Options :

88039642325. ✖ Inorder

88039642326. ✖ Preorder

88039642327. ✔ Postorder

88039642328. ✖ Level order

Question Number : 23 Question Id : 88039610583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"Consider a system where, a heat sensor detects an intrusion and alerts the security company". What kind of a requirement the system is providing?

Options :

88039642329. ✖ Functional

88039642330. ✔ Non-Functional

88039642331. ✖ Known Requirement

88039642332. ✖ Functional and Non-functional both

Question Number : 24 Question Id : 88039610584 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What would be the Prefix notation for the given equation?

(a+(b/c)*(d^e)-f)

Options :

88039642333. ✖ -+a*/^bcdef

88039642334. ✔ -+a*/bc^def

88039642335. ✖ -+a*b/c^def

88039642336. ✖ -a+*/bc^def

Question Number : 25 Question Id : 88039610585 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Domain constraints, functional dependency and referential integrity are special forms of

Options :

88039642337. ✖ Foreign key

88039642338. ✖ Primary key

88039642339. ✔ Assertion

88039642340. ✖ Referential constraint

Question Number : 26 Question Id : 88039610586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Find a solution to the following recurrence equation:

$T(n) = \sqrt{n} + T(n/2)$

$T(1) = 1$

Options :

88039642341. ✔ $O(n \log n)$

88039642342. ✖ $O(\log n)$

88039642343. ✖ $O(n^2 \log n)$

88039642344. ✖ $O(n)$

Question Number : 27 Question Id : 88039610587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A starvation-free job-scheduling policy guarantees that no job waits indefinitely for service. Which of the following job-scheduling policies is starvation-free?

Options :

88039642345. ✔ Round-robin

88039642346. ✖ Priority queuing

88039642347. ✖ Shortest job first

88039642348. ✖ Youngest job first

Question Number : 28 Question Id : 88039610588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Using a 4-bit 2's complement arithmetic, which of the following additions will result in an overflow?

(i) 1100 + 1100 (ii) 0011 + 0111 (iii) 1111 + 0111

Options :

88039642349. ✖ (i) only

88039642350. ✔ (ii) only

88039642351. ✖ (iii) only

88039642352. ✖ (i) & (iii)

Question Number : 29 Question Id : 88039610589 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following is not one of the types of prototype of Prototyping Model?

Options :

88039642353. ✖ Horizontal Prototype

88039642354. ✖ Vertical Prototype

88039642355. ✔ Diagonal Prototype

88039642356. ✖ Domain Prototype

Question Number : 30 Question Id : 88039610590 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

You have lists, each consisting of integers sorted in ascending order. Merging these lists into a single sorted list will take time given by

Options :

88039642357. ✖ O(nm log m)

88039642358. ✔ O(mn log n)

88039642359. ✖ O(m + n)

88039642360. ✖ O(mn)

Question Number : 31 Question Id : 88039610591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following disallows both dirty reads and nonrepeatable reads, but allows phantom reads?

Options :

88039642361. ✖ Read committed

88039642362. ✖ Read uncommitted

88039642363. ✔ Repeatable read

88039642364. ✖ Serializable

Question Number : 32 Question Id : 88039610592 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If half adders and full adders are implemented using gates, then for the addition of two 17-bit numbers (using minimum gates) the number of half adders and full adders required will be?

Options :

88039642365. ✖ 0, 17

88039642366. ✔ 1, 16

88039642367. ✖ 16, 1

88039642368. ✖ 8, 8

Question Number : 33 Question Id : 88039610593 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The following functional dependencies are given:

AB->CD, AF->D, DE->F, C->G, F->E, G->A.

Which one of the following options is false?

Options :

88039642369. ✖ CF+ = {ACDEFG}

88039642370. ✖ BG+ = {ABCDG}

88039642371. ✔ AF+ = {ACDEFG}

88039642372. ✖ AB+ = {ABCDFG}

Question Number : 34 Question Id : 88039610594 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In virtual memory systems, Dynamic address translation

Options :

88039642373. ✔ Is the hardware necessary to implement paging

88039642374. ✖ Stores pages at a specific location on disk

88039642375. ✖ Is useless when swapping is used

88039642376. ✖ Is part of the operating system paging algorithm

Question Number : 35 Question Id : 88039610595 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let G be an undirected connected graph with distinct edge weights. Let e_{max} be the edge with maximum weight and e_{min} the edge with minimum weight. Which of the following statements is false?

Options :

88039642377. ✖ Every minimum spanning tree of G must contain e_{min}.

88039642378. ✖ If e_{max} is in a minimum spanning tree, then its removal must disconnect G.

88039642379. ✖ No minimum spanning tree contains e_{max}.

