

Notations :

- Options shown in **green** color and with  icon are correct.
- Options shown in **red** color and with  icon are incorrect.

Question Paper Name :Computer Science and Information
Technology 17th June 2025 Shift 2**Subject Name :**Computer Science and Information
technology**Creation Date :**

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Duration :

120

Total Marks :

120

Display Marks:

Yes

Share Answer Key With Delivery Engine :

Yes

Actual Answer Key :

Yes

Change Font Color :

No

Change Background Color :

No

Change Theme :

No

Help Button :

No

Show Reports :

No

Show Progress Bar :

No

Computer Science and Information Technology

Group Number :

1

Group Id :

3084118

Group Maximum Duration :

0

Group Minimum Duration :

120

Show Attended Group? :

No

Edit Attended Group? :

No

Break time :

0

Group Marks :

120

Mathematics

Section Id :

30841114

Section Number :

1

Section type :

Online

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Mandatory or Optional :

Number of Questions :

Number of Questions to be attempted :

Section Marks :

Maximum Instruction Time :

Sub-Section Number :

Sub-Section Id :

Question Shuffling Allowed :

Mandatory

10

10

10

0

1

30841114

Yes

Question Number : 1 Question Id : 308411841 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\begin{bmatrix} -1 \\ 0 \\ 1 \end{bmatrix}$ is an eigen vector of the matrix $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$, then the corresponding eigen value is

Options :

1. ✖ 2

2. ✖ 6

3. ✔ -2

4. ✖ 3

Question Number : 2 Question Id : 308411842 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\begin{bmatrix} 1 & 2 & 0 \\ 1 & 3 & 1 \\ 0 & 1 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ a & 1 & 0 \\ b & c & 1 \end{bmatrix} \begin{bmatrix} x & y & z \\ 0 & t & p \\ 0 & 0 & r \end{bmatrix}$, then the solution of $\begin{bmatrix} 1 & 0 & 0 \\ a & 1 & 0 \\ b & c & 1 \end{bmatrix} X = \begin{bmatrix} 1 \\ 2 \\ 2 \end{bmatrix}$ is

Options :

1. ✔ $\begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$

2. ✖

3. ✖ $\begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$

Question Number : 3 Question Id : 308411843 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The sum of the product of the roots taken two at a time of the equation

$$\begin{vmatrix} 1-x & 2 & -2 \\ -1 & 3-x & 0 \\ 0 & -2 & 1-x \end{vmatrix} = 0 \text{ is}$$

Options :

1. ✖ 5

2. ✔ 9

3. ✖ 1

4. ✖ 0

Question Number : 4 Question Id : 308411844 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $f(n) = \left(\frac{n+5}{n}\right)^{3n^2}$ then $\lim_{n \rightarrow \infty} [f(n)]^{1/n} =$

Options :

1. ✖ e^8

2. ✖ $e^{5/3}$

3. ✔ e^{15}

4. ✖ $\log(e^8)$

Question Number : 5 Question Id : 308411845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If Cauchy's mean value theorem is applied on $f(x) = \sin x$ and $g(x) = \cos x$ in the interval $[a, b]$, then the value of C is

Options :

1. ✖ $\sqrt{ab}$

2. ✖ $\frac{\sin(b+a)}{\cos(a+b)}$

3. ✖ $\frac{\cos(a+b)}{\sin(a+b)}$

4. ✔ $\frac{a+b}{2}$

Question Number : 6 Question Id : 308411846 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum area of a sector of given perimeter of 80 cm is

Options :

1. ✔ 400 sq. cm

2. ✖ 1600 sq. cm

3. ✖ 1200 sq. cm

4. ✖ 800 sq. cm

Question Number : 7 Question Id : 308411847 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A piece of paper is given to A and asked to write either + sign or – sign. A passes this slip to B and B either changes the sign or leaves it as it is. B then passes the slip to C. The probability of writing + sign by A is $\frac{1}{4}$ and probability that B changes the sign is $\frac{2}{3}$. If C sees a – sign on the slip, then what is the probability that A originally writes + sign?

