# Candidate Details

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DeltaX Technical MCQs

50 Questions - 45 minutes

A person wants to visit some places. He starts from a vertex and then wants to visit every vertex till it finishes from one vertex, backtracks and then explore other vertex from same vertex. What algorithm he should use? 1 point

- (●) Depth First Search
- ( ) Breadth First Search
- ( ) Trim's algorithm
- ( ) None of the mentioned

Clear selection

Which of the following true about FILE *fp 1 point

- ( ) FILE is a keyword in C for representing files and fp is a variable of FILE type.
- ( ) FILE is a structure and fp is a pointer to the structure of FILE type
- ( ) FILE is a stream
- ( ) FILE is a buffered stream

Are logical operators in the C language evaluated with the short circuit? 1 point

- (●) True
- ( ) False
- ( ) Depends on the compiler
- ( ) Depends on the standard

Clear selection

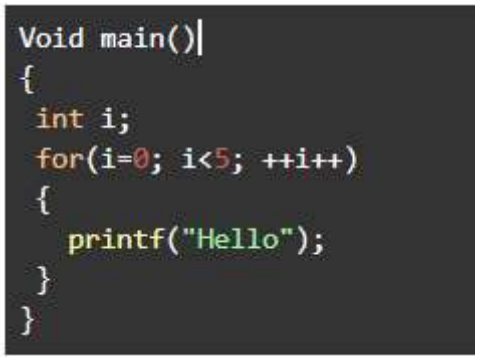
What is the output of the code given below? Assume that main function returns 0. 1 point

```c
#include <stdio.h>
int main() {
      int x = 0;
      if (x++ > 0)
            printf("True\n");
      else
            printf("False\n");
}
```

- ( ) True
- (●) False
- ( ) Garbage value
- ( ) Compile time error

Clear selection

What happens when you execute the below code? 1 point



```
Void main()
{
 int i;
 for(i=0; i<5; ++i++)
 {
   printf("Hello");
 }
}
```

- ○ Hello is printed 5 times
- ◉ Compilation Error
- ○ Hello is printed 2 times
- ○ Hello is printed 3 times

Clear selection

If a relation is in BCNF, it is also in: 1 point

- ○ 1NF
- ○ 2NF
- ◉ 3NF
- ○ All of the above

Clear selection

Race Condition is caused due to 1 point

- ○ Multi-Processing OS
- ○ Multi-Programming OS
- ◉ Both of the above
- ○ None of the above

Clear selection

What are the worst case and average case complexities of a binary search tree? 1 point

- ○ O(n), O(n)
- ○ O(logn), O(logn)
- ○ O(logn), O(n)
- ○ O(n), O(logn)

Following is C like pseudo code of a function that takes a number as an argument, and uses a stack S to do processing. What does the below function do in general? 1 point

```
void fun(int n) {
      Stack S;  // Say it creates an empty stack S
      while (n > 0)
      {
            // This line pushes the value of n%2 to stack S
            push(&S, n%2);
            n = n/2;
      }
      // Run while Stack S is not empty
      while (!isEmpty(&S))
            printf("%d ", pop(&S)); // pop an element from S and print it
}
```

- ◯ Prints the value of Logn
- ◯ Prints the value of Logn in reverse order
- ◯ Prints binary representation of n
- ◯ Prints binary representation of n in reverse order

The sizeof(void) in a 32-bit C compiler is____ 1 point

- ◯ 0
- ◯ 1
- ◯ 2
- ◯ 4

The following function reverse() is supposed to reverse a singly linked list. There is one line missing at the end of the function. 1 point

```
/* Link list node */
struct node
{
    int data;
    struct node* next;
};

/* head_ref is a double pointer which points to head (or start) pointer
  of linked list */
static void reverse(struct node** head_ref)
{
    struct node* prev   = NULL;
    struct node* current = *head_ref;
    struct node* next;
    while (current != NULL)
    {
        next  = current->next;
        current->next = prev;
        prev = current;
        current = next;
    }
    /*ADD A STATEMENT HERE*/
}
```

- ○ *head_ref = prev;
- ○ *head_ref = current;
- ○ *head_ref = next;
- ○ *head_ref = NULL;

Which of the following can be used to get the remainder when an integer a is divided by integer b? 1 point

- a/b
- b/a
- a%b
- b%a

What type of value does sizeof return? 1 point

- char
- short
- unsigned int
- long

What will be the output of the following program ? 1 point

```
#include<stdio.h>
void main()
{
int var1=10;
  {
  int var2 = 20;
  printf("%d %d",var1,var2);
  }
printf("%d %d",var1,var2);
}
```