88039642380. ✔ G has a unique minimum spanning tree.

Question Number : 36 Question Id : 88039610596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose we want to arrange the n numbers stored in any array such that all negative values occur before all positive ones. Minimum number of exchanges required in the worst case is

Options :

88039642381. ✖ n-1

88039642382. ✖ n

88039642383. ✖ n+1

88039642384. ✔ n/2

Question Number : 37 Question Id : 88039610597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Interval between the time of submission and completion of job is called

Options :

88039642385. ✖ Waiting time

88039642386. ✔ Turnaround time

88039642387. ✖ Throughput

88039642388. ✖ Response time

Question Number : 38 Question Id : 88039610598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Hashing collision resolution techniques are

Options :

88039642389. ✖ Huffman coding, linear hashing

88039642390. ✖ Bucket addressing, Huffman coding

88039642391. ✖ Chaining, Huffman coding

88039642392. ✔ Chaining, Bucket addressing

Question Number : 39 Question Id : 88039610599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which are the essential prime implicants of the following Boolean function?

f(a, b, c) = a'c + ac' + b'c.

Options :

88039642393. ✔ a'c and ac'

88039642394. ✖ a'c and b'c

88039642395. ✖ a'c only

88039642396. ✖ ac' and bc'

Question Number : 40 Question Id : 88039610600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider a logical address space of 8 pages of 1024 words mapped with memory of 32 frames.

How many bits are there in the physical address?

Options :

88039642397. ✖ 14

88039642398. ✔ 15

88039642399. ✖ 8

88039642400. ✖ 9

Question Number : 41 Question Id : 88039610601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Match the following:

(a) Disk scheduling	1. Round-robin
(b) Batch processing	2. SCAN
(c) Time sharing	3. LIFO
(d) Interrupt processing	4. FIFO

Options :

88039642401. ✖ a-2, b-3, c-1, d-4

88039642402. ✖ a-2, b-1, c-4, d-3

88039642403. ✔ a-2, b-4, c-1, d-3

88039642404. ✖ a-4, b-2, c-1, d-3

Question Number : 42 Question Id : 88039610602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Match the following :

a) Lexical analysis	1) DAG's
b) Code optimization	2) Syntax trees
c) Code generation	3) Push down automaton
d) Abelian groups	4) Finite automaton

Options :

88039642405. ✔ a-4, b-1, c-2, d-3

88039642406. ✖ a-4, b-2, c-1, d-3

88039642407. ✖ a-3, b-2, c-1, d-4

88039642408. ✖ a-3, b-1, c-2, d-4

Question Number : 43 Question Id : 88039610603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following function is used to find the first occurrence of a given string in another string?

Options :

88039642409. ✖ strchr()

88039642410. ✖ strrchr()

88039642411. ✔ strstr()

88039642412. ✖ strnset()

Question Number : 44 Question Id : 88039610604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In an IPv4 datagram, the M bit is 0, the value of HLEN is 10, the value of total length is 400 and the fragment offset value is 300. The position of the datagram, the sequence numbers of the first and the last bytes of the payload, respectively are

Options :

88039642413. ✖ Last fragment, 2400 and 2789

88039642414. ✖ First fragment, 2400 and 2759

88039642415. ✔ Last fragment, 2400 and 2759

88039642416. ✖ Middle fragment, 300 and 689

Question Number : 45 Question Id : 88039610605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which data structure in a compiler is used for managing information about variables and their attributes?

Options :

88039642417. ✖ Syntax tree

88039642418. ✔ Symbol table

88039642419. ✖ Semantic stack

88039642420. ✖ Parse table

Question Number : 46 Question Id : 88039610606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In the Spiral model of software development, the primary determinant in selecting activities in each iteration is?

Options :

88039642421. ✖ Iteration size

88039642422. ✖ Cost

88039642423. ✖ Adopted process such as Rational Unified Process or Extreme Programming

88039642424. ✔ Risk

Question Number : 47 Question Id : 88039610607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider a program P that consists of two source modules M1 and M2 contained in two different files. If M1 contains a reference to a function defined in M2 the reference will be resolved at

Options :

88039642425. ✖ Edit time

88039642426. ✖ Compile time

88039642427. ✔ Link time

88039642428. ✖ Load time

Question Number : 48 Question Id : 88039610608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is true?

