Placement Guide 2010-2011

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Introduction

We have immense pleasure in bringing out the first issue of Placement Preparation Guide, a Placement Support material for GCT CSITANS. Facing Campus Recruitments has been a great challenge to students. Though we are learning a variety of technical subjects every semester, it's difficult to crack placements with just that bookish knowledge. Don't memorize the concepts. Try to understand the concept and express it in your own way. Learn all core subjects clearly for semester itself. Clarify your doubts as soon as possible. This will help you to clear the technical rounds. It all depends on how practically you approach each concept in every domain. Some companies may expect good communication skills from you. Some others may need candidates with great technical skills. Still, some other companies may require both. So, before facing a company, you should be very much clear with the needs of the company. It will help you deciding the company which will suit you either technical company or Management Company.

In the case of written round, almost every software company will have quantitative aptitude, logical, analytical, verbal and technical(C, C++, Java and Objective type in other subjects). You have to be in touch with these stuffs. While writing, time management is the most important thing. Attend all the sections giving importance based on priority. But, all sections are to be touched. Try to know the answers for the questions from written test, because there might be a chance of asking the same question during your interview too.

As far as interviews are concerned, you have to be confident and optimistic. Your attire should also reflect your attitude. Resume will show your uniqueness. For technical interviews, recollect basics in the subjects needed. Do not say "I don't know". Try to get a clue or a related concept from the interviewer and try to give an answer. Interact more. For HR interviews, you need to show them all your strengths and give them a feel

that you will suit their workplace. Do not oscillate with your answers. Have eye-contact while you speak. Enter with a smile, walk confident to your seat, greet the members in the panel and present yourself. Try to ask some smart question that shows your interest toward the company.

Keeping all these in mind, we, members of Technical Committee, CSITA, have tried to make our juniors face placement with great confidence. We have brought out here, the most frequently asked questions and the recruitment procedure for various companies, who have visited our college this academic year (2010-2011). We hope that this material would be of great use to our juniors to crack placements.

The procedures in this book were based on our experience. The constraints may vary according to the requirement of the company. This guide will only help you to get idea about the recruitment procedure of the company. The questions given in the guide were some of the questions that we faced during the recruitment.

Nobody is perfect. Though we have taken utmost care in preparing the material, we ask the readers of this book to excuse us, if anything is found wrong or if there are any errors.

We thank all our friends who have helped us to bring this material out successfully.

We feel happy to thank all our seniors who have inspired us to take initiatives like this.

Disclaimer

If you find anything contradictory in this material, we request you to refer any standard text books to get clarified and we don't take any responsibility for anything prescribed in this material. We advise you to keep this as a support for your placement preparation and not as a base for your preparation.

Company List:

[Commvault Systems](#)

[Musigma](#)

[Subex](#)

[Exterro](#)

[Aricent](#)

[Aspire systems](#)

[Robert Bosch](#)

[TCS](#)

[Inautix](#)

[Athena Health](#)

[Wipro](#)

[Tavant](#)

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[Exeter Group Inc.](#)

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Commvault systems

Round1: **Written test**

Questions came from Operating system, C, C++ and data structure. Match the following questions comes from operating system that is based on the keywords such as page, virtual memory and etc.

No of questions	30
Duration	1 hour
Negative marks	Nothing

1. Which algorithm is used to avoid deadlock?

2. Belady anomaly can occur in which page replacement algorithm?

3. ```
   #include<stdio.h>
   Void main(){
   Char *const p1="computer";
   Const char *p2="science";
   P2=p1;
   Printf("p1=%s  p2=%s",p1,p2);
   }
   ```
   What is the output?

4. ```
   #include<stdio.h>
   Void main(){
   Char const * p="Compiler", *q="assembler";
   q="linker";
   Printf("p=%s  q=%s",p,q);
   }
   ```
   What is the output?

