

Option ID :- 2249, ~~X~~

Racial equity नस्लीय समता

Option ID :- 2250,

Primacy of local languages स्थानीय भाषाओं का प्राधान्य

Option ID :- 2251,

Exclusion of old languages पुरानी भाषाओं का बहिष्करण

Option ID :- 2252, ✓

Answer Given:- Codification of law

कानून को संहिताबद्ध करने के लिए

, Option ID :

-2249

Subject : 87_PART_A_Set1

Computer Science

Question ID:- 325

Consider the primal problem :

Maximize $z = 5x_1 + 12x_2 + 4x_3$

Subject to $x_1 + 2x_2 + x_3 = 10$

$2x_1 - x_2 + 8x_3 = 8$

$x_1, x_2, x_3 \geq 0$

its dual problem is

Minimize $w = 10y_1 + 8y_2$

Subject to $y_1 + 2y_2 \geq 5$

$2y_1 - y_2 \geq 12$

$y_1 + 3y_2 \geq 4$

Which of the following is correct?

Options:-

$y_1 \geq 0, y_2$ unrestricted

Option ID :- 1297, ✓

$y_1 \geq 0, y_2 \geq 0$

Option ID :- 1298,

y_1 is unrestricted, $y_2 \geq 0$

Option ID :- 1299,

y_1 is unrestricted, y_2 restricted

Option ID :- 1300,

Answer Given:- $y_1 \geq 0, y_2 \geq 0$

, Option ID :- 1298

Question ID:- 323

The total storage capacity of a floppy disk having 80 tracks and storing 128 bytes/sector is 163,840 bytes. How many sectors does this disk have?

Options:-

2

Option ID :- 1289,

2048

Option ID :- 1290,

4K

Option ID :- 1291,

16

Option ID :- 1292, ✓

Answer Given:- 4K

, Option ID :- 1291

Question ID:- 400

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R) :

Assertion (A) : $\bar{p}$

Reason (R) : $(r \rightarrow \bar{q}, r \vee s, s \rightarrow \bar{q}, p \rightarrow q)$

In the light of the above statements, choose the correct answer from the options given below :

Options:-

Both (A) and (R) are true and (R) is the correct explanation of (A)

Option ID :- 1597, ✓

Both (A) and (R) are true but (R) is NOT the correct explanation of (A)

Option ID :- 1598,

(A) is true but (R) is false

Option ID :- 1599,

(A) is false but (R) is true

Option ID :- 1600,

Answer Given:- Both (A) and (R) are true and (R) is the correct explanation of (A), Option ID :- 1597

Question ID:- 371

Blunder mistakes

Consider the properties of recursively enumerable sets :

(A) Finiteness

(B) Context Freedom

(C) Emptiness

Which of the following is true?

Options:-

Only (A) and (B) are not decidable

No. of tracks = 80

No. of bytes/sector = 128

Total storage capacity = No. of tracks $\times$

No. of sectors/track $\times$

No. of bytes/sector

$$\Rightarrow 163840 = 80 \times 128 \times n$$

$$n = 16$$

$$\begin{array}{l} r \vee \bar{q} \quad r \vee \bar{q} \\ r \vee s \quad \neg p \vee q \\ \neg p \end{array}$$

$$\bar{q} \wedge \bar{p}$$

RE
Rec

CSB = REC
M

undecidable is all cases
Regular decidable in all cases

REC Rec

Option ID :- 1481,

- Only (B) and (C) are not decidable

Option ID :- 1482,

- Only (C) and (A) are not decidable

Option ID :- 1483,

- All (A), (B) and (C) are not decidable

Option ID :- 1484,

- Only (C) and (A) are not decidable

Answer Given:- , Option ID :- 1483

Question ID:- 395

A top down approach to programming calls for :

Statement I : Working from the general to the specific.

Statement II : Postpone the minor decisions.

Statement III : A systematic approach.

Statement IV : Intermediate coding of the problem

Which of the following is true?

Options:-

- Statement I only

Option ID :- 1577,

- Statement I and Statement II only

Option ID :- 1578,

- Statement I, Statement II and Statement III only

Option ID :- 1579,

- Statement I, Statement II and Statement IV only

Option ID :- 1580,

- Statement I, Statement II and Statement III only

Answer Given:-

Question ID:- 402

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R) :

Assertion (A) : A load-and-go assembler avoids the overhead of writing the object program out and reading it back in.

Reason (R) : This can be done with either one-pass or two pass assembler.

In the light of the above statements, choose the correct answer from the options given below :

Options:-

- Both (A) and (R) are true and (R) is the correct explanation of (A)

Option ID :- 1605,

- Both (A) and (R) are true but (R) is NOT the correct explanation of (A)

Option ID :- 1606,

- (A) is true but (R) is false

Option ID :- 1607,

- (A) is false but (R) is true

Option ID :- 1608,

- (A) is true but (R) is false

Answer Given:- , Option ID :- 1607

Question ID:- 379

Let $\epsilon = 0.0005$. and Let R_ϵ be the relation $\{(x, y) \in R^2 : |x - y| < \epsilon\}$. R_ϵ could be interpreted as the relation approximately equal. R_ϵ is

(A) Reflexive

(B) Symmetric

(C) transitive

Choose the correct answer from the options given below :

Options:-

- (A) and (B) only true

Option ID :- 1513,

- (B) and (C) only true

Option ID :- 1514,

- (A) and (C) only true

Option ID :- 1515,

- (A), (B) and (C) true

Option ID :- 1516,

- (A) and (C) only true

Answer Given:- , Option ID :- 1515

Question ID:- 365

Consider the following two lists :

List I	List II
(A) Stack overflow	(I) Software interrupt
(B) Timer	(II) Internal interrupt
(C) Invalid opcode	(III) External interrupt
(D) Superior call	(IV) Machine check interrupt

Which of the following is correct match ?

Options:-

(A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Option ID :- 1457,

(A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Option ID :- 1458,

(A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Option ID :- 1459,

(A)-(II), (B)-(III), (C)-(IV), (D)-(I)

Option ID :- 1460,

Answer Given:- (A)-(II), (B)-(III), (C)-(IV), (D)-(I) , Option ID : -1460

Question ID:- 338

What is called Journaling in Linux operating system?

Options:-

Process scheduling

Option ID :- 1349,

File saving as transaction

Option ID :- 1350,

A type of thread

Option ID :- 1351,

An editor

Option ID :- 1352,

Answer Given:- Process scheduling , Option ID : -1349

Question ID:- 368

For the following page reference string 2, 2, 1, 4, 3, 2, 4, 2, 1, 5 the number of page faults that occur in Least Recently Used (LRU) page replacement algorithm with frame size 3 is

Options:-

8

Greedy algo. based on locality of reference

All the replacement algo. target is to reduce number of Page faults

2 2 2 2 2 2 1 5
3 2 4 4 4 1 2 2
4 1 1 1 5 2 2 2

Option ID :- 1469,

Option ID :- 1470,

Option ID :- 1471,

Option ID :- 1472,

Answer Given:- 8 , Option ID : -1470

Question ID:- 370

Consider two lists A and B of three strings on {0, 1}

List A	List B
1	111
10111	10
10	0

List A	List B
10	101
011	11
101	011

Which of the following is true?

Options:-

Only PCP in X has solution.

Option ID :- 1477,

Only PCP in Y has solution.

Option ID :- 1478,

PCP in both X and Y has solution.

Option ID :- 1479,

PCP neither in X nor in Y has solution.

Option ID :- 1480,

Answer Given:- PCP in both X and Y has solution. , Option ID : -1479

Question ID:- 399

A good software requirement specification does NOT have the characteristic

Options:-

Completeness, T

Option ID :- 1593,

Consistency, T

Option ID :- 1594,

Clarity, T

unambiguous

Correctness
modifiability
verifiability
Concise
unambiguous
consistent
complete
structured

① $f(n) = O(g(n))$ and $f(n) = \Omega(g(n))$ then
 $f(n) = \Theta(g(n))$

② $f(n) = O(g(n))$ & $d(n) = O(e(n))$ then
 $f(n) + d(n) = O(\max(g(n), e(n)))$
 $f(n) * d(n) = O(g(n) * e(n))$

Option ID :- 1595,

Reliability

Option ID :- 1596,

Answer Given:- Reliability , Option ID : -1596

Question ID:- 372

Consider the following :

List I

- (A) Activation record
- (B) Location counter
- (C) Reference count
- (D) Address relocation

List II

- (I) Linking Loader
- (II) Garbage Collection
- (III) Subroutine Call
- (IV) Assembler

Which of the following is correct matching ?