Options :

88039642429. ✖ SLR parser is more powerful than LALR

88039642430. ✖ LALR parser is more powerful than Canonical LR parser

88039642431. ✔ Canonical LR parser is more powerful than LALR parser

88039642432. ✖ The parsers SLR, Canonical CR, and LALR have the same power

Question Number : 49 Question Id : 88039610609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the output of this C code?

```
# include <stdio.h>
void main()
  {
    int i = 0;
    int j = 0;
    for (i = 0;i < 5; i++)
    {
        for (j = 0;j < 4; j++)
         {
          if (i > 1)
            continue;
         printf("Hi \n");
    }
} }
```

Options :

88039642433. ✖ Hi is printed 9 times

88039642434. ✔ Hi is printed 8 times

88039642435. ✖ Hi is printed 7 times

88039642436. ✖ Hi is printed 6 times

Question Number : 50 Question Id : 88039610610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Using data p=3, q=11, n=pq, d=7 in RSA algorithm, find the cipher text of the given plain text ANNESUZ.

Options :

88039642437. ✔ AEEZBUT

88039642438. ✖ BUTAEEZ

88039642439. ✖ EEZABUT

88039642440. ✖ AZEEBUT

Question Number : 51 Question Id : 88039610611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the return type of malloc() or calloc()?

Options :

88039642441. ✔ void *

88039642442. ✖ Pointer of allocated memory type

88039642443. ✖ void **

88039642444. ✖ int *

Question Number : 52 Question Id : 88039610612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a bottom-up evaluation of a syntax directed definition, inherited attributes can

Options :

88039642445. ✖ always be evaluated

88039642446. ✔ be evaluated only if the definition is L-attributed

88039642447. ✖ be evaluated only if the definition has synthesized attributes

88039642448. ✖ never be evaluated

Question Number : 53 Question Id : 88039610613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A program P reads in 500 integers in the range [0,100] representing the scores of 500 students. It then prints the frequency of each score above 50. What would be the best way for P to store the frequencies?

Options :

88039642449. ✔ An array of 50 numbers

88039642450. ✖ An array of 100 numbers

88039642451. ✖ An array of 500 numbers

88039642452. ✖ A dynamically allocated array of 550 numbers

Question Number : 54 Question Id : 88039610614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following C program segment

```
# include <stdio.h>
int main()
{
char s1[7] = "1234", *p;
p = s1 + 2;
*p = '0';
Printf("%s", s1);
}
```

What will be printed by the program?

Options :

88039642453. ✖ 12

88039642454. ✖ 120400

88039642455. ✔ 1204

88039642456. ✖ 1034

Question Number : 55 Question Id : 88039610615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A system contains three programs and each requires three tape units for its operation.

The minimum number of tape units which the system must have such that deadlocks never arise is

Options :

88039642457. ✖ 6

88039642458. ✔ 7

88039642459. ✖ 8

88039642460. ✖ 9

Question Number : 56 Question Id : 88039610616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A prime attribute of a relation scheme R is an attribute that appears

Options :

88039642461. ✖ in all candidate keys of R

88039642462. ✔ in some candidate key of R

88039642463. ✖ in a foreign key of R

88039642464. ✖ only in the primary key of R

Question Number : 57 Question Id : 88039610617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which-one of the following statements about normal forms is FALSE?

Options :

88039642465. ✖ BCNF is stricter than 3 NF

88039642466. ✖ Lossless, dependency - preserving decomposition into 3 NF is NOT possible

88039642467. ✔ Lossless, dependency - preserving decomposition into 3 NF is always possible

88039642468. ✖ Any relation with two attributes is BCNF

Question Number : 58 Question Id : 88039610618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following addressing modes permits relocation without any change whatsoever in the code?

Options :

88039642469. ✖ Indirect addressing

88039642470. ✖ Indexed addressing

88039642471. ✖ Base register addressing

88039642472. ✔ PC relative addressing

Question Number : 59 Question Id : 88039610619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A block-set associative cache memory consists of 128 blocks divided into four block sets. The main memory consists of 16384 blocks and each block contains 256 eight bit words.

i. How many bits are required for addressing the main memory?

ii. How many bits are needed to represent the TAG, SET and WORD fields?

Options :

88039642473. ✔ 23, 9 ,6, 8

88039642474. ✖ 22, 9, 5, 8

88039642475. ✖ 22, 8, 6, 8

88039642476. ✖ 23, 8, 7, 8

Question Number : 60 Question Id : 88039610620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following processor design characteristics:

I. Register-to-register arithmetic operations only

II. Fixed-length instruction format

III. Hardwired control unit

Which of the characteristics above are used in the design of a RISC processor?

Options :

88039642477. ✖ I and II only

88039642478. ✖ II and III only

88039642479. ✖ I and III only

88039642480. ✔ I, II and III

Question Number : 61 Question Id : 88039610621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

What must be the ideal size of array if the height of tree is 'L'?