Options :

1. ✖ $\frac{3}{5}$

2. ✔ $\frac{2}{5}$

3. ✖ $\frac{1}{5}$

4. ✖ $\frac{4}{5}$

Question Number : 8 Question Id : 308411848 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The probability density function of a random variable X is given by $f(x) = 6x(1-x)$, $0 \leq x \leq 1$ and M is its mean. Then $P(X \geq M) =$

Options :

1. ✖ $\frac{2}{3}$

2. ✖ $\frac{1}{4}$

3. ✔

4. ✖ $\frac{1}{3}$

Question Number : 9 Question Id : 308411849 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the random variable X follows binomial distribution with parameters n and p,

(q=1-p) then the variance of $\frac{X}{n}$ + mean of $\frac{X}{n}$ =

Options :

1. ✖ $pq + p$

2. ✔ $\frac{p}{n}[q + n]$

3. ✖ $\frac{pq}{n^2} + \frac{p}{n}$

4. ✖ $npq + np$

Question Number : 10 Question Id : 308411850 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $Z \sim N(0,1)$, $P(0 < Z < Z_1) = K_1$ and $P(0 < Z < Z_2) = K_2$, ($K_2 < K_1$) then

$P(-Z_2 < Z < Z_1) =$

Options :

1. ✖ $P(0 < Z < |Z_1 - Z_2|)$

2. ✖ $P(Z_2 < Z < Z_1)$

3. ✔ $P(-Z_1 < Z < Z_2)$

4. ✖ $P(-Z_1 < Z < -Z_2)$

Computer Science and Information Technology

Section Id :	30841115
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	30841115
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 308411851 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the chromatic number of graph $K_{m,n}$?

Options :

- ✗ m
- ✗ n
- ✗ m+n
- ✓ Two

Question Number : 12 Question Id : 308411852 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many vertices and edges will a wheel graph W_n have?

Options :

- ✗ n vertices, (n+1) edges
- ✗ n vertices, 2n edges
- ✓ (n+1) vertices, 2n edges

4. ✖ $2n$ vertices, n^2 edges

Question Number : 13 Question Id : 308411853 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Find the probability of obtaining at least one head when three coins are tossed?

Options :

1. ✖ $\frac{1}{8}$

2. ✔ $\frac{7}{8}$

3. ✖ $\frac{1}{6}$

4. ✖ $\frac{5}{6}$

Question Number : 14 Question Id : 308411854 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $f(x) = 2x + 3$, $g(x) = x^2$, What is $g \circ f(2)$?

Options :

1. ✖ 11

2. ✖ 7

3. ✔ 49

4. ✖ 121

Question Number : 15 Question Id : 308411855 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

There are 7 cricket players who can bat and bowl but only two out of these players can perform wicket keeping also. In how many ways three batsmen, two bowlers and one wicket keeper can be selected from these players?

Options :

1. ✖ 120
2. ✖ 735
3. ✖ 60
4. ✔ 12

Question Number : 16 Question Id : 308411856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Today is Thursday, What day of the week will it be 100 days from today?

Options :

1. ✖ Sunday
2. ✔ Saturday
3. ✖ Tuesday
4. ✖ Wednesday

Question Number : 17 Question Id : 308411857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following is a tautology?

Options :

1. ✖ $p \wedge \sim p$
2. ✔ $p \vee \sim p$
3. ✖ $p \rightarrow q$
4. ✖ $p \leftrightarrow q$

Question Number : 18 Question Id : 308411858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many regions can be formed in a planar graph with 13 vertices and 22 edges?

Options :

1. ✖ 13

2. ✔ 11

3. ✖ 18

4. ✖ 20

Question Number : 19 Question Id : 308411859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $S = \{1, 3, 4, 5, 7\}$ and $R = \{(x, y) \in A \times A : y - x \text{ is even integer}\}$, Find the minimum number of elements need to add to R , so that R is symmetric relation?

Options :

1. ✖ One

2. ✖ Four

3. ✔ Six

4. ✖ Ten

Question Number : 20 Question Id : 308411860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following defines symmetric difference of sets A and B ?

Options :

1. ✔ $(A - B) \cup (B - A)$

2. ✖ $(A - B) - (A \cap B)$

3. ✖ $A-(A-B)$
4. ✖ $(A \cup B)-(A-B)$

Question Number : 21 Question Id : 308411861 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following digital logical family has low power consumption?