Options:-

(A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Option ID :- 1485,

(A)-(IV), (B)-(III), (C)-(I), (D)-(II)

Option ID :- 1486,

(A)-(IV), (B)-(III), (C)-(II), (D)-(I)

Option ID :- 1487,

(A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Option ID :- 1488,

Answer Given:- (A)-(IV), (B)-(III), (C)-(I), (D)-(II) , Option ID : -1486

Question ID:- 317

There are three boxes. First box has 2 white, 3 black and 4 red balls. Second box has 3 white, 2 black and 2 red balls. Third box has 4 white, 1 black and 3 red balls. A box is chosen at random and 2 balls are drawn out of which 1 is white, and 1 is red. What is the probability that the balls came from first box?

Options:-

0.287

Option ID :- 1265,

0.723

Option ID :- 1266,

0.18

Option ID :- 1267,

0.452

Option ID :- 1268,

Answer Given:- 0.18 , Option ID : -1267

① $f(n) = O(g(n))$ & $f(n) = \Omega(g(n))$ then $f(n) = \Theta(g(n))$
 ② Reflexive
 $f(n) = O(f(n))$

Question ID:- 357

Assume that $f(n)$ and $g(n)$ are asymptotically positive. Which of the following is correct?

Options:-

$f(n) = O(g(n))$ and $g(n) = O(h(n)) \Rightarrow f(n) = O(h(n))$

Option ID :- 1425,

$f(n) = \Omega(g(n))$ and $g(n) = \Omega(h(n)) \Rightarrow f(n) = \Omega(h(n))$

Option ID :- 1426,

$f(n) = o(g(n))$ and $g(n) = o(h(n)) \Rightarrow f(n) = o(h(n))$

Option ID :- 1427,

$f(n) = \omega(g(n))$ and $g(n) = \omega(h(n)) \Rightarrow f(n) = \omega(h(n))$

Option ID :- 1428,

Answer Given:- $f(n) = O(g(n))$ and $g(n) = O(h(n)) \Rightarrow f(n) = O(h(n))$, Option ID : -1425

Question ID:- 397

Consider the following statements about Context Free Language (CFL):

Statement I : CFL is closed under homomorphism.

Statement II : CFL is closed under complement.

Which of the following is correct?

Options:-

Statement I is true and Statement II is false

Option ID :- 1585,

Statement II is true and Statement I is false

Option ID :- 1586,

Both Statement I and Statement II are true

Option ID :- 1587,

Neither Statement I nor Statement II is true

Option ID :- 1588,

Statement I is true and Statement II is false , Option ID : -1585

Answer Given:-

Question ID:- 359

The number of nodes of height h in any n -element heap is atmost:

Options:-

④ Symmetric
 $f(n) = O(g(n))$ then
 $g(n) = O(f(n))$
 transitive property
 ⑤ Transpose Symmetry
 $f(n) = O(g(n))$ then
 $g(n) = \Omega(f(n))$

CFL not closed
 Intersection set Diff. complement
 option 2, 3 eliminate
 TRICK
 ISC Board
 CFL = RE except subtraction

Option ID :- 1340.

manipulate dynamic data structure

Option ID : -1340

Question ID:- 385

Match List I with List II :

List I

List II

- | | |
|---|--|
| (A) Least frequently used | (I) Memory is distributed among processors |
| (B) Critical Section | (II) Page replacement policy in cache memory |
| (C) Loosely coupled multiprocessor system | (III) Program section that once begin must complete execution before another processor access the same shared resource |
| (D) Distributed operating system organization | (IV) O/S routines are distributed among available processors. |

Choose the correct answer from the options given below :

Options:-

(A)-(III), (B)-(II), (C)-(IV), (D)-(I)

Option ID :- 1537,

(A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Option ID :- 1538,

(A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Option ID :- 1539,

(A)-(II), (B)-(I), (C)-(III), (D)-(IV)

Option ID :- 1540,

Answer Given:- (A)-(II), (B)-(III), (C)-(I), (D)-(IV), Option ID : -1539

Question ID:- 351

Which one is a connectionless transport - layer protocol that belongs to the Internet protocol family?

Options:-

Transmission Control Protocol (TCP)

Option ID :- 1401,

User Datagram Protocol (UDP)

Option ID :- 1402,

Routing Protocol (RP)

Option ID :- 1403,

Datagram Control Protocol (DCP)

Option ID :- 1404,

Answer Given:- User Datagram Protocol (UDP), Option ID : -1402

Question ID:- 342

Fault base testing technique is a technique

Options:-

Unit testing

Option ID :- 1365,

Beta testing

Option ID :- 1366,

Stress testing

Option ID :- 1367,

Mutation testing

Option ID :- 1368,

Answer Given:- Mutation testing, Option ID : -1368

Question ID:- 331

Consider the following NPDA = $(q_0, q_1, q_2, \{a, b\}, \{1, z\}, \delta, q_0, z, \{q_1\})$

$\delta(q_0, a, z) = \{(q_1, z)\}$

$\delta(q_0, b, z) = \{(q_1, 1z)\}$

$\delta(q_1, a, 1) = \{(q_1, 11)\}$

$\delta(q_1, b, 1) = \{(q_1, 1)\}$

$\delta(q_1, z, z) = \{(q_1, z)\}$

Which of the following Language L is accepted by NPDA?

Options:-

$L = \{a^{2n}b^n : n \geq 0\}$

Option ID :- 1321,

$L = \{a^n b^{2n} : n \geq 0\}$

Option ID :- 1322,

$L = \{a^{2n}b^n : n > 0\}$

Option ID :- 1323,

$L = \{a^n b^{2n} : n > 0\}$

Option ID :- 1324,

Answer Given:- $L = \{a^{2n}b^n : n \geq 0\}$, Option ID : -1321

Question ID:- 340

RAD software process model stands for

$(q_0, 1, z) \rightarrow (q_1, z)$

epsilon is also accepted

- Rapid Application Development
 Option ID :- 1357,
 Relative Application Development
 Option ID :- 1358,
 Rapid Application Design
 Option ID :- 1359,
 Recent Application Development

Option ID :- 1360,
 Answer Given:- Rapid Application Development , Option ID : -1357

Question ID:- 382

Match List I with List II:

List I

List II

- | | |
|---|--|
| (A) Localization | (I) Encapsulation |
| (B) Packaging or binding of a collection of items | (II) Abstraction |
| (C) Mechanism that enables designer to focus on essential details of a program component. | (III) Characteristic of software that indicates the manner in which information is concentrated in program |
| (D) Information hiding | (IV) Suppressing the operational details of a program component |

Choose the correct answer from the options given below :

Options:-

(A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Option ID :- 1525,

(A)-(II), (B)-(I), (C)-(III), (D)-(IV)

Option ID :- 1526,

(A)-(III), (B)-(I), (C)-(II), (D)-(IV)

Option ID :- 1527,

(A)-(III), (B)-(I), (C)-(IV), (D)-(II)

Option ID :- 1528,

Answer Given:- (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

, Option ID : -1527

Question ID:- 356

Which of the following is correct for the destination address 4A:30:10:21:10:1A?

Options:-

unicast address

Unicast Range 192.0.0.0 to 223.255.255.255

Multicast Range 224.0.0.0 to 239.255.255.255

Option ID :- 1421,

multicast address

Option ID :- 1422,

broadcast address

Option ID :- 1423,

unicast and broadcast address

Option ID :- 1424,

Answer Given:- broadcast address , Option ID : -1423

Question ID:- 373

Consider the following related to Fourth Generation Technique (4GT):

- (A) It controls efforts.
 (B) It controls resources.
 (C) It controls cost of development.

Computer powerful compact reliable Affordable

Choose the correct answer from the options given below :

Options:-

(A) and (B) only

Option ID :- 1489,

(B) and (C) only

Option ID :- 1490,

(C) and (A) only

Option ID :- 1491,

All (A), (B) and (C)

Option ID :- 1492,

Answer Given:- All (A), (B) and (C) , Option ID : -1492

Question ID:- 381

Match List I with List II:

List I

List II

- | | |
|----------|---|
| (A) BCNF | (I) It removes multivalued dependency |
| (B) 3NF | (II) It is not always dependency preserving |
| (C) 2NF | (III) It removes transitive dependency |
| (D) 4NF | (IV) It removes partial functional dependency |

Choose the correct answer from the options given below:

Options:-

(A)-(III), (B)-(II), (C)-(IV), (D)-(I)

BCNF → 1.H.S S.K
 3NF → 1.H.S S.K / B.H.S

No Transitive dep.
 2NF - No partial dep.
 prime, NP

1NF - atomic

No multivalued
 No composite

4NF → No multivalued attri
 3NF → no join dependency

Option ID :- 1521,

- (A)-(II), (B)-(IV), (C)-(I), (D)-(III)

Option ID :- 1522,

- (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

Option ID :- 1523,

- (A)-(II), (B)-(I), (C)-(IV), (D)-(III)

Option ID :- 1524,

Answer Given:- (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

, Option ID :- 1523

31 Question ID:- 386

Match List I with List II:

List I

List II

- | | |
|------------------------|--|
| (A) Firmware | (I) Number of logical records into physical blocks |
| (B) Batch file | (II) ASCII format |
| (C) Packing | (III) Resource allocation |
| (D) Banker's Algorithm | (IV) ROM |

Choose the correct answer from the options given below:

Options:-

- (A)-(II), (B)-(I), (C)-(IV), (D)-(III)

Option ID :- 1541,

- (A)-(II), (B)-(I), (C)-(III), (D)-(IV)

Option ID :- 1542,

- (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

Option ID :- 1543,

- (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

Option ID :- 1544,

Answer Given:- (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

, Option ID :- 1543

32 Question ID:- 352

Consider an error free 64 kbps satellite channel used to send 512 byte data frames in one direction with very short acknowledgements coming back the other way. What is the maximum throughput for window size of 15?