Options :

88039642481. ✔ 2L-1

88039642482. ✖ L-1

88039642483. ✖ L

88039642484. ✖ 2L

Question Number : 62 Question Id : 88039610622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider a 2- way set associative cache with 256 blocks and uses LRU replacement. Initially the cache is empty. Conflict misses are those misses which occur due to the contention of multiple blocks for the same cache set. Compulsory misses occur due to first time access to the block. The following sequence of access to memory blocks:

{0, 128, 256, 128, 0, 128, 256, 128, 1, 129, 257, 129, 1, 129, 257, 129}

is repeated 10 times. The number of conflict misses experienced by the cache is

Options :

88039642485. ✖ 74

88039642486. ✖ 75

88039642487. ✔ 76

88039642488. ✖ 77

Question Number : 63 Question Id : 88039610623 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

On receiving an interrupt from a I/O device the CPU

Options :

88039642489. ✖ Halts for a predetermined time.

88039642490. ✖ Hands over control of address bus and data bus to the interrupting device.

88039642491. ✖ Branches off to the interrupt service routine immediately.

88039642492. ✔ Branches off to the interrupt service routine after completion of the current instruction.

Question Number : 64 Question Id : 88039610624 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If end to end delay is given by dend-end = N(dproc + dtrans + dprop) is a non-congested network. The number of routers between source and destination is

Options :

88039642493. ✖ N/2

88039642494. ✖ N

88039642495. ✔ N-1

88039642496. ✖ 2N

Question Number : 65 Question Id : 88039610625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A 32-bit wide main memory unit with a capacity of 1 GB is built using 256M*4-bit DRAM chips. The number of rows of memory cells in the DRAM chip is 2^{14}. The time taken to perform one refresh operation is 50 nanoseconds. The refresh period is 2 milliseconds. The percentage (rounded to the closest integer) of the time available for performing the memory read/write operations in the main memory unit is

Options :

88039642497. ✖ 49

88039642498. ✔ 59

88039642499. ✖ 57

88039642500. ✖ 69

Question Number : 66 Question Id : 88039610626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose we are sorting an array of eight integers using heapsort, and we have just finished some heapify (either maxheapify or minheapify) operations. The array now looks like this: 16 14 15 10 12 27 28. How many heapify operations have been performed on root of heap?

Options :

88039642501. ✖ 6

88039642502. ✖ 4

88039642503. ✖ 3

88039642504. ✔ 2

Question Number : 67 Question Id : 88039610627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

We want to design a synchronous counter that counts the sequence 0-1-0-2-0-3 and then repeats. The minimum number of J-K flip-flops required to implement this counter are

Options :

88039642505. ✖ 5

88039642506. ✖ 2

88039642507. ✔ 4

88039642508. ✖ 1

Question Number : 68 Question Id : 88039610628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Comparing the time T1 taken for a single instruction on a pipelined CPU with time T2 taken on a non-pipelined but identical CPU, we can say that

Options :

88039642509. ✖ $T1 \leq T2$

88039642510. ✔ $T1 \geq T2$

88039642511. ✖ T1 < T2

88039642512. ✖ T1 is T2 plus the time taken for one instruction fetch cycle

Question Number : 69 Question Id : 88039610629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from one of the following sources.

Options :

88039642513. ✖ A many-to-many relationship set

88039642514. ✖ A multivalued attribute of an entity set

88039642515. ✖ A one-to-many relationship set

88039642516. ✔ Both A many-to-many relationship set and A multivalued attribute of an entity set

Question Number : 70 Question Id : 88039610630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In an instruction execution pipeline, the earliest the data TLB (Translation Lookaside Buffer) can be accessed is:

Options :

88039642517. ✖ before effective address calculation has started

88039642518. ✖ during effective address calculation

88039642519. ✔ after effective address calculation has completed

88039642520. ✖ after data cache lookup has completed

Question Number : 71 Question Id : 88039610631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In a modified merge sort, the input array is split at a position one-third of the length(N) of the array. What is the worst-case time complexity of this merge sort?

Options :

88039642521. ✖ N(logN base 3)

88039642522. ✖ N(logN base 2/3)

88039642523. ✖ N(logN base 1/3)

88039642524. ✔ N(logN base 3/2)

Question Number : 72 Question Id : 88039610632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider the three commands: PROMPT, HEAD and RCPT.

Which of the following options indicate a correct association of these commands with protocols where these are used?