5. Which of the following code prints preorder traversal of a given tree

   a.
```
Void order(Node *root)
{
If(root==NULL) return;
Printf("%d",root->data);
Order(root->left);
Order(root->right);
}
```

   b.
```
Void order(Node *root)
{
If(root==NULL) return ;
Order(root->left);
Printf("%d",root->data);
Order(root->right);
}
```

   c.
```
Void order(Node *root)
{
Printf("%d",root->data);
If(root->left!=NULL) order(root->left);
If(root->right!=NULL) order(root->right);
}
```

   d.
```
Void order(Node *root)
{
If(root==NULL) return;
Order(root->left);
Order(root->right);
Printf("%d",root->data);
}
```

6. Binary tree with n nodes having NULL nodes?

7.
```
#include<stdio>
Void main()
{
```

```
FILE *f;
F=fopen("test.txt","w");
If(f=NULL)
{
Printf("file can't open");
exit(0);
}
else
fprintf(f,"file tested");
fclose(f);
}
What is the output?
```

8. ```
   Void main()
   {
   Int *p=new int;
   *p=13;
   While((*p)--);
   Cout<<*p;
   Free(p);
   }
   What is the output?
   ```

9. A multiple choice question asked about the difference between malloc, calloc

10. A program is asked to write the output with the concepts involved memcpy, memset

Round2: **Tech Interview**   Duration: ½ hour

Questions were asked from pointers in C, memory management in operating system, Compilation and some basic programs.

1. Discussion on pointers.

   Eg:

   Char *p=NULL;

   *p='a';   //explain the execution of this statement

2. Detailed discussion about compiling process (preprocessing, compiling, linking and loading)

3. Question regarding memory management. Eg:

   a. What is need for virtual memory

   b. Is the virtual memory needed to run the 3MB program in 512MB RAM? And justify your answer

4. Program to remove duplicates in strings

5. Write a code to remove duplicates in integer array.

6. Discussion on the following concepts

   a. Assembly code

   b. Machine code

   c. Source code

   d. Address translation

   e. Address relocation

7. Explain semaphores..(not just theoretical explanation)

8. Create a singly linked list, doubly linked list, Circular linked list.

9. Storage space for variables. Where will they get stored.. How will you represent the memory.(stack, heap, data and code segment stuff)

10. Given two linked list: "1 2 3 4 5" and "5, 8, 9, 10, 0" Write a function which concatenates the two lists in cross way. No additional variable is allowed. The list should be 1 5 2 8 3 9 4 10 5 0.

11. Difference between array and heap?

12. Can two programs run at the same time?

13. Questions related to the storage of static, global, local variables?

14. char *str="good";

   char *str2;

   strcpy(str2,str);

   printf("%s",str2);

   what is the output?

15. contents of stack after compilation

16. segments of program

17. Difference between

18. n .obj and .exe files?

19. Void pointers and its declaration usage?

20. What is heap and its usage?

21. Where **p is used and why?

22. Where the function status is stored? When we move from one function to another.

23. How calling a library function takes place?

Round2: **Tech and HR**   Duration: ½ hour

1. Write a program to add two numbers with infinite number of digits

2. Detailed explanation about virtual destructor

3. Rotation of tree?

4. If you got a chance to work in either Microsoft or Commvault, which one you will prefer and why?

5. If I give you one million dollar what you will do with that money?

Musigma

Round1: **Written test**

Questions include Quantitative aptitude, Logical reasoning & verbal and data interpretation. For Aptitude, RS Agarwal (boats and streams, trains, speed and distance, time and work) is enough

No of questions	10+5+1
Duration	20 minutes
Negative marks	Nothing

Round2: **Group Discussion**

Some topics given in GD were

"Students in Politics",

"Karunanithi vs Jayalalitha"

"Premarital sex is right or wrong"

Round3: **Interview**

Some had separate Technical and HR round. Some had both the rounds in one interview. In technical round, some were asked about the basic C questions and some concepts regarding linked list (how many fields, deletion).

1. "**Why Musigma?**"- The frequent question asked to most of the students.
2. They checked communication skills and analytical skills(puzzles)
3. Make 50 by using any five numbers (with or without repetition) in the set { 35,3, 5, 17,13, 19,23,27}

Subex

Round1: **Written Test**

*Written Test includes three sections C section, Aptitude Section and programming Section. Most of C Section Questions came from "**Exploring C**" Book. In programming Section, We want to write one out of two programs.*

No of questions	15+15+2
Duration(min)	15+15+15
Negative marks	1/3

Some of the example questions

1. Void main()
   {
   Printf("\"%%dog\"");
   }
   What is the output?

2. Write code to merge sorted linked list.

3. Code to remove last occurrence of a given string in each sentence in a given file.

Round2: **Programming written**

1. Code for quick sort
2. Program to find median element in the linked list

1. Normalization process in DB?

2. Difference between interface and abstract class in java?

3. Memory management and scheduling in OS?

4. How multiplication will be done by processor?

5. IP classes?

6. Program for merge sort for linked list.

7. Difference between recursive and iterative functions?

8. Write a program for reversing a number as follows:

   Input: 1234 output: 3412

   Input: 12345 output: 45231 (2 digits at a time)

9. Find the difference:

   const char *p; char* const p;

10. Program for reversing a string?

11. Write a program for adding the digits in a given number?

12. Test cases for merging two sorted linked list?

13. How to write generic function?

14. Use of 'this' pointer? Explain with example.

15. What is semaphore and mutex?

16. What are database languages? example

17. Virtual function and its use?

Exterro

Round1: **Written Test**

Questions include 10 analytical questions, General Aptitude questions (Series completion and Time and work), logical puzzles and technical questions (Java and DS). Some questions are:

1. Number of possible different tree can be constructed with n nodes

2. What is the output of the following java program

   ```java
   Class sample
   {
   Public static void main(String a[])
   {
   String s1="abc";
   String s2="abc";
   System.out.println(s1.equals(s2)+(s1==s2));
   }}
   ```

3. ```java
   Class printing
   {
   Public static void main(String a[])
   {
   Int arr[]=new int[3];
   For(int i=1;i<=3;i++)
   ```

```
        a[i]=i+1;

    System.out.println(a[2]);

    }

    }
```