Options:-

- 32 kbps

Option ID :- 1405

- 48 kbps

Firmware is programming written to a new device's non-volatile memory

ROM → type of static RAM

convert Data frame size to bits

Option ID :- 1406,

- 64 kbps

Option ID :- 1407,

- 70 kbps

Option ID :- 1408,

Answer Given:- 32 kbps , Option ID :- 1405

33

Question ID:- 404

Given below are two statements:

Statement I: "Grandparent is a parent of one's parent".

Statement II: First Order Predicate Logic (FOPL) representation of above statement is

$\forall g, c \text{ grandparent}(g, c) \Leftrightarrow \exists p \text{ parent}(g, p) \wedge \text{parent}(p, c)$

In the light of the above statements, choose the most appropriate answer from the options given below:

Options:-

- Both Statement I and Statement II are correct

Option ID :- 1613,

- Both Statement I and Statement II are incorrect

Option ID :- 1614,

- Statement I is correct but Statement II is incorrect

Option ID :- 1615,

- Statement I is incorrect but Statement II is correct

Option ID :- 1616,

Answer Given:- Both Statement I and Statement II are correct , Option ID :- 1613

34

Question ID:- 380

mistake

In reference to Big data, consider the following database:

- (A) Memcached
- (B) Couch DB
- (C) Infinite graph

Choose the most appropriate answer from the options given below:

Options:-

- (A) and (B) only

Option ID :- 1517,

- (B) and (C) only

Option ID :- 1518, *Selected*

= 512 bytes x 8 bits/byte = 4096 bits

*window size = 15
max throughput = 15 frames
4096 bits/frame*

*= 61440 bits
= 64 kbps*

(C) and (A) only

Option ID :- 1519,

(A), (B) and (C)

Option ID :- 1520

Answer Given:- (B) and (C) only, Option ID :- 1518

Question ID:- 366

A, B, C, D, E, F, G, H

Let R (ABCDEFGH) be a relation schema and F be the set of dependencies $F = \{A \rightarrow B, ABCD \rightarrow E, EF \rightarrow G, EF \rightarrow H \text{ and } ACDF \rightarrow EG\}$. The minimal cover of a set of functional dependencies is

mistake

Options:-

$A \rightarrow B, ACD \rightarrow E, EF \rightarrow G$, and $EF \rightarrow H$

Option ID :- 1461

$A \rightarrow B, ACD \rightarrow E, EF \rightarrow G, EF \rightarrow H$ and $ACDF \rightarrow G$, Selected

Option ID :- 1462

$A \rightarrow B, ACD \rightarrow E, EF \rightarrow G, EF \rightarrow H$ and $ACDF \rightarrow E$

Option ID :- 1463

$A \rightarrow B, ABCD \rightarrow E, EF \rightarrow H$ and $EF \rightarrow G$

Option ID :- 1464

Answer Given:- $A \rightarrow B, ACD \rightarrow E, EF \rightarrow G, EF \rightarrow H$ and $ACDF \rightarrow G$, Option ID :- 1462

B redundant
 $ABCD \rightarrow E$

Question ID:- 327

The reduced grammar equivalent to the grammar, whose production rules are given below, is

$S \rightarrow AB|CA$

$B \rightarrow BC|AB$

$A \rightarrow a$

$C \rightarrow aB|b$

Options:-

$S \rightarrow CA, A \rightarrow a, C \rightarrow b$

Option ID :- 1305

$S \rightarrow CA|B, B \rightarrow BC|B, A \rightarrow a, C \rightarrow aB|b$

Option ID :- 1306

$S \rightarrow CA|B, B \rightarrow BC, A \rightarrow a, C \rightarrow aB|b$

Option ID :- 1307

$S \rightarrow AB|AC, B \rightarrow BC|BA, A \rightarrow a, C \rightarrow aB|b$

Option ID :- 1308

Answer Given:- $S \rightarrow CA|B, B \rightarrow BC, A \rightarrow a, C \rightarrow aB|b$, Option ID :- 1307

Question ID:- 390

Consider the following algorithms and their running times:

Algorithms	Complexities
(A) Breadth First Search	(I) $\theta(v+E)$ faster
(B) Rabin-Karp Algorithm	(II) $O(v+E)$ Big O
(C) Depth-First Search	(III) $\theta((n-m-1)m)$
(D) Heap sort (worst case)	(IV) $O(n^2)$
(E) Quick sort (worst case)	(V) $O(n \lg n)$

Which one of the following is correct?

Options:-

(A)-(III), (B)-(II), (C)-(I), (D)-(IV), (E)-(V)

Option ID :- 1557

(A)-(II), (B)-(III), (C)-(I), (D)-(IV), (E)-(V)

Option ID :- 1558

(A)-(II), (B)-(III), (C)-(I), (D)-(V), (E)-(IV)

Option ID :- 1559

(A)-(III), (B)-(I), (C)-(II), (D)-(IV), (E)-(V)

Option ID :- 1560

Answer Given:- (A)-(II), (B)-(III), (C)-(I), (D)-(V), (E)-(IV), Option ID :- 1559

$43 \bmod 11 = 10$
 $36 \bmod 11 = 3$
 $92 \bmod 11 = 4$
 $87 \bmod 11 = 10$
 $11 \bmod 11 = 0$

Question ID:- 362

Consider the hash table of size 11 that uses open addressing with linear probing. Let $h(k) = k \bmod 11$ be the hash function. A sequence of records with keys 43, 36, 92, 87, 11, 47, 11, 13, 14 is inserted into an initially empty hash table. the bins of which are indexed from 0 to 10. What is the index of the bin into which the last record is inserted?

Options:-

8

Option ID :- 1445

7

Option ID :- 1446

10

Option ID :- 1447

4

Option ID :- 1448

Answer Given:- 7, Option ID :- 1446

0	87
1	11
2	11
3	36
4	92
5	47
6	13
7	14
8	
9	
10	

$47 \bmod 11 = 3$
 $11 \bmod 11 = 0$
 $13 \bmod 11 = 2$
 14

Question ID:- 319

For multiprocessor system, interconnection network - cross bar switch is an example of

Options:-

Non blocking network

Option ID :- 1273, ✓

Blocking network

Option ID :- 1274,

That varies from connection to connection,

Option ID :- 1275,

Recurrent network

Option ID :- 1276, ✗

Answer Given:- Recurrent network

, Option ID :- 1276

Question ID:- 341

If every requirement can be checked by a cost - effective process, then SRS is called

Options:-

Verifiable ✓

Option ID :- 1361, ✓

Tractable ✗

Option ID :- 1362,

Modifiable ✗

Option ID :- 1363,

Complete

Option ID :- 1364,

Answer Given:- Verifiable , Option ID :- 1361

Question ID:- 321

The number of gate inputs, required to realize expression $ABC + \overline{A}BCD + EF + AD$ is

Options:-

12

,

Option ID :- 1281,

13

Option ID :- 1282,

14

Option ID :- 1283, ✗

15

Option ID :- 1284, ✓

Answer Given:- 14

, Option ID :- 1283

Question ID:- 403

Which statement is false?

Options:-

All function calls in C pass arguments using call by value. *by default* ✓

Option ID :- 1609, ✗

Call by reference enables a called function to modify a variable in calling function. ✓

Option ID :- 1610,

Call by value is always more efficient than call by reference. ✗

Option ID :- 1611, *less*

Programmers use pointers and indirection operation to simulate call by reference. ✓

Option ID :- 1612,

Answer Given:- All function calls in C pass arguments using call by value. , Option ID :- 1609

Question ID:- 383

Match List I with List II :

List I

List II

(A) Type 0 (I) Finite automata

(B) Type 1 (II) Turing machine

(C) Type 2 (III) Linear bound automata

(D) Type 3 (IV) Pushdown automata

Choose the correct answer from the options given below :

Options:-

(A)-(III), (B)-(IV), (C)-(II), (D)-(I)

Option ID :- 1529,

(A)-(II), (B)-(III), (C)-(IV), (D)-(I)

Option ID :- 1530, ✓

(A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Option ID :- 1531,

(A)-(II), (B)-(III), (C)-(II), (D)-(IV)

Option ID :- 1532,

Answer Given:- (A)-(II), (B)-(III), (C)-(IV), (D)-(I) , Option ID :- 1530

Question ID:- 320

The representation of 4 bit code 1101 into 7 bit, even parity Hamming code is

Options:-

Nov 2020
44
electronic
science

error - correcting code

(1010101)

Option ID :- 1277, ✓

(1111001)

Option ID :- 1278, ✗

(1011101)

Option ID :- 1279,

(1110000)

Option ID :- 1280,

Answer Given:- (1111001), Option ID :- 1278

Question ID:- 328

Consider the production rules of grammar G:

$S \rightarrow AbB$

$A \rightarrow aAb | \lambda$

$B \rightarrow bB | \lambda$

Which of the following language L is generated by grammar G?