Options :

88039642525. ✖ HTTP, SMTP, FTP

88039642526. ✖ FTP, HTTP, SMTP

88039642527. ✖ HTTP, FTP, SMTP

88039642528. ✔ SMTP, HTTP, FTP

Question Number : 73 Question Id : 88039610633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A broadcast channel has 10 nodes and total capacity of 10 Mbps. It uses polling for medium access. Once a node finishes transmission, there is a polling delay of 80 μs to poll the next node. Whenever a node is polled, it is allowed to transmit a maximum of 1000 bytes. The maximum throughput of the broadcast channel is

Options :

88039642529. ✖ 1 Mbps

88039642530. ✔ 100/11 Mbps

88039642531. ✖ 10 Mbps

88039642532. ✖ 100 Mbps

Question Number : 74 Question Id : 88039610634 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Given the language L = {ab, aa, baa}, which of the following strings are in L*?

a) abaabaaabaa b) aaaabaaaa c) baaaaabaaaab d) baaaaabaa

Options :

88039642533. ✖ a, b and c

88039642534. ✖ b, c and d

88039642535. ✔ a, b and d

88039642536. ✖ a, c and d

Question Number : 75 Question Id : 88039610635 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider a CDMA/CD network that transmits data at a rate of 100 Mbps (bits per second) over 1km cable with no repeaters. If the minimum frame size required for this network is 1250 bytes. What is the signal speed (km/sec) in the cable?

Options :

88039642537. ✖ 8,000

88039642538. ✖ 10,000

88039642539. ✖ 16,000

88039642540. ✔ 20,000

Question Number : 76 Question Id : 88039610636 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In an Ethernet local area network, which one of the following statements is TRUE?

Options :

88039642541. ✖ A station stops to sense the channel once it starts transmitting a frame.

88039642542. ✖ The purpose of the jamming signal is to pad the frames that are smaller than the minimum frame size.

88039642543. ✖ A station continues to transmit the packet even after the collision is detected.

88039642544. ✔ The exponential back off mechanism reduces the probability of collision on retransmissions.

Question Number : 77 Question Id : 88039610637 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

One of the header fields in an IP datagram is the Time-to-Live (TTL) field. Which of the following statements best explains the need for this field?

Options :

88039642545. ✖ It can be used to prioritize packets.

88039642546. ✖ It can be used to reduce delays.

88039642547. ✖ It can be used to optimize throughput.

88039642548. ✔ It can be used to prevent packet looping.

Question Number : 78 Question Id : 88039610638 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Assume that source S and destination D are connected through two intermediate routers labeled R. Determine how many times each packet has to visit the network layer and the data link layer during a transmission from S to D?

Options :

88039642549. ✖ Network layer 4 times and Data link layer 4 times

88039642550. ✖ Network layer 4 times and Data link layer 3 times

88039642551. ✔ Network layer 4 times and Data link layer 6 times

88039642552. ✖ Network layer 2 times and Data link layer 6 times

Question Number : 79 Question Id : 88039610639 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A B+ tree index is to be built on the Name attribute of the relation STUDENT. Assume that all the student names are of length 8 bytes, disk blocks are of size 512 bytes, and index pointers are of size 4 bytes. Given the scenario, what would be the best choice of the degree (i.e. number of pointers per node) of the B+ tree?

Options :

88039642553. ✖ 16

88039642554. ✖ 42

88039642555. ✔ 43

88039642556. ✖ 44

Question Number : 80 Question Id : 88039610640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two transactions T1 and T2 are given as:

T1: r1(X) w1(X) r1(Y) w1(Y)

T2: r2(Y) w2(Y) r2(Z) w2(Z)

where $r_i(X)$ denotes a read operation by transaction T_i on a variable V and $w_i(V)$ denotes a write operation by transaction T_i on a variable V. The total number of conflict serializable schedules that can be formed by T_1 and T_2 is

Options :

88039642557. ✖ 55

88039642558. ✔ 54

88039642559. ✖ 52

88039642560. ✖ 50

Question Number : 81 Question Id : 88039610641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider a schema R (A, B, C, D) and functional dependencies A->B and C->D. Then the decomposition of R into R1(A, B) and R2(C, D) is

Options :

88039642561. ✖ Dependency preserving and lossless join

88039642562. ✖ Lossless join but not dependency preserving

88039642563. ✔ Dependency preserving but not lossless join

88039642564. ✖ Not dependency preserving and not lossless join

Question Number : 82 Question Id : 88039610642 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider a relation R with five attributes V, W, X, Y, and Z. The following functional dependencies hold:

VY→ W, WX → Z, and ZY → V.

Which of the following is a candidate key for R?

Options :

88039642565. ✖ VXZ

88039642566. ✔ VXY

88039642567. ✖ VWXY

88039642568. ✖ VWXYZ

Question Number : 83 Question Id : 88039610643 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following relation schema pertaining to a student's database:

Students (rollno, name, address)

Enroll (rollno, courseno, coursename)

Where the primary keys are shown underlined. The number of tuples in the student and Enroll tables are 120 and 8 respectively. What are the maximum and minimum number of tuples that can be present in (Student * Enroll), where '*' denotes natural join?