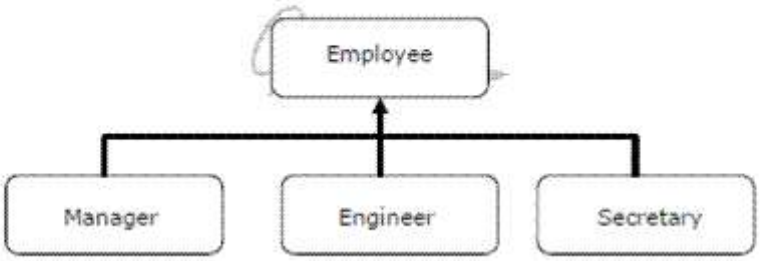
- 10 20 10 20
- 10 20 10 garbage
- Run Time Error
- Compile time error

Convert the following infix expression to postfix expression - A / B ^ C + D * E - A * C 1 point

- A B C / ^ D E * + A C * -
- A B C ^ / D * E + A C * -
- A B C ^ / D E * + A * C -
- A B C ^ / D E * + A C * -

Choose the best design 1 point

It is desired to design an object-oriented employee record system for a company. Each employee has a name, unique id and salary. Employees belong to different categories and their salary is determined by their category. The functions to get Name, getId and compute salary are required. Given the class hierarchy below, possible locations for these functions are:
i).getId is implemented in the superclass
ii).getId is implemented in the subclass
iii).getName is an abstract function in the superclass
iv).getName is implemented in the superclass
v).getName is implemented in the subclass
vi).getSalary is an abstract function in the superclass
vii).getSalary is implemented in the superclass
viii).getSalary is implemented in the subclass




- ○ i, iv, vi, viii
- ○ i, iv, vii
- ○ i, iii, v, vi, viii
- ○ ii, v, viii

Consider a set of 5 processes whose arrival time, CPU time needed and priority(smaller the number, higher the priority) are given below. If the CPU scheduling FCFS, the average waiting time will be: 1 point

| Process | Arrival time (in ms) | CPU time needed (in ms) | Priority |
|---|---|---|---|
| P1 | 0 | 10 | 5 |
| P2 | 0 | 5 | 3 |
| P3 | 2 | 3 | 1 |
| P4 | 5 | 20 | 4 |
| P5 | 10 | 2 | 2 |

- 12.8 ms
- 8 ms
- 6 ms
- None of the above

Web search engines stores information about many web pages by a _____. 1 point

- Web Indexer
- Web Crawler
- Web Organizer
- Web Router

What is the output of the code given below? 1 point

```c
#include <stdio.h>
int main() {
      int i = 1;
      printf("%d %d %d", i++, i, ++i);
      return 0;
}
```

- 2 3 3
- 1 2 3
- 2 2 2
- 1 1 2

Communication offered by TCP is 1 point

- Full-duplex
- Half-duplex
- Semi-duplex
- Byte by byte

Which of the following is the fastest storage unit? 1 point

- Hard Disk Drive
- Solid State Drive
- CPU registers
- Random Access Memory

Like constructors, can there be more than one destructors in a class? 1 point

- ○ True
- ○ False

Which of the following is not a type of inheritance? 1 point

- ○ Multiple
- ○ Multilevel
- ○ Distributive
- ○ Hierarchical

With SQL, how do you select all the records from a table named "Persons" where the "LastName" is alphabetically between (and including) "Hansen" and "Pettersen"? 1 point

- ○ SELECT LastName>'Hansen' AND LastName<'Pettersen' FROM Persons
- ○ SELECT * FROM Persons WHERE LastName BETWEEN 'Hansen' AND 'Pettersen'
- ○ SELECT * FROM Persons WHERE LastName>'Hansen' AND LastName<'Pettersen'

DNS stands for? 1 point

- ○ Domain Name System
- ○ Direct Name System
- ○ Direct Network System
- ○ Domain Network System

How many abstract methods should an abstract class have? 1 point

- Zero
- One
- Two
- Three

Transmission delay does depend on 1 point

- Packet length
- Distance between the routers
- Both of the above
- None of the mentioned

What is the output of the code given below? 1 point

```
#include <stdio.h>
void main()
{
    int x = 97;
    int y = sizeof(x++);
    printf("x is %d", x);
}
```

- x is 97
- x is 98
- x is 99
- Run time error

In below program, what would you put in place of “?” to print “tax”? 1 point

```c
#include <stdio.h>
int main()
{
  char arr[] = "Deltax";
  printf("%s", ?);
  return 0;
}
```

- arr
- (arr+3)
- (arr+4)
- Not possible

Guess the output of the code below 1 point

```c
#include<stdio.h>
int main()
{
    int x = 10;
    float y = 10.0;
    if(x == y)
        printf("x and y are equal");
    else
        printf("x and y are not equal");
    return 0;
}
```

- x and y are equal
- x and y are not equal
- Compile time error
- Run time error