What is the output?

4. class A{
   static int getlt(int i)
   {
   Return(i);

   }

   }
   which of the following is correct regarding above code.

a. getlt() can be overridden

b. getlt() returns static int

c. Static can be called by only other static methods

d. Static can access only other static properties

5. Can an abstract class be defined without any abstract methods?

6. Can private, public modifiers be used for variables in an interface?

7. public static void main(string args[])

   {

        Try{

        System.out.print("hello world");

        System.exit(0);

        }

        Finally

```
            {

            System.out.print("bye world");

            }

        }

    What is the output?
```

8. Which one of the following cause an error?

9. String mystring=new String("hello");

10. String mystr="hello";

11. char str[]={'a','b','c'};

12. String str1=new String(str);

13. String my=new String(5);

14. String my=new String();

Round2: **Group Discussion**

They asked the group members to suggest some topics and we have to discuss about that. Some topics are:

"Media's responsibility in India"

"Education system in India"

"Reservation system in India"

"India is still a developing country. What are the issues which restricting India to become a developed country".

Round3: **Tech Interview**

1. write a java program to verify whether the given string is palindrome or not

2. int r1=new int();

   int r2;

   Number of objects created in above code?

3. Basic operation in an array

4. .== versus equals?

5. class A

   {

   public static void main(string args[])

   {

   int j;

   string s="hi";

   system.out.println(s+j);

   }

   }

6. Difference between string and string buffer class?

7. Use of super?

8. How will you create a thread?

9. Differentiate: final, finalize. Finally

10. What is method overriding?

11. Program for quick sort

12. Searching methods?

13. Difference between interface and abstract class in java?

14. Codd's rules

15. Acid property

16. RDBMS/DBMS

17. Merge sort, heap, reversing a string.

18. Practical application for dequeue, hashing.

19. How do you perform Dynamic binding in Java?

20. Draw a ER diagram for given database.

21. How do you connect the database in Java?

Aricent

Round1: **written test**

General Aptitude, reasoning, picks the odd one, C and data structure. Each of this section consists of 30 questions and 30 minutes for it.

No of questions	120
Duration	2 hour
Negative marks	Nothing

Round2: **Group Discussion**

No elimination in this round. They try to verify your English fluency. They will provide you the guide for your speech and you have to speak according to that.

Some example topics are:

"Life imprisonment or death penalty for brutal murderers"

"Media's advantages and disadvantages"

Round3: **scenario writing**

In this round they ask you to fill some scenario from your life like your most worst day, your team work problems etc. They will ask the same question in your interview and you have to answer the same situation which you wrote in that form.