Options :

88039642569. ✔ 8, 8

88039642570. ✖ 120, 8

88039642571. ✖ 960, 8

88039642572. ✖ 960, 120

Question Number : 84 Question Id : 88039610644 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Given relations r (w, x) and s(y, z) the result of

select distinct w, x

from r, s

is guaranteed to be same as r, provided the following:

Options :

88039642573. ✔ r has no duplicates and s is non-empty

88039642574. ✖ r and s have no duplicates

88039642575. ✖ s has no duplicates and r is non-empty

88039642576. ✖ r and s have the same number of tuples

Question Number : 85 Question Id : 88039610645 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of min-terms after minimizing the following Boolean expression is

[D'+AB'+A'C+AC'D+A'C'D]'

Options :

88039642577. ✖ 4

88039642578. ✖ 3

88039642579. ✖ 2

88039642580. ✔ 1

Question Number : 86 Question Id : 88039610646 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

You have an array of n elements. Suppose you implement quicksort by always choosing the central element of the array as the pivot. Then the tightest upper bound for the worst case performance is

Options :

88039642581. ✖ $O(n^3)$

88039642582. ✖ O(nlogn)

88039642583. ✔ $O(n^2)$

88039642584. ✖ θ(nlogn)

Question Number : 87 Question Id : 88039610647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A specific editor has 200 K of program text, 15 K of initial stack, 50 K of initialized data, and 70 K of bootstrap code. If five editors are started simultaneously, how much physical memory is needed if shared text is used?

Options :

88039642585. ✖ 1135 K

88039642586. ✖ 335 K

88039642587. ✔ 1065 K

88039642588. ✖ 320 K

Question Number : 88 Question Id : 88039610648 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which level of locking provides the highest degree of concurrency in a relational data base?

Options :

88039642589. ✖ Page

88039642590. ✖ Table

88039642591. ✔ Row

88039642592. ✖ Page, table and row level locking allow the same degree of concurrency

Question Number : 89 Question Id : 88039610649 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a regular expression?

Options :

88039642593. ✖ [(a+b)*(aa+bb)]*

88039642594. ✔ [(0+1)(0b+a1)*(a+b)]*

88039642595. ✖ (01+11+10)*

88039642596. ✖ (1+2+0)*(1+2)*

Question Number : 90 Question Id : 88039610650 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following combinational function block involving four Boolean variables

x, y, a, b

Where x, a, b are inputs and y is the output.

```
f(x, a, b, y)
{
If (x is 1) y = a;
else y = b;
}
```

Which one of the following digital logic blocks is the most suitable for implementing this function?

Options :

88039642597. ✖ Full adder

88039642598. ✖ Priority encoder

88039642599. ✔ Multiplexer

88039642600. ✖ Flip-flop

Question Number : 91 Question Id : 88039610651 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider a 4-bit Johnson counter with an initial value of 0000. The counting sequence of this counter is

Options :

88039642601. ✖ 0, 1, 3, 7, 15, 14, 12, 8, 0

88039642602. ✖ 0, 1, 3, 5, 7, 9, 11, 13, 15, 0

88039642603. ✖ 0, 2, 4, 6, 8, 10, 12, 14, 0

88039642604. ✔ 0, 8, 12, 14, 15, 7, 3, 1, 0

Question Number : 92 Question Id : 88039610652 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A process executes the code

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

The total number of child processes created are

Options :

88039642605. ✖ 4

88039642606. ✖ 8

88039642607. ✔ 15

88039642608. ✖ 31

Question Number : 93 Question Id : 88039610653 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following consumes major part of time when accessing data on the disk?

Options :

88039642609. ✖ Settle time

88039642610. ✖ Rotational latency

88039642611. ✔ Seek time

88039642612. ✖ Waiting time

Question Number : 94 Question Id : 88039610654 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let the time taken to switch from user mode to kernel mode of execution be T1 while time taken to switch between two user processes be T2. Which of the following is correct?

Options :

88039642613. ✖ T1>T2

88039642614. ✖ T1=T2

88039642615. ✔ T1<T2

88039642616. ✖ Nothing can be said about the relation between T1 and T2.

Question Number : 95 Question Id : 88039610655 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Assuming the current disk cylinder to be 50 and the sequence for the cylinders to be 55, 1, 36, 49, 65, 53, 12, 3, 20, 16, 65 and 78. Find the sequence of service using Shortest Seek Time First (SSTF).