Options:-

$L = \{a^n b^m : n \geq 0, m > n\}$

Option ID :- 1309, ✓

$L = \{a^n b^m : n \geq 0, m \geq 0\}$

Option ID :- 1310,

$L = \{a^n b^m : n \geq m\}$

Option ID :- 1311,

$L = \{a^n b^m : n \geq m, m > 0\}$

Option ID :- 1312,

Answer Given:- $L = \{a^n b^m : n \geq 0, m > n\}$, Option ID :- 1309

Question ID:- 348

Which of the following is an indirect measure of product?

Options:-

Quality

Option ID :- 1389,

Complexity

Option ID :- 1390,

Reliability

Option ID :- 1391,

In all other option odd parity,
eliminate all

All of these

Option ID :- 1392, ✓

Answer Given:- All of these, Option ID :- 1392

Question ID:- 322

Consider a logic gate circuit, with 8 input lines ($D_0, D_1, \dots, D_7$) and 3 output lines (A_0, A_1, A_2) specified by following operations

$A_2 = D_4 + D_5 + D_6 + D_7$

$A_1 = D_2 + D_3 + D_6 + D_7$

$A_0 = D_1 + D_2 + D_5 + D_6$

Where + indicates logical OR operation. This circuit is

Options:-

3 × 8 multiplexer

Option ID :- 1285,

Decimal to BCD converter

Option ID :- 1286,

Octal to Binary encoder

Option ID :- 1287, ✗

Priority encoder

Option ID :- 1288, ✓

Answer Given:- Octal to Binary encoder, Option ID :- 1287

Question ID:- 333

Using 'RSA' algorithm, if $p = 13$, $q = 5$ and $e = 7$, the value of d and cipher value of '6' with (e, n) key are

Options:-

7, 4

Option ID :- 1329,

7, 1

Option ID :- 1330, ✗

7, 46

Option ID :- 1331,

55, 1

Option ID :- 1332,

Answer Given:- 7, 1, Option ID :- 1330

Question ID:- 375

$$n = p \times q \\ = 13 \times 5 \\ = 65$$

$$\phi(n) = (p-1) \times (q-1) \\ = 12 \times 4 = 48$$

$$1 < e < \phi(n)$$

$$(d \times e) \times \phi(n) = 1 \quad (\text{public key})$$

$$\text{Ciphertext} = m^e \text{ mod } n$$

$$\text{Plaintext} = c^d \text{ mod } n$$

$$= 7^1 \text{ mod } 65 \\ = 7$$

47

48

2 prime nos

100

Cross-check

In a game playing search tree, upto which depth $\alpha - \beta$ pruning can be applied?

- (A) Root (0) level
 - (B) 6 level
 - (C) 8 level
 - (D) Depends on utility value in a breadth first order
- Choose the correct answer from the options given below :

Options:-

(B) and (C) only

Option ID :- 1497, ✓

(A) and (B) only

Option ID :- 1498,

(A), (B) and (C) only

Option ID :- 1499,

(A) and (D) only

Option ID :- 1500, ✗

Answer Given:- (A) and (D) only , Option ID : -1500

Question ID:- 355

A 4-stage pipeline has the stage delay as 150,120,160 and 140 ns respectively. Registers that are used between the stages have delay of 5 ns. Assuming constant locking rate, the total time required to process 1000 data items on this pipeline is

Options:-

160.5 ms

Option ID :- 1417,

165.5 ms

Option ID :- 1418, ✓

120.5 ms

Option ID :- 1419,

560.5 ms

Option ID :- 1420,

Answer Given:- 165.5 ms , Option ID : -1418

Question ID:- 345

Size and complexity are a part of

Options:-

People Metrics

Option ID :- 1377,

$\alpha > \beta$ (stop)

Project Metrics

Option ID :- 1378,

Process Metrics

Option ID :- 1379, ✓

Product Metrics

Option ID :- 1380, ✗

Answer Given:- Process Metrics , Option ID : -1379

Question ID:- 329

Consider the language $L = \{a^n b^m : n \geq 4, m \leq 3\}$

Which of the following regular expression represents language L ?

Options:-

$aaaa^*(\lambda + b + bb + bbb)$

Option ID :- 1313,

$aaaaa^*(b + bb + bbb)$

Option ID :- 1314,

$aaaaa^*(\lambda + b + bb + bbb)$

Option ID :- 1315,

$aaaaa^*(b + bb + bbb)$

Option ID :- 1316,

Answer Given:- $aaaaa^*(\lambda + b + bb + bbb)$, Option ID : -1315

Question ID:- 326

The logic expression $(\bar{P} \wedge Q) \vee (P \wedge \bar{Q}) \vee (P \wedge Q)$ is equivalent to

Options:-

$\bar{P} \vee Q$

Option ID :- 1301,

$P \vee \bar{Q}$

Option ID :- 1302,

$P \vee Q$

Option ID :- 1303, ✓

$\bar{P} \vee \bar{Q}$

Option ID :- 1304,

Answer Given:- $P \vee Q$, Option ID : -1303

Question ID:- 332

$a \rightarrow \text{minimum}$
 $b^0 \rightarrow \text{atleast}$
 $b^3 \rightarrow \text{maximum}$
 $aaaaa^*(\lambda + b + bb + bbb)$

(51)

(52)

(53)

Hidden surface removal problem with minimal 3D pipeline can be solved with

Options:-

Painter's algorithm

Option ID :- 1325

Window Clipping algorithm

Option ID :- 1326

Brute force rasterization algorithm

Option ID :- 1327

Flood fill algorithm

Option ID :- 1328

Answer Given:- Painter's algorithm , Option ID : -1325

Question ID:- 388

Match List I with List II :

List I

List II

- | | |
|------------|---|
| (A) BIND | (I) Block the caller until a connection attempt arrives |
| (B) LISTEN | (II) Give a local address to a socket |
| (C) ACCEPT | (III) Show willingness to accept connections |
| (D) SOCKET | (IV) Create a new point |

Choose the correct answer from the options given below :

Options:-

(A)-(I), (B)-(III), (C)-(II), (D)-(IV)

Option ID :- 1549

(A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Option ID :- 1550

(A)-(III), (B)-(II), (C)-(I), (D)-(IV)

Option ID :- 1551

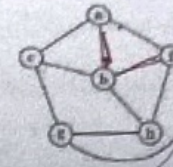
(A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Option ID :- 1552

Answer Given:- (A)-(II), (B)-(III), (C)-(I), (D)-(IV) , Option ID : -1550

Question ID:- 378

Consider the following graph :



For the graph, the following sequences of depth first search (DFS) are given

(A) abeghf

(B) abfchg

(C) abfhgc

(D) afghbc

Which of the following is correct?

Options:-

(A), (B) and (D) only

Option ID :- 1509

(A), (B), (C) and (D)

Option ID :- 1510

(B), (C) and (D) only

Option ID :- 1511

(A), (C) and (D) only

Option ID :- 1512

Answer Given:- (A), (C) and (D) only , Option ID : -1512

Question ID:- 393

Consider the following statements:

Statement I : Conservative 2 PL is a deadlock-free protocol.

Statement II : Thomas's write rule enforces conflict serializability. *doesn't*

Statement III : Timestamp ordering protocol ensures serializability based on the order of transaction timestamps.

Which of the following is correct?

Options:-

Statement I, Statement II true and Statement III false

Option ID :- 1569,

Statement I, Statement III true and Statement II false

Option ID :- 1570,

Statement I, Statement II false and Statement III true

Option ID :- 1571,

Statement I, Statement II and Statement III true

Option ID :- 1572,

Statement I, Statement II and Statement III true, Option ID : -1572

Question ID:- 392

Consider the following statements of approximation algorithm :

Statement I: Vertex-cover is a polynomial time 2-approximation algorithm.

Statement II: TSP-tour is a polynomial time 3-approximation algorithm for travelling salesman problem with the triangle inequality.

Which of the following is correct?