Round3: **Tech and HR Interview**   Duration: 45 minutes

In this round, they will test your skills in subjects like C, C++, Operating system, Data structure and networks.

1. Discussion about scheduling algorithms in OS.

2. Discussion about real time operating system

3. Write a code to remove duplicate data in the given ordered linked list in O(n) time.

4. Specify a scenario in which you have to do multicasting.

5. How do you find size of structure without using sizeof() operator?

6. How do you write a generic function?

7. Discussion about syntax for template

8. char a[]="aricent", *p;   How do you copy a string "aricent" into pointer **p**?

9. Why do you want to join aricent?

10. Write a code for quick sort.

11. Deletion of a node in doubly linked list without using extra variable

12. Reversing a string without using extra array

13. Questions regarding OSI layers

14. Define OSPF and CSMA

15. Difference between POP and IMAP

16. List out the protocols in network layer

17. Questions regarding Ethernet, TCP and UDP

18. Discussion about dynamic memory allocation, virtual memory and page replacement algorithm

19. Insertion and deletion in doubly linked list

20. Questions from pointers

21. Faulty Ball weighing puzzle

22. Black box testing and white box testing

23. Spiral model and water fall model.

24. difference between structure and union?

25. IPC in OS?

26. Difference between semaphore and mutex.

27. Use of sleep call

28. What are OOPS concepts?

29. Difference between process and threads?

30. Size of structures?

31. How padding is done?

32. Difference between graph and tree?

33. Big endian and little endian storage for an integer(4 bytes)?

34. Stack frame? Write a program for recursion and explain it with its stack frame?

35. Write a program for the following: given an ip address as input, your program as to written the corresponding port no. using linked list

36. What is router? And what kind of DS you can use for routing?

37. Write a program to redirect al your packets to all nodes except the incoming nodes?

38. Program to find a loop in a linked list?

39. Write a program for the following: given an ip address as input, your program as to written the corresponding port no. using doubly linked list.

Aspire systems

Constraint: CGPA above 7
Subjects to prepare: Data structures, C, C++, OOPS

Round1: **Written Test**

No of questions	16+16+16+12
Duration	1 hour
Negative marks	Nothing

Section I - **Analytical ability**

First question is of reasoning type. A set of statements were given and five questions were asked from the information inferred from the statements. Then three questions from Analogy of figures. Then some questions from number series completion, Find the odd man out and syllogisms.

Section II - **Quantitative Ability**

1. Steven had a son. His son was born five years after Steven's marriage. His son died four years ahead of him. When Steven died his son's age was half of his age. Steven spent 1/7th of his life as in childhood, 1/6th of his life as adult and 1/12th as bachelor. What is the age of Steven when he died?

2. 20 litres of a mixture contains milk and water in the ratio 3:2. 10 litres of the mixture was removed and replaced with pure milk. Then the procedure was repeated once. At the end of two replacements what is the ratio of milk & water?

3. One question is on ratio- The ratio of A: B and B: C was given and the ratio of A: B: C was asked.

4. In a zoo when the zoo-keeper counted the number of heads he found it to be 80. But when he counted the number of legs he found it to be 260.The zoo contained either horse or pigeon. The numbers of horses in the zoo was?

5. Nine people went to a hotel. 8 people paid 12rs each of them and the ninth paid 8rs more than the average of all the nine people. The total amount paid by them was?

6. A man when he travels at 3 kmph he reaches the station 2 mins late. However when he travels at 4 kmph he reaches 2 mins quick. Find the distance the man has to travel?

7. Four expressions involving X and Y was given and asked to find which of the expressions are exactly equal.

8. The expression 7(2n)-3(3n) is always a multiple of_____.

9. The diagonal of a rectangle was given and said that the diagonal is twice the length of one of the sides. What is the area of the rectangle?

Section III - **Verbal Ability**

1. A paragraph with five blanks was given. For each blank there will be four options. You have to choose the correct one. The paragraph given was so simple.