Options :

1. ✖ TTL
2. ✖ ECL
3. ✖ IIL
4. ✔ CMOS

Question Number : 22 Question Id : 308411862 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many NAND gates (minimum) are required to implement the Boolean function

$$F = AB + CD + E?$$

Options :

1. ✔ Four
2. ✖ Eight
3. ✖ Three
4. ✖ Five

Question Number : 23 Question Id : 308411863 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What should be the value of T, to complement the state of the T flip-flop?

Options :

1. ✔ One

- 2. ✖ Zero
- 3. ✖ 0 or 1
- 4. ✖ Unknown

Question Number : 24 Question Id : 308411864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which of the following flip-flop output transition serves as a source for triggering other flip-flops?

Options :

- 1. ✖ Decoder
- 2. ✔ Ripple counter
- 3. ✖ Synchronous counter
- 4. ✖ Encoder

Question Number : 25 Question Id : 308411865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many bits are allotted for exponent in double precision IEEE 754 floating point standard?

Options :

- 1. ✔ 11 bits
- 2. ✖ 12 bits
- 3. ✖ 16 bits
- 4. ✖ 52 bits

Question Number : 26 Question Id : 308411866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following instruction follows implied addressing mode?

Options :

1. ✖ CMP

2. ✖ ADD

3. ✔ INCA

4. ✖ MOV

Question Number : 27 Question Id : 308411867 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is BUN in computer architecture?

Options :

1. ✖ Bottom Up Numerical datatype

2. ✔ Branch Unconditionally instruction

3. ✖ Branch Up Null policy

4. ✖ Branch Unconditional Null method

Question Number : 28 Question Id : 308411868 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following register holds address of an instruction?

Options :

1. ✖ Address register

2. ✖ Instruction register

3. ✔ Program counter

4. ✖ Instruction counter

Question Number : 29 Question Id : 308411869 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which organization, the control logic is implemented with gates, flip-flops and other digital circuits?

Options :

1. ✓ Hardwired control
2. ✗ Microprogrammed control
3. ✗ Nano-programmed control
4. ✗ Tera-programmed control

Question Number : 30 Question Id : 308411870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which diagram is used to illustrate the functioning of a pipeline?

Options :

1. ✗ Waits-for graph
2. ✗ Precedence graph
3. ✗ State-space diagram
4. ✓ Space-time diagram

Question Number : 31 Question Id : 308411871 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct set of major difficulties that cause the instruction pipeline to deviate from its normal operation.

Options :

1. ✗ Data dependency, branch difficulties and segment malfunctioning
2. ✓ Resource conflicts, data dependency conflicts and branch difficulties
3. ✗ Resource conflicts, branch conflicts and operand conflicts

4. ✖ Data dependency, branch conflicts and instruction clashes

Question Number : 32 Question Id : 308411872 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following method of asynchronous data transfer employs a single control line to time each transfer?

Options :

- 1. ✔ Strobe control
- 2. ✖ Handshaking
- 3. ✖ Polling
- 4. ✖ Daisy chaining

Question Number : 33 Question Id : 308411873 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In input-output organization, which procedure is used to identify the highest priority device by software means?

Options :

- 1. ✖ DMA
- 2. ✖ Handshaking
- 3. ✔ Polling
- 4. ✖ Daisy chaining

Question Number : 34 Question Id : 308411874 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the most common auxiliary memory devices in computer systems?

Options :

1. ✓ Magnetic disks and tapes
2. ✗ Optical disk and cache
3. ✗ Magnetic disks and optical tapes
4. ✗ Registers and cache chips

Question Number : 35 Question Id : 308411875 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct statements.

Statement -I : Dynamic RAM offers reduced power consumption, when the system is in active state

Statement -II : Static RAM has shorter read and write cycles.

Statement -III: Dynamic RAM offers larger storage capacity in a single memory chip

Options :

1. ✗ I and II only
2. ✗ I and III only
3. ✗ II and III only
4. ✓ I, II and III

Question Number : 36 Question Id : 308411876 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which C header file contains printf and scanf functions?

Options :

1. ✓ Stdio
2. ✗ Devio
3. ✗ Stdlib
4. ✗ Iolang

Question Number : 37 Question Id : 308411877 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the invalid identifier in C program.