Options:-

Statement I true and Statement II false

Option ID :- 1565,

Statement I and Statement II true

Option ID :- 1566,

Statement I false and Statement II true

Option ID :- 1567,

Statement I and Statement II false

Option ID :- 1568,

Statement I and Statement II true

Answer Given:-, Option ID : -1566

Question ID:- 398

Consider the following in Boolean Algebra

$$X: a \vee (b \wedge (a \vee c)) = (a \vee b) \wedge (a \vee c)$$

$$Y: a \wedge (b \vee (a \wedge c)) = (a \wedge b) \vee (a \wedge c)$$

$$a \vee (b \wedge c) = (a \vee b) \wedge c \text{ is satisfied if}$$

Options:-

X is true

Option ID :- 1589,

Y is true

Option ID :- 1590,

Both X and Y are true

Option ID :- 1591,

It does not depend on X and Y

Option ID :- 1592,

Both X and Y are true, Option ID : -1591

Question ID:- 361

Which of the following algorithm design approach is used in Quick sort algorithm?

Options:-

Dynamic programming

Option ID :- 1441,

Back Tracking

Option ID :- 1442,

Divide and conquer

Option ID :- 1443,

Greedy approach

Option ID :- 1444,

Divide and conquer

Answer Given:-, Option ID : -1443

Question ID:- 391

Consider the following:

List I

List II

(A) Stack algorithm

(I) Deadlock

(B) Elevator algorithm

(II) Disk scheduling

(C) Priority scheduling algorithm

(III) Page replacement

(D) Havender's algorithm

(IV) CPU scheduling

Which of the following is correct matching?

Options:-

(A)-(III), (B)-(II), (C)-(IV), (D)-(I)

Option ID :- 1561,

(A)-(II), (B)-(III), (C)-(IV), (D)-(I)

Option ID :- 1562,

(A)-(III), (B)-(II), (C)-(I), (D)-(IV)

Option ID :- 1563,

(A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Option ID :- 1564,

Answer Given:- (A)-(III), (B)-(II), (C)-(IV), (D)-(I) , Option ID : -1561

Question ID:- 377

Let $(\{a, b\}, *)$ be a semigroup, where $a * a = b$.

(A) $a * b = b * a$

(B) $b * b = b$

Choose the most appropriate answer from the options given below :

Options:-

(A) only true

Option ID :- 1505,

(B) only true

Option ID :- 1506,

Both (A) and (B) true

Option ID :- 1507,

Neither (A) nor (B) true

Option ID :- 1508,

Answer Given:- Both (A) and (B) true , Option ID : -1507

Question ID:- 394

Consider the following statements:

Statement I: Composite attributes cannot be divided into smaller subparts.

Statement II: Complex attribute is formed by nesting composite attributes and multi-valued attributes in an arbitrary way.

Statement III: A derived attribute is an attribute whose values are computed from other attribute.

Which of the following is correct?

Options:-

Statement I, Statement II and Statement III are true

Option ID :- 1573,

Statement I true and Statement II, Statement III false

Option ID :- 1574,

Statement I, Statement II true and Statement III false

Option ID :- 1575,

Statement I false and Statement II, Statement III true

Option ID :- 1576,

Statement I false and Statement II, Statement III true , Option ID : -1576

Question ID:- 334

The condition $\text{num} \neq 65$ cannot be replaced by

Options:-

$\text{num} > 65 \mid \mid \text{num} < 65$

Option ID :- 1333,

$!(\text{num} == 65)$

Option ID :- 1334,

$\text{num} - 65$

Option ID :- 1335,

$!(\text{num} - 65)$

Option ID :- 1336,

Answer Given:- $\text{num} - 65$, Option ID : -1335

Question ID:- 376

Consider α, β, γ as logical variables. Identify which of the following represents correct logical equivalence :

(A) $(\alpha \wedge (\beta \vee \gamma)) \equiv ((\alpha \wedge \beta) \vee (\alpha \wedge \gamma))$

(B) $(\alpha \vee \beta) \equiv \neg \alpha \vee \beta$

(C) $(\alpha \Rightarrow \beta) \equiv (\neg \beta \Rightarrow \neg \alpha)$

(D) $(\neg(\alpha \vee \beta)) \equiv (\neg \alpha \Rightarrow \neg \beta)$

Choose the correct answer from the options given below :

Options:-

(A) and (D) only

Option ID :- 1501,

(B) and (C) only

Option ID :- 1502,

(A) and (C) only

Option ID :- 1503,

(B) and (D) only

Option ID :- 1504,

Answer Given:- (A) and (C) only , Option ID : -1503

Basics of compiler

65 Question ID:- 384

Match List I with List II :

List I

List II

- | | |
|-----------------------------|--|
| (A) Ontological Engineering | (I) Organizing subclass relations |
| (B) Taxonomy Hierarchy | (II) Organizing knowledge into category and sub category |
| (C) Inheritance | (III) Attaches a number with each possibility |
| (D) Probability mode | (IV) Representing concepts, events, time, physical concepts of different domains |

Choose the correct answer from the options given below :

Options:-

- (A)-(II), (B)-(I), (C)-(IV), (D)-(III)

Option ID :- 1533,

- (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Option ID :- 1534,

- (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

Option ID :- 1535,

- (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

Option ID :- 1536,

Answer Given:- (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

, Option ID : -1536

66 Question ID:- 369

A magnetic tape drive has transport speed of 200 inches per second and a recording density of 1600 bytes per inch. The time required to write 600000 bytes of data grouped in 100 characters record with a blocking factor 10 is

Options:-

- 2.0625 sec

Option ID :- 1473,

- 2.6251 sec

Option ID :- 1474,

- 2.0062 sec

Option ID :- 1475,

- 2.6150 sec

Option ID :- 1476,

- 2.0062 sec

Answer Given:- 2.0062 sec , Option ID : -1475

67 Question ID:- 396

Consider the following statements:

Statement I : LALR parser is more powerful than canonical LR Parser.

Statement II : SLR parser is more powerful than LALR

Which of the following is correct?

Options:-

- Statement I true and Statement II false

Option ID :- 1581,

- Statement I false and Statement II true

Option ID :- 1582,

- Both Statement I and Statement II false

Option ID :- 1583,

- Both Statement I and Statement II true

Option ID :- 1584,

Answer Given:- Both Statement I and Statement II false

, Option ID : -1583

68

Question ID:- 349

Modules X and Y operate on the same input and output, then the cohesion is

Options:-

- Logical cohesion

Option ID :- 1393,

- Sequential cohesion

Option ID :- 1394,

- Procedural cohesion

Option ID :- 1395,

- Communicational cohesion

Option ID :- 1396,

- Communicational cohesion

Answer Given:- Communicational cohesion , Option ID : -1396

69

Question ID:- 401

Of the following, which is NOT a logical error?

Options:-

- Using the '=' instead of '==' to determine if two values are equal

Option ID :- 1601,

- Divide by zero , exception

Option ID :- 1602, ✓

- Failing to initialize counter and total variables before the body of loop,

Option ID :- 1603,

- Using commas instead of two required semicolon in a for loop header

Syntax error

Option ID :- 1604, ✓

Answer Given:- Divide by zero , Option ID : -1602

Question ID:- 318

Consider a memory system having address spaced at a distance of m . T = Bank cycle time and n number of banks, then the average data access time per word access in synchronous organization is

Options:-

$$t = \begin{cases} m \cdot \frac{T}{n} & \text{for } m \ll n \\ T & \text{for } m \gg n \end{cases}$$

Option ID :- 1269, ✓

$$t = \begin{cases} \frac{T}{n} & \text{for } m \ll n \\ T & \text{for } m \gg n \end{cases}$$

Option ID :- 1270,

$$t = \begin{cases} m \cdot T & \text{for } m \ll n \\ T & \text{for } m \gg n \end{cases}$$

Option ID :- 1271, ✓

$$t = \begin{cases} m \cdot T & \text{for } m \ll n \\ \frac{m}{T} & \text{for } m \gg n \end{cases}$$

Option ID :- 1272,

$$t = \begin{cases} m \cdot T & \text{for } m \ll n \\ T & \text{for } m \gg n \end{cases}$$

Answer Given:- , Option ID : -1271

Question ID:- 364

How many rotations are required during the construction of an AVL tree if the following elements are to be added in the given sequence?

35, 50, 40, 25, 30, 60, 75, 20, 28

Options:-

- 2 left rotations, 2 right rotations

Option ID :- 1453, ✓

- 2 left rotations, 3 right rotations

Option ID :- 1454, ✓

- 3 left rotations, 2 right rotations

Avl complexity (Avg./worst)
space $O(n)$
search $O(\log n)$
insert $O(\log n)$
delete $O(\log n)$
Balancing factor
 $H(\text{left}) - H(\text{right})$

Grace Ques.