What is the function of the union operation? 1 point

- It combines the results of any two different queries
- It combines the results of two different queries which have the same set of attributes in the select clause
- It combines the results of two different queries which have the same condition in the where clause
- It gives the Cartesian product of the results of any 2 queries

The number of ways in which the numbers 1, 2, 3, 4, 5, 6, 7 can be inserted in an empty binary search tree, such that the resulting tree has height 6, is _____ Note: The height of a tree with a single node is 0. 1 point

- 2
- 4
- 32
- 64

How many copies of a static member of the class are created? 1 point

- One per object
- Zero
- One
- None of the above

What is the time complexity of the following function? 1 point

```
function findElement(array, target) {

  for (var i = 0; i < array.length; i++) {

    if (array[i] === target) {
      return array[i];
    }

  }

  return null;

}
```

- O(n^2)
- O(n*log(n))
- O(log(n))
- O(1)
- O(n)

The following C function takes a simply-linked list as input argument. It modifies the list by moving the last element to the front of the list and returns the modified list. Some part of the code is left blank. Choose the correct alternative to be added after the while loop. 1 point

```
typedef struct node
{
  int value;
  struct node *next;
}Node;

Node *move_to_front(Node *head)
{
  Node *p, *q;
  if ((head == NULL: || (head->next == NULL))
    return head;
  q = NULL; p = head;
  while (p-> next !=NULL)
  {
    q = p;
    p = p->next;
  }
  /* ADD A STATEMENT HERE */
  return head;
}
```

- ◯ q = NULL; p->next = head; head = p;
- ◯ q->next = NULL; head = p; p->next = head;
- ◯ head = p; p->next = q; q->next = NULL;
- ◯ q->next = NULL; p->next = head; head = p;

A doubly linked list is declared as given below. Where Fwd and Bwd represent forward and backward link to the adjacent elements of the list. Which of the following segments of code deletes the node pointed to by X from the doubly linked list, if it is assumed that X points to neither the first nor the last node of the list? 1 point

```
struct Node {
        int Value;
        struct Node *Fwd;
        struct Node *Bwd;
);
```

- X->Bwd->Fwd = X->Fwd; X->Fwd->Bwd = X->Bwd ;
- X->Bwd.Fwd = X->Fwd ; X.Fwd->Bwd = X->Bwd ;
- X.Bwd->Fwd = X.Bwd ; X->Fwd.Bwd = X.Bwd ;
- X->Bwd->Fwd = X->Bwd ; X->Fwd->Bwd = X->Fwd;

Set of consecutive memory locations is called as _____. 1 point

- Function
- Loop
- Array
- Pointer

The average depth of a binary search tree is: 1 point

- O(n^0.5)
- O(n)
- O(log n)
- O(n log n)

Exception handling is targeted at 1 point

- Run-time error
- Compile time error
- Logical error
- All of the above

What will be the output of the code given below? 1 point

```
#include<stdio.h>
int x = 10;
int main()
{
      int x = 0;
      printf("%d",x);
      return 0;
}
```

- 10
- 0
- Compilation Error
- Undefined

A web cookie is a small piece of data 1 point

- sent from user and stored in the server while a user is browsing a website
- sent from a sever and stored in user's machine
- sent from root server to all servers
- None of the above

Address stored in the pointer variable is of type _____. 1 point

- Integer
- Floating
- Array
- Character

With SQL, how can you insert a new record into the "Persons" table? 1 point

- INSERT VALUES ('Jimmy', 'Jackson') INTO Persons
- INSERT INTO Persons VALUES ('Jimmy', 'Jackson')
- INSERT ('Jimmy', 'Jackson') INTO Persons

The following numbers are inserted into an empty binary search tree in the given order: 10, 1, 3, 5, 15, 12, 16 What is the height of the binary search tree ? 1 point

- 3
- 4
- 5
- 6

What is the job of Assembler in C programming? 1 point

- It converts source code into assembly code
- It converts a assembly language program into machine language
- It convert code generated by Preprocessor to assembly code
- None of the above

A complex problem which can be broken down into repeating sub-problems can be solved by a method known as: 1 point

- Recursion
- Multithreaded Programming
- Dynamic Programming
- Functional Composition

The time required to examine the packet's header and determine where to direct the packet is part of 1 point

- ○ Processing delay
- ○ Queuing delay
- ○ Transmission delay
- ○ All of the mentioned

How many distinct binary search trees can be created out of 4 distinct keys? 1 point

- ○ 4
- ○ 14
- ○ 24
- ○ 42

Which one of these is not a Database System Type? 1 point

- ○ Relational
- ○ Hierarchical
- ◉ Network
- ○ MySql

Clear selection

In a full binary tree if number of internal nodes is I, then number of leaves L are? 1 point

- ○ L = 2I
- ○ L = I + 1
- ○ L = I - 1
- ○ L = 2I – 1



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