Options :

1. ✖ Hello
2. ✖ __Letter
3. ✔ 1 number
4. ✖ CENT_Price

Question Number : 38 Question Id : 308411878 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the output of the following code?

```
#include <stdio.h>
int main()
{
    int i, j=10;
    for(i=1; i<=5; i++)
    { printf("%d \t", j);
      j/=2;}
    return 0;
}
```

Options :

1. ✔ 10 5 2 1 0
2. ✖ 10 8 4 2 0
3. ✖ 10 8 6 4 2
4. ✖ 10 5 2 1 1

Question Number : 39 Question Id : 308411879 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The part of a program where an identifier can be referenced is called its

Options :

1. ✓ Scope
2. ✗ Storage class
3. ✗ Value
4. ✗ Lifetime

Question Number : 40 Question Id : 308411880 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If str1="marigold", str2="tulip" what is the output of strcmp(str1, str2) in C program?

Options :

1. ✗ 5
2. ✗ 0
3. ✗ 1
4. ✓ -7

Question Number : 41 Question Id : 308411881 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the size of the memory allotted to the following union in C, if the compiler is 32 bit and machine is 64 bit

```
typedef union{ int wears_wig; char color[20];} hair_t;
```

Options :

1. ✗ 4 bytes
2. ✓ 20 bytes
3. ✗ 22 bytes

4. ✖ 8 bytes

Question Number : 42 Question Id : 308411882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the maximum number of nodes in a full binary tree, If h is its height?

Options :

1. ✖ $2h$

2. ✖ h^2

3. ✔ $2^h - 1$

4. ✖ $2^h + 1$

Question Number : 43 Question Id : 308411883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a binary tree, preorder : a b d e c f g , inorder: d b e a f c g, choose the post order traversal from the following.

Options :

1. ✖ e d b a f c a

2. ✖ e d b f g c a

3. ✔ d e b f g c a

4. ✖ d e f g b c a

Question Number : 44 Question Id : 308411884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which data structure is used in implementation of depth first search of graphs?

Options :

1. ✔ Stack

2. ✖ Queue
3. ✖ Dequeue
4. ✖ Circular queue

Question Number : 45 Question Id : 308411885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Data compression technique Huffman coding is an application of _____ tree.

Options :

1. ✖ AVL
2. ✔ Heap
3. ✖ Binary search
4. ✖ Red-black

Question Number : 46 Question Id : 308411886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which sorting algorithm can sense and terminate prematurely if data is already in sorted order?

Options :

1. ✖ Quick sort
2. ✖ Selection sort
3. ✖ Insertion sort
4. ✔ Bubble sort

Question Number : 47 Question Id : 308411887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the worst case time complexity of quick sort?

Options :

1. ✗ $O(n)$
2. ✗ $O(n \log n)$
3. ✗ $O(1)$
4. ✓ $O(n^2)$

Question Number : 48 Question Id : 308411888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The following notation provides an asymptotic lower bound for a function

Options :

1. ✗ Theta
2. ✓ Omega
3. ✗ Big-Oh
4. ✗ Gamma

Question Number : 49 Question Id : 308411889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the pair of sorting algorithms following divide-and-conquer strategy.

Options :

1. ✗ Merge sort and bubble sort
2. ✗ Merge sort and selection sort
3. ✓ Merge sort and quick sort
4. ✗ Insertion sort and bubble sort

Question Number : 50 Question Id : 308411890 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which design strategy is applicable to find shortest path in Graphs in all cases?

Options :

1. ✖ Divide and conquer
2. ✖ Greedy method
3. ✖ Bottom-up
4. ✔ Dynamic programming

Question Number : 51 Question Id : 308411891 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the time complexity of Dijkstra's algorithm?

Options :

1. ✔ $O(V^2)$
2. ✖ $O(V * E)$
3. ✖ $O(V \log V)$
4. ✖ $O(E \log V)$

Question Number : 52 Question Id : 308411892 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In Breadth first traversal, how many times does a node of a graph get visited?

Options :

1. ✖ Once
2. ✖ Twice
3. ✖ Thrice

Question Number : 53 Question Id : 308411893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following problems should be solved using dynamic programming?

Options :

1. ✗ Merge sort
2. ✗ Binary search
3. ✓ Longest common subsequence
4. ✗ Quicksort

Question Number : 54 Question Id : 308411894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the incorrect statement about Kruskal's algorithm.