Options :

88039642617. ✖ 50, 55,53, 49, 65,65, 78,36, 20, 16, 12, 3, 1

88039642618. ✔ 50, 49, 53,55,65,65, 78,36, 20, 16, 12, 3, 1

88039642619. ✖ 50, 53, 55,49,65,65, 78,36, 20, 16, 12, 3, 1

88039642620. ✖ 50, 55,49,53,65,65, 78,36, 20, 16, 12, 3, 1

Question Number : 96 Question Id : 88039610656 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following requires a device driver?

Options :

88039642621. ✖ Register

88039642622. ✖ Cache

88039642623. ✖ Main memory

88039642624. ✔ Disk

Question Number : 97 Question Id : 88039610657 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following scenarios may lead to an irrecoverable error in a database System?

Options :

88039642625. ✖ A transaction writes a data item after it is read by an uncommitted transaction

88039642626. ✖ A transaction reads a data item after it is read by an uncommitted transaction

88039642627. ✖ A transaction reads a data item after it is written by a committed transaction

88039642628. ✔ A transaction reads a data item after it is written by an uncommitted transaction

Question Number : 98 Question Id : 88039610658 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which one of the following is true for a CPU having a single interrupt request line and a single interrupt grant line?

Options :

88039642629. ✖ Neither vectored interrupt nor multiple interrupting devices are possible

88039642630. ✖ Vectored interrupts are not possible but multiple interrupting devices are possible

88039642631. ✔ Vectored interrupts and multiple interrupting devices are both possible

88039642632. ✖ Vectored interrupts are possible but multiple interrupting devices are not possible

Question Number : 99 Question Id : 88039610659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following page replacement algorithm(s) suffers from Belady's anomaly?

Options :

88039642633. ✖ Optimal replacement

88039642634. ✖ Least Recently Used

88039642635. ✔ First-In-First-Out

88039642636. ✖ Most Frequently Used

Question Number : 100 Question Id : 88039610660 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The maximum number of processes that can be in Ready state for a computer system with 'n' CPUs

Options :

88039642637. ✖ n

88039642638. ✖ n^2

88039642639. ✖ 2^n

88039642640. ✔ Independent of n.

Question Number : 101 Question Id : 88039610661 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

What will be the output of the program?

```
#include<stdio.h>
int main()
 {
  int a=0, b=1, c=2;
  *((a+1 == 1) ? &b : &a) = a ? b : c;
  printf("%d, %d, %d\n", a, b, c);
  return 0;
  }
```

Options :

88039642641. ✖ 1,1,2

88039642642. ✔ 0,2,2

88039642643. ✖ 2,2,2

88039642644. ✖ 0,1,2

Question Number : 102 Question Id : 88039610662 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is FALSE?

Options :

88039642645. ✖ In statically typed languages, each variable in a program has a fixed type

88039642646. ✖ In un-typed languages, values do not have any types

88039642647. ✔ In dynamically typed languages, variables have no types

88039642648. ✖ In all statically typed languages, each variable in a program is associated with values of only a single type during the execution of the program

Question Number : 103 Question Id : 88039610663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following problems is undecidable?

Options :

88039642649. ✔ Deciding if a given context-free grammar is ambiguous.

88039642650. ✖ Deciding if a given string is generated by a given context-free grammar.

88039642651. ✖ Deciding if the language generated by a given context-free grammar is empty.

88039642652. ✖ Deciding if the language generated by a given context-free grammar is finite.

Question Number : 104 Question Id : 88039610664 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let L be the set of all binary strings whose last two symbols are the same. The number of states in the minimal state deterministic finite state automaton accepting L is

Options :

88039642653. ✖ 2

88039642654. ✔ 5

88039642655. ✖ 8

88039642656. ✖ 3

Question Number : 105 Question Id : 88039610665 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let L denote the languages generated by the grammar S->0S0|00. Which of the following is TRUE?

Options :

88039642657. ✖ $L=0^+$

88039642658. ✔ L is regular but not 0^+

88039642659. ✖ L is context free but not regular

88039642660. ✖ L is not context free

Question Number : 106 Question Id : 88039610666 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following pairs have DIFFERENT expressive power?

Options :

88039642661. ✖ Deterministic Finite Automata (DFA) and Non-deterministic Finite Automata (NFA)

88039642662. ✔ Deterministic Push Down Automata (DPDA) and Non-deterministic Push Down Automata (NPDA)

88039642663. ✖ Deterministic single tape Turing machine and Non-deterministic single tape Turing machine

88039642664. ✖ Single tape Turing machine and multi-tape Turing machine

Question Number : 107 Question Id : 88039610667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider the following C program segment:

```
char p[20];
char* s = "string";
int i;
int length = strlen(s);
for(i = 0; i < length; i++)
p[i] = s[length-i];
printf("%s", p);
```

The output of the program is

Options :

88039642665. ✖ gnirts

88039642666. ✖ string

88039642667. ✖ gnirt

88039642668. ✔ no output is printed

Question Number : 108 Question Id : 88039610668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The 3-SAT and 2-SAT problems belong to _____ type.