2. One reading comprehension was given and five questions were asked from that.

3. Three questions on alphabetical series completion.

4. One graph was given about profit & loss of three companies and three questions were asked from that.

5. One figure was given with four cogged wheels and asked to find out which wheel will rotate fast.

Section IV - **Technical Ability**

Includes questions from both C and C++

1. What is the output for the following program

```cpp
class complex
{
int r,i;
public:
complex(int a,int b)
{
r=a;
i=b;
}
complex operator +(complex x)
{
return complex(x.r+r,x.i+i);
}
void print()
{
  cout<<r<<"+i"<<i<<"\n";
}
};
int main()
{
complex a(3,2),b(2,3);
complex c=a+b;
c.print();
return 0;
}
```

2. What is the output for following program

```cpp
class base
{
public:
 virtual void print()
```

```
 {
   cout<<"I am base class";
 }
};
class sub: public base
{

public:
void print()
{
  cout<<"I am in sub class";
}
};
int main()
{
  sub s;
base *b=&s;
b->print();
return 0;
}
```

Round2: **Tech Interview**   Duration: ½ hour

Questions asked were some simple C programs, OOPS concepts.

1. String trim (removing leading and trailing spaces only)

   Input: ____Hello___ world____   (spaces are indicated by _)

      Output: Hello___world

2. Checking whether the given bit position is on or off in a given number

3. Integer duplicates elimination.

Input: 13, 12, 13, 40, 50, 40

Output: 13, 12, 40, 50

4. Write a program to reverse a given string.

5. Write a program to perform following transform (2 times repeat)

   123456789   987654321

6. Write a program to multiply two numbers without using * operator.(2 times repeat)

7. Write a program to print following

```
              1
          2       3
        4     5     6
      7     8     9     10
        11     12     13
          14     15
              16
```

8. Write a program to print following

```
              1
           2     3
         4           5
```

9. Write a program to print following:

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

10. Write a program to print the Pascal triangle.

11. Remove all spaces in a given sentence.

   Input: I got it

   Output: Igotit

12. Write a program to print following:

```
        *
     *     *
  *     *     *
```

13. Write a program to print number of vowels in a given sentence.

14. Write a program to find a middle character in a given string.

15. Find whether a given string is palindrome or not

16. Write a program to reverse a words in a sentence

   Input: print hello world

   Output: world hello print

17. How do you find a given number is divided by 4 without using % operator?

18. Find the sum of the digits of a given number

19. Program to reverse the digits of a given number

20. Print the numbers from 1 to 100 and print "three" if the number is multiple of 3 or print "five" if the number is multiple of 5 or print "both" if the number is multiple of both 3 and 5. Otherwise print the number.

   Output: 1 2 three 4 five three 7 8 three five 11 three 13 14 both

21. Code for bubble sort

22. Implement queue using linked list

23. Program to find sum of diagonal elements in a given matrix

24.Print the following

                    90
                  70
                50
              30
            10

25.Find a given number is power of 2 or not

26.Number of occurrence of a string in a given string

27.Program to remove duplicate in integer array

28.Differentiate the following java key words

   a. Final
   b. Finally
   c. Finalize

29.Discussion about interface, inheritance and objects in java

30.Write operator overloading function for arithmetic operations of complex numbers

31.Find the given numbers is multiple of n

Round2: **Tech Interview**   Duration: ½ hour

1. Reverse every word in a given sentence

   Input: I am studying in GCT

Output: I ma gniyduts ni TCG

2. You are given with integer x. let x=123, Find y as follows

$$3^3 = 27$$
$$2^3 = 8$$
$$1^3 = 1$$
$$Y = 207$$

Similarly find the value for given x.

3. Write a query to retrieve a second largest salary from employee tuple.

4. Stack implementation for singly linked list using oops concept.

5. Chess game interface design using oops concepts.

6. Perform addition, subtraction, multiplication and division operations for complex numbers using oops concept.

7. Implement stack using oops concept.

8. SQL query to retrieve a second minimum salary employee without using limit operator

9. Find permutation of a given string

10. Program to find k times repeated character in a given string

Input: aaaabbcccccdddd, k=2
Output: b

11. Write a SQL query to create a table

12. Give real time example for inheritance

13. Discussion about your project

14. Find the kth maximum element in a given array

15. SQL query ti retrieve a second maximum salary employee in EEE department

16. Print permutations of all substring of given string

Input: abc

Output: a b c ab ba ac ca bc cb abc acb bac bca cab cba

17. Sort the digits in a given number without using extra array

18. Differentiate function overloading and operator overloading with example

Round 3: **HR Interview**   Duration: ½ hour

This is just a formal round. In this round basic HR questions like,

1. Introduce yourself.

2. Which is your dream company?

3. What is your career goal?

4. Who is your role model?

5. What do you think that you have achieved?

6. If you have three offers on what basis will u select the offer?

Robert Bosch

Round1: **Written Test**

No of Questions	35+13+12
Duration	Around 75 minutes
Negative marks	½

Technical Section:

This section includes question from C, C++, Data Structure, Networks and Operating Systems. For C, follow exploring C.

Aptitude section:

Most of the questions came from R.S. Agarwal. Profit and Loss, Time & Work, Time & Distance, Percentage, A.P, G.P, Average and general maths questions.

English section:

Question includes Error Correction, Jumbled Sentences, Inference from the passage.

Some sample questions:

1.
```c
main()
{
int const *p = 10;
printf("%d", ++(*p));
}
```

2.
```c
main()
{
int I;
```

```
            char *a = "man";
            for(i=0;i<3;i++)
            printf("%c%c%c%c",i[a],a[i],*(a+i),*(i+a));
            }
```

3. main()
```
        {
        extern int i = 10;
        printf("%d",i);
        }
```

4. main()
```
        {
        float f= 1.1;
        double d = 1.1;
        if ( f == d)
        printf("I LOVE U");
        else
        printf("I HATE U");
        }
```

5. How many queues are required to implement Priority queue

6. A Binary tree is given and asked to write post order traversal

7. No of Nodes of Perfect Binary Tree.

8. Which Data Structure is efficient to implement Trees

9. Heterogeneous Linked List is implemented using

10. #include<iostream.h>
```
        void main()
```

```
{
int i = 15;
int const  & j  = i;
cout << i << j << endl;
i = 9;
cout << i << j << endl
}
```

11. which of the following function is used to display a character in console

12. To use manipulators we have to include the header file..

13. Virtual memory consist of main memory and

14. Command used to partition the disk

15. A question from MS-DOS

16. A question from power management

17. A problem in Paging (Given Main and Secondary memory access time, and Hit Ratio)

18. Which of the following is a network layer protocol

a. TELNET

b. FTP

c. ICMP

19. A question from class addressing

20. A question from routing algorithm

21. Profit & Loss problem

22. Percentage problem

Round 2: **Tech Interview**

Here they test your basic understanding of concepts and programming skills.

1. What is an inline function?

2. How are macros different from functions?

3. What is a constant pointer?

4. What is a memory leak in structures? How can we rectify that?

5. In embedded systems perspective which is better to use. Macro or function?

6. What is a volatile keyword? How it helps in the embedded perspective?

7. Some simple c programs.

8. Some Questions from Microprocessor.

9. Basics in c and simple programs with strings.

10. Project explanation also carries a plus. Be thorough with the project which is   mentioned in the resume.

11. Questions about stack, its operations

12. Questions about heap.

13. What is meant by storage classes?

14. Write a program to check whether the nth bit is 1 or 0?

15. What is private variables and public variables?

16. What is the difference between Microprocessor and Microcontroller

17. What is the difference between real time systems and embedded systems?

18. Operator overloading with example?

19. What is polymorphism?

20. program for Fibonacci series

21. Program for string reverse

22. Code for bubble sort and insertion sort

23. Call by value , call by reference

24. Fundamental data type

25. Size of data types

26. Find out whether the given microprocessor is little endian or big endian?

27. Operations in array

28. Find out the size of given data type without using sizeof()

29. Is it possible to access or modify PC (program counter)?

30. How ISR is serviced?

31. What is interrupt latency?

Round 3: **HR Interview**

1. Tell me about yourself?

2. About your project.

3. Scenario handling questions..

Tata Consultancy Services

Round 1: **Online Written Test**

Questions were like a paragraph and it was like the initial part is full of some stories and the problem to be solved was explained at the last part of the question. Some sample questions from written test.