Options :

1. ✗ It is a greedy algorithm
2. ✗ It uses union-find data structure
3. ✗ Selects edges in increasing order of their weights
4. ✓ Accepts cycles

Question Number : 55 Question Id : 308411895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following pair of algorithms generate minimum spanning trees?

Options :

1. ✓ Prim's and Kruskal's
2. ✗ Prim's and Dijkstra's

3. ✖ Bell Ford's and Dijkstra's

4. ✖ Kruskal's and Dijkstra's

Question Number : 56 Question Id : 308411896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A given grammar is called ambiguous if

Options :

1. ✖ Two or more productions have same non-terminal on the left hand side

2. ✖ A derivation tree has more than one associated sentence

3. ✔ There is a sentence with more than one derivation tree corresponding to it

4. ✖ Parenthesis are not present in the grammar

Question Number : 57 Question Id : 308411897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Regular expression that accepts all strings containing any number of a's and b's in any order is:

Options :

1. ✖ a^*b^*

2. ✖ ab^*

3. ✔ $(a+b)^*$

4. ✖ $(a^*b)^+$

Question Number : 58 Question Id : 308411898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the number of external states of a Universal Turing Machine?

Options :

1. ✓ At least two
2. ✗ At most two
3. ✗ At least three
4. ✗ Undecidable

Question Number : 59 Question Id : 308411899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the following statements choose the correct option(s).

Statement I: Null moves are possible and may be specified in NFA

Statement II: There is exactly one state that corresponds to each character in NFA

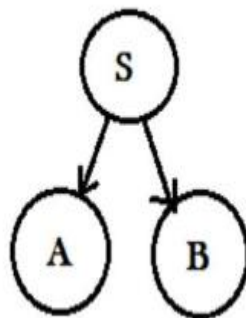
Options :

1. ✗ Both I and II are true
2. ✓ I is true, but II is false
3. ✗ I is false, but II is true
4. ✗ Both I and II are false

Question Number : 60 Question Id : 308411900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the grammar $(S \rightarrow AB, A \rightarrow aA \mid \varepsilon \text{ and } B \rightarrow Bb \mid \varepsilon)$ and its partial derivation tree is as shown below:



This tree is called as:

Options :

1. ✗ Chomsky hierarchy

2. ✖ In-order form
3. ✖ Root form
4. ✔ Sentential form

Question Number : 61 Question Id : 308411901 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A turing machine operates over

Options :

1. ✖ Logical expressions
2. ✖ Depends on the algorithm
3. ✔ Infinite memory tape
4. ✖ Finite memory tape

Question Number : 62 Question Id : 308411902 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The smallest finite automaton which accepts the language $\{x \mid \text{length of } x \text{ is divisible by } 3\}$ has

Options :

1. ✖ Two states
2. ✔ Three states
3. ✖ Four states
4. ✖ Five states

Question Number : 63 Question Id : 308411903 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If L and L complement are recursively enumerable, then L is

- Options :
1. ✖ Regular
 2. ✖ Context-free
 3. ✖ Context-sensitive
 4. ✔ Recursive

Question Number : 64 Question Id : 308411904 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following problems is undecidable?

Options :

1. ✖ Membership problem for CFG
2. ✔ Ambiguity problem for CFG
3. ✖ Finiteness problem for FSA
4. ✖ Equivalence problem for FSA

Question Number : 65 Question Id : 308411905 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The language generated by the grammar $S \rightarrow aSa|bSb|a|b$ is the set of

Options :

1. ✖ All palindromes
2. ✔ All odd length palindromes
3. ✖ Strings that begin and end with the same symbol
4. ✖ All even length palindromes

Question Number : 66 Question Id : 308411906 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Macro expansion is the functionality of

Options :

1. ✖ Compiler
2. ✔ Preprocessor
3. ✖ Loader
4. ✖ Linker

Question Number : 67 Question Id : 308411907 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which type of loader is typically stored in ROM?

Options :

1. ✖ Absolute loader
2. ✖ Relocatable loader
3. ✔ Bootstrap loader
4. ✖ Linking loader

Question Number : 68 Question Id : 308411908 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the below statements and choose the correct option.