Options :

88039642669. ✖ both in P

88039642670. ✖ both NP-complete

88039642671. ✔ NP-complete and in P respectively

88039642672. ✖ undecidable and NP-complete respectively

Question Number : 109 Question Id : 88039610669 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider the following C function:

```
int f(int n)
{
static int r = 0;
if (n <= 0) return1;
if (n > 3)
{ r = n;
return f(n-2) + 2;
}
return f(n-1) + r;
}
```

What is the value of f(5) ?

Options :

88039642673. ✖ 5

88039642674. ✖ 7

88039642675. ✖ 9

88039642676. ✔ 18

Question Number : 110 Question Id : 88039610670 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider the following C program:

```
#include<stdio.h>
struct Ournode{
char x, y, z;
};
int main() {
struct Ournode p={'1', '0', 'a'+2};
struct Ournode *q=&p;
printf("%c, %c", *((char*)q+1), *((char*)q+2));
return 0;
}
```

The output of this program is

Options :

88039642677. ✔ 0, c

88039642678. ✖ 0, a+2

88039642679. ✖ '0', 'a+2'

88039642680. ✖ '0', 'c'

Question Number : 111 Question Id : 88039610671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following statements is FALSE?

Options :

88039642681. ✖ The intersection of a context free language with a regular language is context free

88039642682. ✖ The intersection of two context free languages is context free

88039642683. ✖ The intersection of a context free language and the complement of a regular language is context free

88039642684. ✔ The intersection of a regular language and the complement of a regular language is regular

Question Number : 112 Question Id : 88039610672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Here is an infix expression: 4 + 3*(6*3-12). Suppose that we are using the usual stack algorithm to convert the expression from infix to postfix notation. The maximum number of symbols that will appear on the stack at one time during the conversion of this expression is

Options :

88039642685. ✔ 4

88039642686. ✖ 3

88039642687. ✖ 2

88039642688. ✖ 1

Question Number : 113 Question Id : 88039610673 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

S-> aSa|bSb|a|b

The language generated by the above grammar over the alphabet {a,b} is the set of:

Options :

88039642689. ✖ All palindromes

88039642690. ✔ All odd length palindromes

88039642691. ✖ Strings that begin and end with the same symbol

88039642692. ✖ All even length palindromes

Question Number : 114 Question Id : 88039610674 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose computers A and B have IP addresses 10.105.1.113 and 10.105.1.91 respectively and they both use the same netmask N. Which of the values of N given below should not be used if A and B should belong to the same network?

Options :

88039642693. ✖ 255.255.255.0

88039642694. ✖ 255.255.255.128

88039642695. ✖ 255.255.255.192

88039642696. ✔ 255.255.255.224

Question Number : 115 Question Id : 88039610675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following is not decidable?

Options :

88039642697. ✖ Given a Turing machine M, a string 's' and an integer 'k', M accepts 's' within 'k' steps

88039642698. ✔ Equivalence of two given Turing machines

88039642699. ✖ Language accepted by a given finite state machine is not empty

88039642700. ✖ Language generated by a context free grammar is non-empty

Question Number : 116 Question Id : 88039610676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following features cannot be captured by context-free grammars?

Options :

88039642701. ✖ Syntax of if-then-else statements

88039642702. ✖ Syntax of recursive procedures

88039642703. ✔ Whether a variable has been declared before its use

88039642704. ✖ Variable names of arbitrary length

Question Number : 117 Question Id : 88039610677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In one of the following software process models, the customer is closely involved throughout the development process.

Options :

88039642705. ✔ Agile model

88039642706. ✖ Waterfall model

88039642707. ✖ Spiral model

88039642708. ✖ Prototype model

Question Number : 118 Question Id : 88039610678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A structure software system has

Options :

88039642709. ✖ Loose coupling and loose cohesion

88039642710. ✔ Loose coupling and tight cohesion

88039642711. ✖ Tight coupling and loose cohesion

88039642712. ✖ Tight coupling and tight cohesion

Question Number : 119 Question Id : 88039610679 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A system that doesn't produce any dangerous or costly failures is said to be

Options :

88039642713. ✖ Available

88039642714. ✔ Reliable

88039642715. ✖ Portable

88039642716. ✖ Interoperable

Question Number : 120 Question Id : 88039610680 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The software engineering activities that are carried out for adding a new functionality or modifying an existing functionality is known as

Options :

88039642717. ✖ Corrective maintenance

88039642718. ✖ Adaptive maintenance

88039642719. ✖ Protective maintenance

88039642720. ✔ Perfective maintenance