BF = 1 left > Right
BF = 0 left = Right
BF = -1 left < Right

comp

Option ID :- 1455,

- 3 left rotations, 1 right rotation

Option ID :- 1456,

Answer Given:- 2 left rotations, 3 right rotations , Option ID : -1454

Question ID:- 405

Given below are two statements :

Statement I : Consider 20 bit 'Branch' microinstruction code format given below:

3	3	3	2	2	7
F1	F2	F3	CD	BR	AD

F1, F2, F3 : Micro-operation fields

CD : Condition for branching

BR : Branch field

AD : Address field

Statement II : Instruction represented in above format can perform branch in 4 conditions. *22*

In the light of the above statements, choose the most appropriate answer from the options given below :

Options:-

- Both Statement I and Statement II are correct

Option ID :- 1617, ✓

- Both Statement I and Statement II are incorrect

Option ID :- 1618,

- Statement I is correct but Statement II is incorrect

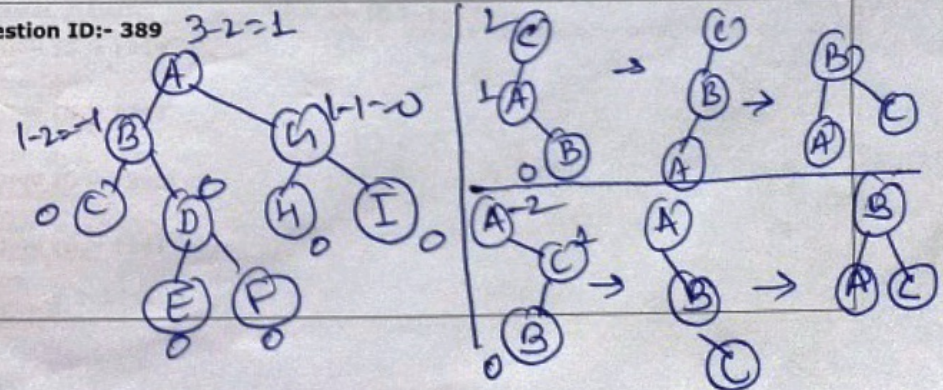
Option ID :- 1619,

- Statement I is incorrect but Statement II is correct

Option ID :- 1620,

Answer Given:- Both Statement I and Statement II are correct , Option ID : -1617

Question ID:- 389 *3-2=1*



Match List I with List II :

List I

List II

- | | |
|------------------------|--|
| (A) Physical layer | (I) Routing of the signals divide the outgoing message into packets, to act as network controller for routing data |
| (B) Data link layer | (II) Make and break connections, define voltages and data rates, convert data bits into electrical signal |
| (C) Network layer | (III) Synchronization, error detection and correction. To assemble outgoing message into frames |
| (D) Presentation layer | (IV) It works as a translating layer |

Choose the correct answer from the options given below :

Options:-

(A)-(IV), (B)-(III), (C)-(II), (D)-(I)

Option ID :- 1553,

(A)-(II), (B)-(III), (C)-(IV), (D)-(I)

Option ID :- 1554,

(A)-(IV), (B)-(III), (C)-(I), (D)-(II)

Option ID :- 1555,

(A)-(II), (B)-(III), (C)-(I), (D)-(IV)

Option ID :- 1556,

Answer Given:- (A)-(II), (B)-(III), (C)-(I), (D)-(IV) , Option ID :- 1556

Question ID:- 337

If an operating system does not allow a child process to exist when the parent process has been terminated, this phenomenon is called as -

Options:-

Threading

Option ID :- 1345,

Cascading termination

Option ID :- 1346,

Zombie termination

Option ID :- 1347,

Process killing

Option ID :- 1348,

Zombie termination

Answer Given:- , Option ID :- 1347

Question ID:- 336

Which mechanism in XML allows organizations to specify globally unique names as element tags in documents?

Options:-

root

Option ID :- 1341,

header

Option ID :- 1342,

schema

Option ID :- 1343,

namespace

Option ID :- 1344,

namespace

Answer Given:- , Option ID :- 1344

Question ID:- 363

Consider the traversal of a tree

Preorder → ABCEIFJDGHKL

Inorder → EICFJBGDKHLA

Which of the following is correct post order traversal?

Options:-

EIFJCKGLHDBA

Option ID :- 1449,

FCGKLHDBUAE

Option ID :- 1450,

FCGKLHDBAEIJ

Option ID :- 1451,

IEJFCGKLHDBA

Option ID :- 1452,

Answer Given:- IEJFCGKLHDBA , Option ID :- 1452

Question ID:- 316

In a database, a rule is defined as (P1 and P2) or P3? R1 (0.8) and R2 (0.3), where P1, P2, P3 are premises and R1, R2 are conclusions of rules with certainty factors (CF) 0.8 and 0.3 respectively. If any running program has produced P1, P2, P3 with CF as 0.5, 0.8, 0.2 respectively, find the CF of results on the basis of premises.

Options:-

CF (R1 = 0.8), CF (R2 = 0.3)

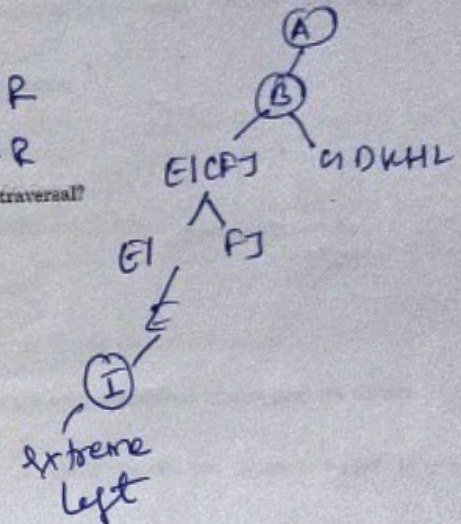
Option ID :- 1261,

CF (R1 = 0.40), CF (R2 = 0.15)

Option ID :- 1262,

CF (R1 = 0.15), CF (R2 = 0.35)

Option ID :- 1263,



orphan process - when a parent dies while the child continues to execute
zombie → It has terminated but its entry is still present

CF (R1 = 0.8), CF (R2 = 0.35)

Option ID :- 1264,

Answer Given:- CF (R1 = 0.15), CF (R2 = 0.35), Option ID :- 1263

Question ID:- 387

Match List I with List II :

List I	List II
(A) DES	(I) Key size - 256
(B) AES	(II) Key size - 1024
(C) 3 DES	(III) Key size - 56
(D) RSA	(IV) Key size - 168

56 168 256 1024/2048
DES 3DES AES RSA 4096
Block cipher
128, 192, 256

Choose the correct answer from the options given below :

Options:-

(A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Option ID :- 1545,

(A)-(III), (B)-(I), (C)-(IV), (D)-(II)

Option ID :- 1546,

(A)-(III), (B)-(IV), (C)-(II), (D)-(I)

Option ID :- 1547,

(A)-(IV), (B)-(II), (C)-(III), (D)-(I)

Option ID :- 1548,

Answer Given:- (A)-(III), (B)-(I), (C)-(IV), (D)-(II), Option ID :- 1546

Diffie Hellman - 2048

79 Question ID:- 346

Which Metrics are derived by normalizing quality and/or productivity measures by considering the size of the software that has been produced?

Options:-

Function - Oriented Metrics

Option ID :- 1381,

Function - Point Metrics

Option ID :- 1382,

Line of Code Metrics

Option ID :- 1383,

Size Oriented Metrics

Option ID :- 1384,

Answer Given:- Function - Point Metrics, Option ID :- 1382

Process Metrics - measure characteristic of software process
Product Metrics - measure char. of software product. size, complexity, quality, reliability.

80

Question ID:- 354

Which layer divides each message into packets at the source and re-assembles them at the destination?