Statement I: Interpreted programs are slower

Statement II: Compiled languages are less portable

Options :

1. ✖ I is true, but II is false
2. ✖ I is false, but II is true
3. ✖ Both I and II are false

4. ✓ Both I and II are true

Question Number : 69 Question Id : 308411909 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following belongs to synthesis phase of compiler design?

Options :

1. ✗ Semantic analysis
2. ✗ Syntactic analysis
3. ✗ Intermediate code generation
4. ✓ Code generation

Question Number : 70 Question Id : 308411910 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Concept of finite state automata is used in _____ phase of the compiler.

Options :

1. ✓ Lexical analysis
2. ✗ Syntax analysis
3. ✗ Semantic analysis
4. ✗ Code generation

Question Number : 71 Question Id : 308411911 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following parsers are top-down parsers?

Options :

1. ✗ SLR parser

Question Number : 72 Question Id : 308411912 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following determines the order of attributes evaluation in parse trees?

Options :

1. ✖ Precedence graph

2. ✖ Operator tree

3. ✔ Dependency graph

4. ✖ Order tree

Question Number : 73 Question Id : 308411913 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which technique is used to evaluate expressions with constant operands at compile time and reduce code size?

Options :

1. ✖ Constant propagation

2. ✖ Copy propagation

3. ✖ Operand folding

4. ✔ Constant folding

Question Number : 74 Question Id : 308411914 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which optimization technique increases the size of the code and reduces execution time?

Options :

1. ✖ Loop fission
2. ✖ Loop fusion
3. ✔ Loop unrolling
4. ✖ Loop rolling

Question Number : 75 Question Id : 308411915 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the pair of data structures being used in every phase of the compiler.

Options :

1. ✖ Parse tree, three address code
2. ✔ Symbol table, error handler
3. ✖ Dependency graph, symbol table
4. ✖ Symbol table, variable handler

Question Number : 76 Question Id : 308411916 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is used to access the services of operating system?

Options :

1. ✔ System calls
2. ✖ API
3. ✖ System library
4. ✖ BIOS

Question Number : 77 Question Id : 308411917 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following can decide the size of the virtual memory?

Options :

1. ✖ CPU
2. ✔ Address bus
3. ✖ RAM
4. ✖ Databus

Question Number : 78 Question Id : 308411918 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following are the two types of atomic operations performed by semaphores?

Options :

1. ✖ Wait, count
2. ✖ Wait, stop
3. ✔ Wait, signal
4. ✖ Binary, count

Question Number : 79 Question Id : 308411919 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which type of operating system reacts in terms of actual time?

Options :

1. ✖ Batch operating system
2. ✔ Realtime operating system
3. ✖ Timesharing operating system

Question Number : 80 Question Id : 308411920 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following is a systematic procedure for moving the CPU to new process?

Options :

1. ✖ Synchronization
2. ✖ Starvation
3. ✖ Termination
4. ✔ Context switch

Question Number : 81 Question Id : 308411921 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following requires a device driver?

Options :

1. ✖ Registers
2. ✖ Cache
3. ✖ Main memory
4. ✔ Disk

Question Number : 82 Question Id : 308411922 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which is an optimal scheduling algorithm in terms of minimizing the average waiting time of a given set of processes?

Options :

1. ✔ Shortest job first

2. ✖ First come first serve

3. ✖ First in first out

4. ✖ Round robin

Question Number : 83 Question Id : 308411923 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which disk scheduling algorithm treats the disk track as a circular buffer?

Options :

1. ✖ LOOK

2. ✖ SSTF

3. ✖ C-FILO

4. ✔ C-SCAN

Question Number : 84 Question Id : 308411924 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which free space management technique of file system suffers from the problem of external fragmentation?

Options :

1. ✔ Contiguous allocation

2. ✖ File allocation table

3. ✖ Indexed allocation

4. ✖ Linked allocation

Question Number : 85 Question Id : 308411925 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which page replacement algorithm may result in Belady's anomaly?

Options :

1. ✖ Least recently used
2. ✖ Optimal
3. ✔ First in first out
4. ✖ Most frequently used

Question Number : 86 Question Id : 308411926 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which data structure is used in RDBMS for data modeling?

Options :

1. ✖ Graph
2. ✖ Tree
3. ✖ Queue
4. ✔ Arrays

Question Number : 87 Question Id : 308411927 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which data abstraction layer is used by end user in DBMS?

Options :

1. ✖ Physical level
2. ✖ Internal level
3. ✔ View level
4. ✖ Logical level

Question Number : 88 Question Id : 308411928 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose concurrency control algorithm from the following for database transactions.

Options :

1. ✓ Validation based protocol
2. ✗ File transfer protocol
3. ✗ Banker protocol
4. ✗ Thomas Wilson protocol

Question Number : 89 Question Id : 308411929 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Customer age is an example of _____ attribute.

Options :

1. ✗ Composite
2. ✗ Multivalued
3. ✓ Derived
4. ✗ Descriptive

Question Number : 90 Question Id : 308411930 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In ER model, participation of a relationship in another relationship is depicted as _____ concept.

Options :

1. ✗ Generalization
2. ✓ Aggregation
3. ✗ Composition

Question Number : 91 Question Id : 308411931 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which normal form is based on the concept of join dependencies?

Options :

1. ✖ Second normal form
2. ✖ Third normal form
3. ✖ Fourth normal form
4. ✔ Fifth normal form

Question Number : 92 Question Id : 308411932 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which key concept is the basis for referential integrity constraint?

Options :

1. ✖ Candidate key
2. ✖ Primary key
3. ✔ Foreign key
4. ✖ Super key

Question Number : 93 Question Id : 308411933 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose dynamic indexing structure from the following

Options :

1. ✖ ISAM
2. ✖ Linear probing

3. ✖ Linear chaining

4. ✔ Linear hashing

Question Number : 94 Question Id : 308411934 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which SQL aggregate operator considers even NULL values?

Options :

1. ✔ COUNT(*)

2. ✖ SUM()

3. ✖ MAX()

4. ✖ AVG()

Question Number : 95 Question Id : 308411935 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following

List-I (SQL commands)		List-II (SQL Sub languages)	
a	DROP	i	TCL
b	DELETE	ii	DCL
c	ROLL BACK	iii	DDL
d	GRANT	iv	DML

Options :

1. ✖ a – iv, b- iii, c-ii, d-i

2. ✔ a – iii, b- iv, c-i, d-ii

3. ✖ a – iv, b- iii, c-i, d-ii

4. ✖ a – iii, b- iv, c-ii, d-i

Question Number : 96 Question Id : 308411936 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In ISO OSI reference model, which layer is concerned with transmitting raw bits over a communication channel?

Options :

1. ✓ Physical layer
2. ✗ Data link layer
3. ✗ Transmit layer
4. ✗ Network layer

Question Number : 97 Question Id : 308411937 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which TCP/IP model layer contains TELNET protocol?

Options :

1. ✗ Host layer
2. ✗ Internet layer
3. ✗ Transport layer
4. ✓ Application layer

Question Number : 98 Question Id : 308411938 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Attenuation is the loss of signal strength in networking cables or connections. It is measured in units of

Options :

1. ✓ Decibels per unit length of medium
2. ✗ Mega bits per second

3. ✖ Packet dropped in unit length of medium

4. ✖ Packet loss in second

Question Number : 99 Question Id : 308411939 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which routing algorithm, routers are divided into two regions?

Options :

1. ✖ Distance vector

2. ✖ Link-state

3. ✖ Dijkstra's algorithm

4. ✔ Hierarchical

Question Number : 100 Question Id : 308411940 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the set of techniques, the system designers use to achieve Quality of Service in networks.

Options :

1. ✔ Overprovisioning, buffering and traffic shaping

2. ✖ Overfitting, bucketing and traffic congestion

3. ✖ Overfitting, buffering and traffic shaping

4. ✖ Overprovisioning, hashing and partitioning

Question Number : 101 Question Id : 308411941 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is MIME in electronic mail of application layer?

- Options :**
1. ✖ Multiple Internet Mail Extensions
 2. ✔ Multipurpose Internet Mail Extensions
 3. ✖ Mega Information Mail Entity
 4. ✖ Multipurpose Internetwork Modem for Email

Question Number : 102 Question Id : 308411942 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following is a delivery protocol in application layer?

Options :

1. ✖ ARP
2. ✖ PPP
3. ✔ IMAP
4. ✖ HMTTP

Question Number : 103 Question Id : 308411943 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the two fundamental cryptographic principles.