Options:-

Network layer

Option ID :- 1413,

Transport layer

Option ID :- 1414,

Data link layer

Option ID :- 1415,

Physical layer

Option ID :- 1416,

Answer Given:- Transport layer, Option ID :- 1414

elimination method solve

TCP
Congestion & flow ctrl

UDP
Not support flow control
Broadcasting

81

Question ID:- 343

Alpha and Beta testing are forms of

[ARP] IP → MAC

Options:-

White - Box Testing

Option ID :- 1369,

Black - Box Testing

Option ID :- 1370,

Acceptance Testing

Option ID :- 1371,

System Testing

Option ID :- 1372,

Answer Given:- Acceptance Testing, Option ID :- 1371

82

Question ID:- 353

A classless address is given as 167.199.170.82/27. The number of addresses in the network is

Options:-

64 addresses

Option ID :- 1409,

32 addresses

Option ID :- 1410,

25 addresses

Option ID :- 1411,

0-127
128-191 → 8
192-223
224-249

32
27
5

(32-1) 5
2 = 2 = 32

30 addresses

Option ID :- 1412,

Answer Given:- 32 addresses , Option ID : -1410

Question ID:- 324

In a cache memory, if address has 9 bits in Tag field and 12 bits in index field, the size of main memory and cache memory would be respectively

Options:-

2 K, 4 K

Option ID :- 1293,

1024 K, 2 K

Option ID :- 1294,

4 K, 2048 K

Option ID :- 1295,

2048 K, 4 K

Option ID :- 1296,

4 K, 2048 K

Answer Given:- , Option ID : -1295

Question ID:- 347

The model in which the requirements are implemented by its category is

Options:-

Evolutionary Development Model

Option ID :- 1385,

Waterfall Model

Option ID :- 1386,

Prototyping Model

Option ID :- 1387,

Iterative Enhancement Model

Option ID :- 1388,

Answer Given:- Iterative Enhancement Model , Option ID : -1388

Question ID:- 358

The solution of the recurrence relation $T(n) = 3T(\frac{n}{4}) + n \lg n$ is

Options:-

$\Theta(n^2 \lg n)$

Option ID :- 1429,

Handwritten calculations for Question 324:

Tag: 9 bits, Index: 12 bits

Size of MM = $2^9 \times 2^{12} = 2^{21}$ bits = 2048 K

Size of Cache memory = $2^9 \times 2^{10} = 2^{19}$ bits = 4 K

Handwritten calculations for Question 358:

$a=3$
 $b=4$
 $a < b$

$\Theta(n \lg n)$

Option ID :- 1430,

$\Theta(n \lg n)^2$

Option ID :- 1431,

$\Theta(n \lg \lg n)$

Option ID :- 1432,

Answer Given:- $\Theta(n \lg n)^2$, Option ID : -1431

Question ID:- 344

The process to gather the software requirements from client, analyze and document is known as -

Options:-

Software Engineering Process

Option ID :- 1373,

User Engineering Process

Option ID :- 1374,

Requirement Elicitation Process

Option ID :- 1375,

Requirement Engineering Process

Option ID :- 1376,

Answer Given:- Requirement Elicitation Process , Option ID : -1375

Question ID:- 367

A trigger is

Options:-

A statement that enables to start DBMS,

Option ID :- 1465,

A statement that is executed by the user when debugging an application program.

Option ID :- 1466,

A condition the system tests for the validity of the database user.

Option ID :- 1467,

A statement that is executed automatically by the system as a side effect of modification to the database.

Option ID :- 1468,

Answer Given:-

A statement that is executed automatically by the system as a side effect of modification to the database.

: -1468

, Option ID

88 Question ID:- 360

Consider a B-tree of height h , minimum degree $t \geq 2$ that contains any n -key, where $n \geq 1$. Which of the following is correct?

Options:-

$h \geq \log_t \frac{n+1}{2}$

Option ID :- 1437,

$h \leq \log_t \frac{n+1}{2}$

Option ID :- 1438, ✓

$h \geq \log_t \frac{n-1}{2}$

Option ID :- 1439, ✗

$h \leq \log_t \frac{n-1}{2}$

Option ID :- 1440,

$h \geq \log_t \frac{n-1}{2}$

Answer Given:- , Option ID : -1439

89 Question ID:- 330

Consider $L = \{ab, aa, baa\}$

Which of the following string is NOT in L^* ?

Options:-

baaaaabaanaa

Option ID :- 1317, ✓

abnabaabaa

Option ID :- 1318,

aaaabaanaa

Option ID :- 1319,

baaaaabaa

Option ID :- 1320,

Answer Given:- baaaaabaanaa , Option ID : -1317

Subject : 87_PART_B_Set1

90 Question ID:- 409

Read the following and Answer the questions:

Consider the relational schema of sailors S, Reserves R and Boats B.

Table 1 : Sailors S

Sid	Sname	Rating	Age
22	Dustin	7	45.0
29	Brutus	1	33.0
31	Lubber	8	55.5
32	Andy	8	25.5
58	Rusty	10	35.0
64	Horatio	7	35.0
71	Zorba	10	16.0
74	Horatio	9	35.0
85	Art	3	25.5
95	Bob	3	65.5

Table 2 : Reserves R

Sid	Bid	day
22	101	10/10/98
22	102	10/10/98
22	103	10/5/98
22	104	10/7/98
31	102	11/10/98
31	103	11/6/98
31	104	11/12/98
64	101	9/5/98
64	102	9/8/98
74	103	9/8/98

Table 3 : Boats B

Bid	Bname	Color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Which of the following relational algebra query computes the names of sailor who have reserved all boats?

Options:-

Option ID :- 1633, $\rho \text{ (Tempsids, } (\pi_{sid} \text{ Reserves}) / \pi_{bid} \text{ Boats) } \pi_{sname} ((\text{Tempsids}) \bowtie \text{ Sailors})$

Option ID :- 1634, $\rho \text{ (Tempsids, } (\pi_{sname} \text{ Reserves}) / \pi_{bid} \text{ Boats) } \pi_{sname} ((\text{Tempsids}) \bowtie \text{ Sailors})$

Option ID :- 1635, $\rho \text{ (Tempsids, } (\pi_{sname} \text{ Sailors}) / \pi_{bid} \text{ Boats) } \pi_{sname} ((\text{Tempsids}) \bowtie \text{ Sailors})$

Option ID :- 1636, $\rho \text{ (Tempsids, } (\pi_{sid} \text{ Reserves}) / \pi_{bid} \text{ Boats) } \pi_{sname} ((\text{Tempsids}) \bowtie \text{ Boats})$

Answer Given:- $\rho \text{ (Tempsids, } (\pi_{sid} \text{ Reserves}) / \pi_{bid} \text{ Boats) } \pi_{sname} ((\text{Tempsids}) \bowtie \text{ Sailors})$

Option ID :- 1634

91 Question ID:- 407

Read the following and Answer the questions:

Consider the relational schema of sailors S, Reserves R and Boats B.

Table 1 : Sailors S

Sid	Sname	Rating	Age
22	Dustin	7	45.0
29	Brutus	1	33.0
31	Lubber	8	55.5
32	Andy	8	23.5
58	Rusty	10	35.0
64	Horatio	7	35.0
71	Zorba	10	16.0
74	Horatio	9	35.0
85	Art	3	25.5
95	Bob	3	63.5

Table 2 : Reserves R

Sid	Bid	day
22	101	10/10/98
22	102	10/10/98
22	103	10/8/98
22	104	10/7/98
31	102	11/10/98
31	103	11/6/98
31	104	11/12/98
64	101	9/5/98
64	102	9/8/98
74	103	9/8/98

Table 3 : Boats B

Bid	Bname	Color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Which of the following relational algebra query/queries computes/compute the names of sailors who have reserved a red boat?

Q1 $\pi_{sname} ((\delta_{color = red} Boats) \bowtie Reserves \bowtie Sailors)$

Q2 $\pi_{sname} (\pi_{sid} ((\pi_{sid} (\delta_{color = red} Boats) \bowtie Reserves) \bowtie Sailors))$

Q3 $\pi_{sname} ((\delta_{color = red} Reserves) \bowtie Boats \bowtie Sailors)$

Options:-

Both Q1 and Q2

Option ID :- 1625,

Both Q2 and Q3

Option ID :- 1626,

Only Q1

Option ID :- 1627,

Only Q2

Option ID :- 1628,

Answer Given:- Both Q1 and Q2 , Option ID : -1625

Question ID:- 406

Read the following and Answer the questions:

Consider the relational schema of sailors S, Reserves R and Boats B.

Table 1 : Sailors S

Sid	Sname	Rating	Age
22	Dustin	7	45.0
29	Brutus	1	33.0
31	Lubber	8	55.5
32	Andy	8	23.5
58	Rusty	10	35.0
64	Horatio	7	35.0
71	Zorba	10	16.0
74	Horatio	9	35.0
85	Art	3	25.5
95	Bob	3	63.5

Table 2 : Reserves R

Sid	Bid	day
22	101	10/10/98
22	102	10/10/98
22	103	10/8/98
22	104	10/7/98
31	102	11/10/98
31	103	11/6/98
31	104	11/12/98
64	101	9/5/98
64	102	9/8/98
74	103	9/8/98

Table 3 : Boats B

Bid	Bname	Color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Which of the following relational algebra query computes the Sid's of sailors with age over 20 who have not reserved a red boat?

Options:-

$\pi_{sid} (\delta_{age > 20} Sailors) - \pi_{sid} ((\delta_{color = red} Boats) \bowtie Reserves \bowtie Sailors)$

Option ID :- 1621,

$\pi_{sid} ((\delta_{color = red} \wedge age > 20 (Boats \bowtie Sailors \bowtie Reserves)))$

Option ID :- 1622,

$\pi_{sid} (\delta_{age > 20} Sailors) - \pi_{sid} ((\delta_{color = red} Boats) \bowtie Reserves \bowtie Sailors)$

Option ID :- 1623,

$\pi_{sid} (\delta_{age > 20} Sailors) \wedge \pi_{sid} ((\delta_{color = red} Boats) \bowtie Reserves \bowtie Sailors)$

Option ID :- 1624,

Answer Given:- $\pi_{sid} (\delta_{age > 20} Sailors) - \pi_{sid} ((\delta_{color = red} Boats) \bowtie Reserves \bowtie Sailors)$

Option ID :- 1621

Question ID:- 408

Read the following and Answer the questions:

Consider the relational schema of sailors S, Reserves R and Boats B.