Options :

1. ✔ Confidentiality, non-repudiation
2. ✖ Non-repudiation, reliability
3. ✖ Confidentiality, redundances
4. ✖ Reliability, redundances

Question Number : 104 Question Id : 308411944 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statement gives Kerckhoff's principle?

Options :

1. ✖ All the data must be confidential; only users are public
2. ✖ All algorithms must be secret; only keys are public
3. ✔ All algorithms must be public; only the keys are secrets
4. ✖ All keys are private; only data is publicly available

Question Number : 105 Question Id : 308411945 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following is asymmetric key cryptography algorithm?

Options :

1. ✖ DES
2. ✖ AES
3. ✖ PES
4. ✔ RSA

Question Number : 106 Question Id : 308411946 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which software process model contains scrums and sprints?

Options :

1. ✖ Spiral model
2. ✖ RAD model
3. ✔ Agile model
4. ✖ RUP model

Question Number : 107 Question Id : 308411947 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which UML diagram is used to model an operation/method of a class?

Options :

1. ✓ Activity diagram
2. ✗ Use case diagram
3. ✗ Class diagram
4. ✗ Sequence diagram

Question Number : 108 Question Id : 308411948 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the design concept to refer the degree to which elements within a module work together to fulfil a single, well-defined purpose.

Options :

1. ✗ Modularity
2. ✓ Cohesion
3. ✗ Coupling
4. ✗ Refactoring

Question Number : 109 Question Id : 308411949 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which type of maintenance involves fixing errors and bugs in the software system?

Options :

1. ✗ Perfective maintenance
2. ✗ Adaptive maintenance

3. ✖ Predictive maintenance

4. ✔ Corrective maintenance

Question Number : 110 Question Id : 308411950 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following testing is carried out when code is modified to optimize its working?

Options :

1. ✔ Regression testing

2. ✖ Exploratory testing

3. ✖ Smoke testing

4. ✖ Performance testing

Question Number : 111 Question Id : 308411951 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is used to resolve the name conflicts in XML?

Options :

1. ✖ DTD

2. ✔ Namespaces

3. ✖ Identifiers

4. ✖ Schema definition

Question Number : 112 Question Id : 308411952 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

PCDATA is a building block of XML. What does it specify?

1. ✖ Personal computer data
2. ✖ Parsed consumer data
3. ✖ Personal character data
4. ✔ Parsed character data

Question Number : 113 Question Id : 308411953 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is an expression language designed to support navigate and select nodes from XML documents?

Options :

1. ✖ XSLT
2. ✖ XML-DOM
3. ✔ XPath
4. ✖ XQuery

Question Number : 114 Question Id : 308411954 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the directive used to define page-level settings in JSP.

Options :

1. ✖ `<jsp:page>`
2. ✔ `<%@page%>`
3. ✖ `<%page%>`
4. ✖ `<#include:jsp.page>`

Question Number : 115 Question Id : 308411955 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which is NOT a session tracking mechanism used by JSP?

Options :

1. ✗ Cookies
2. ✗ URL rewriting
3. ✓ SSL mechanism
4. ✗ Hidden form fields

Question Number : 116 Question Id : 308411956 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which parser creates an object-oriented hierarchical representation of the XML document?

Options :

1. ✗ SAX parser
2. ✗ Tree parser
3. ✗ XPath parser
4. ✓ DOM parser

Question Number : 117 Question Id : 308411957 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which class provides implementations of the basic life cycle methods for a servlet?

Options :

1. ✓ Generic Servlet
2. ✗ Servlet Config
3. ✗ HttpSession

4. ✖ HttpServletRequest

Question Number : 118 Question Id : 308411958 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which interface provides a standard way for servlets to write events to a log file?

Options :

1. ✖ ServletConfig
2. ✖ ServletLogfile
3. ✔ ServletContext
4. ✖ ServletSession

Question Number : 119 Question Id : 308411959 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

JSP provides different scopes for sharing data objects. Choose the correct set from the following:

Options :

1. ✔ Page, request, session, application
2. ✖ Block, page, program, user
3. ✖ Page, cookie, session, user
4. ✖ Page, cookie, session, application

Question Number : 120 Question Id : 308411960 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which among the following defines the mappings between the WSDL port types and the Java interfaces?

Options :