Table 1 : Sailors S

Sid	Sname	Rating	Age
22	Dustin	7	45.0
29	Brutus	1	33.0
31	Lubber	8	55.5
32	Andy	8	25.5
58	Rusty	10	35.0
64	Horatio	7	35.0
71	Zorba	10	16.0
74	Horatio	9	35.0
85	Art	3	25.5
95	Bob	3	63.5

Table 2 : Reserves R

Sid	Bid	day
22	101	10/10/98
22	102	10/10/98
22	103	10/8/98
22	104	10/7/98
31	102	11/10/98
31	103	11/6/98
31	104	11/12/98
64	101	9/5/98
64	102	9/8/98
74	103	9/8/98

Table 3 : Boats B

Bid	Bname	Color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Which of the following relational algebra query/queries computes/compute the name of sailors who have reserved boat 103?

Q1 $\pi_{\text{name}} ((\sigma_{\text{bid}=103} \text{Boats}) \bowtie \text{Sailors})$

Q2 $\pi_{\text{name}} (\sigma_{\text{bid}=103} (\text{Reserves} \bowtie \text{Sailors}))$

Q3 $\pi_{\text{name}} ((\sigma_{\text{bid}=103} \text{Reserves}) \bowtie \text{Sailors})$

Options:-

Both Q1 and Q3

Option ID :- 1629,

Both Q2 and Q3

Option ID :- 1630,

Only Q3

Option ID :- 1631,

Only Q2

Option ID :- 1632,

Answer Given:- Both Q2 and Q3

, Option ID : -1630

Question ID:- 410

Read the following and Answer the questions:

Consider the relational schema of sailors S, Reserves R and Boats B.

Table 1 : Sailors S

Sid	Sname	Rating	Age
22	Dustin	7	45.0
29	Brutus	1	33.0
31	Lubber	8	55.5
32	Andy	8	25.5
58	Rusty	10	35.0
64	Horatio	7	35.0
71	Zorba	10	16.0
74	Horatio	9	35.0
85	Art	3	25.5
95	Bob	3	63.5

Table 2 : Reserves R

Sid	Bid	day
22	101	10/10/98
22	102	10/10/98
22	103	10/8/98
22	104	10/7/98
31	102	11/10/98
31	103	11/6/98
31	104	11/12/98
64	101	9/5/98
64	102	9/8/98
74	103	9/8/98

Table 3 : Boats B

Bid	Bname	Color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Which of the following relational algebra query computes the names of sailors who have reserved a red and a green boat?

Options:-

$\rho (\text{Tempred}, \pi_{\text{sid}} ((\sigma_{\text{color}=\text{red}} \text{Boats}) \bowtie \text{Reserves})), \rho (\text{Tempgreen}, \pi_{\text{sid}} ((\sigma_{\text{color}=\text{green}} \text{Boats}) \bowtie \text{Reserves})), \pi_{\text{name}} (\text{Tempred} \cap \text{Tempgreen}) \bowtie \text{Sailors}$

Option ID :- 1637,

$\rho (\text{Tempboats 2}, (\sigma_{\text{color}=\text{red}} \text{Boats}) \cap (\sigma_{\text{color}=\text{green}} \text{Boats})) \pi_{\text{name}} (\text{Tempboats 2} \bowtie \text{Reserves})$

Option ID :- 1638,

$\pi_{\text{name}} ((\sigma_{\text{color}=\text{red}} \text{Boats}) \cap (\sigma_{\text{color}=\text{green}} \text{Boats}) (\text{Tempboats 2} \bowtie \text{Sailors} \bowtie \text{Reserves}))$

Option ID :- 1639,

$\rho (\text{Tempboats 2}, (\sigma_{\text{color}=\text{red} \wedge \text{color}=\text{green}} \text{Boats}) \pi_{\text{name}} (\text{Tempboats 2} \bowtie \text{Sailors}))$

Option ID :- 1640,

Answer Given:-

p (Tempred, π at ((δ value = 1st Boats) $\rightarrow$ Reserve)), p (Tempgreen, π at ((δ value = 2nd Boats) $\rightarrow$ Reserve)), π at (Tempred $\rightarrow$ Tempgreen) $\rightarrow$ Sailors
:-1637

, Option ID

Subject : 87_PART_C_Set1

Question ID:- 413

Based on the following passage, answer the Questions :

A 3000 km long trunk operates at 1.536 mbps and is used to transmit 64 bytes frames and uses sliding window protocol. The propagation speed is 6 μ sec/km.

The sender window size to get the maximum efficiency is

Options:-

108

Option ID :- 1649,

109

Option ID :- 1650,

55

Option ID :- 1651,

56

Option ID :- 1652,

Answer Given:- 55, Option ID :- 1651

optimal window size
 $1 + 2q$

$$q = \frac{T_p}{T_t} = \frac{18000 \text{ usec}}{333.33 \text{ usec}} = 54$$

$$1 + 2 \times 54 = 1 + 108 = 109$$

Question ID:- 415

Based on the following passage, answer the Questions :

A 3000 km long trunk operates at 1.536 mbps and is used to transmit 64 bytes frames and uses sliding window protocol. The propagation speed is 6 μ sec/km.

The maximum achievable throughput is

Options:-

0.768

Option ID :- 1657,

0.678

Option ID :- 1658,

0.901

Option ID :- 1659,

0.887

Option ID :- 1660,

Answer Given:- 0.901, Option ID :- 1659

$\text{Throughput} = \text{efficiency} \times \text{Bandwidth}$

$$(W) = \frac{\text{Sender window size}}{\text{optimal window size}} = \frac{2^6}{2^7} = 0.587$$

$$\text{Throughput} = 0.587 \times 1.536 \text{ mbps} = 0.901$$

97

Question ID:- 411

Based on the following passage, answer the Questions :

A 3000 km long trunk operates at 1.536 mbps and is used to transmit 64 bytes frames and uses sliding window protocol. The propagation speed is 6 μ sec/km.

The transmission and propagation delays are respectively

Options:-

$T_t = 333.33 \mu$ sec, $T_p = 18000 \mu$ sec

Option ID :- 1641,

$T_t = 300 \mu$ sec, $T_p = 18000 \mu$ sec

Option ID :- 1642,

$T_t = 33.33 \mu$ sec, $T_p = 1800 \mu$ sec

Option ID :- 1643,

$T_t = 1800 \mu$ sec, $T_p = 33.33 \mu$ sec

Option ID :- 1644,

Answer Given:- $T_t = 33.33 \mu$ sec, $T_p = 1800 \mu$ sec

, Option ID :- 1643

easy formula learner
Transmission delay = $\frac{\text{packet size}}{\text{Bandwidth}}$

$$= \frac{64 \text{ bytes}}{1.536 \text{ mbps}} = \frac{64 \times 8 \text{ bits}}{1.536 \times 10^6 \text{ bps}} = 333.33 \text{ usec}$$

$$\text{For 3000 km, prop speed} = 6 \text{ usec/km}$$

$$3000 \times 6 = 18000 \text{ usec}$$

98

Question ID:- 414

Based on the following passage, answer the Questions :

A 3000 km long trunk operates at 1.536 mbps and is used to transmit 64 bytes frames and uses sliding window protocol. The propagation speed is 6 μ sec/km.

If only 6 bits are reserved for sequence number field, then the efficiency of the system is

Options:-

0.587

Option ID :- 1653,

0.875

Option ID :- 1654,

0.578

Option ID :- 1655,

0.50

Option ID :- 1656,

0.578

Answer Given:- 0.578, Option ID :- 1655

$$(W) = \frac{2^6}{2^7} = 0.587$$

99

Question ID:- 412

Based on the following passage, answer the Questions :

A 3000 km long trunk operates at 1.536 mbps and is used to transmit 64 bytes frames and uses sliding window protocol. The propagation speed is 6 μ sec/km.

The minimum number of bits required in the sequence number field of the packet is

Options:-

• 6 bits

Option ID :- 1645,

• 7 bits

Option ID :- 1646,

• 8 bits

Option ID :- 1647,

• 4 bits

Option ID :- 1648,

Answer Given:- 8 bits

, Option ID :- 1647

optimal window size
= 128

7 bits
2 = 128

$2^6 = 64$

Q 100 $\rightarrow$ 48 after

$$\text{Transmission Time } T_t = \frac{\text{Length of Packet} / \text{Packet Size}}{\text{Bandwidth}}$$

$$\text{Propagation Time} = \frac{\text{Distance between sender to receiver}}{\text{Speed}}$$