1. **How many four digit numbers can be formed using the digits 1, 2, 3, 4, 5 (but with repetition) that are divisible by 4?**

   A. 100
   B. 125
   C. 75
   D. 85

2. On planet korba, a solar blast has melted the ice caps on its equator. 9 years after the ice melts, tiny planetoids called echina start growing on the rocks. Echina grows in the form of circle, and the relationship between the diameter of this circle and the age of echina is given by the formula $d = 4*(t-9)$ for $t \geq 9$ Where d represents the diameter in mm and t the number of years since the solar blast. Jagan recorded the radius of some echina at a particular spot as 12mm. How many years back did the solar blast occur?

   A. 17
   B. 21.25
   C. 12
   D. 12.06

3. Ferrari S.P.A is an Italian sports car manufacturer based in Maranello, Italy. Founded by Enzo Ferrari in 1928 as Scuderia Ferrari, the company sponsored drivers and manufactured race cars before moving into production of street-legal vehicles in 1947 as Ferari S.P.A. Throughout its history, the company has been noted for its continued participation in racing, especially in Formula One where it has employed great success. Rohit once bought a Ferrari. It could go 4 times as fast as Mohan's old Mercedes. If the speed of Mohan's Mercedes is 46 km/hr and the distance travelled by the Ferrari is 953 km, find the total time taken for Rohit to drive that distance.

A. 20.72
B. 5.18
C. 238.25
D. 6.18

4. A sheet of paper has statements numbered from 1 to 70. For all values of n from 1 to 70. Statement n says 'At least n of the statements on this sheet are false.' Which statements are true and which are false?

A. The even numbered statements are true and the odd numbered are false.
B. The odd numbered statements are true and the even numbered are false.
C. The first 35 statements are true and the last 35 are false.
D. The first 35 statements are false and the last 35 are false.

   Note: For this type of Questions, follow this:

   At least- 1st half are true, last half are false

   Exactly- Last second one is true or (N-1) th Statement is true

   Almost- All are true.

5. There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one liter every hour in A, it gets filled up like 10, 20, 40, 80, 160 in tank B. (At the end of first hour, B has 10 liter, second hour it has 20, and so on). If tank B is 1/32 filled after 21 hours, what is the total duration required to fill it completely?

   A. 26 hrs   B. 25 hrs   C. 5 hrs   D. 27 hrs

6. There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one liter every hour in A, it gets filled up like 10, 20, 40, 80, 160... in tank B. (At the end of first hour, B has 10 liters , second hour it has 20, and so on). If tank B is 1/16 filled after 4 hours, what is the total duration required to fill it completely?

   A. 8hrs   B.25 hrs   C.5 hrs   D.27 hrs

7. Unnecessary data. A lady has fine gloves and hats in her closet- 18 blue- 32 red , 10 white , 25 yellow, 55 purple, 30 orange. The lights are out and it is totally dark inspite of the darkness. She can make out the difference between a hat and a glove. She takes out an item out of the closet only if she is sure that if it is a glove. How many gloves must she take out to make sure she has a pair of each colour of blue, red, yellow?

   A. 59

   B. 8

   C. 50

   D. 42

   Note: For this type of questions:

       Bigger+Middle+1 (Suppose 18, 32, 25 =32+25+1), If you do not find answer in options, choose the one closer to the answer you got.

8. The IT giant Tirnop has recently crossed a head count of 150000 and earnings of $7 billion. As one of the forerunners in the technology front, Tirnop continues to lead the way in products and services in India. At Tirnop, all programmers are equal in every respect. They receive identical salaries and also write code at the same rate. Suppose 12 such programmers take 12 minutes to write 12 lines of code in total. How long will it take 72 programmers to write 72 lines of code in total?

A. 6

B. 18

C. 72

D. 12

9. The citizens of planet nigiet are 6 fingered and have thus developed their decimal system in base 6. A certain street in nigiet contains 1000 (in base 8) buildings numbered 1 to 1000. How many 3s are used in numbering these buildings?

A. 256

B. 54

C. 192

D. 108

10. 12 people {a1, a2, …, a12} meet and shake hands in a circular fashion. In other words, there are totally 36 handshakes involving the pairs, {a1, a2}, {a2, a3}, …, {a11, a12}, {a12, a1}. Then size of the smallest set of people such that the rest have shaken hands with at least one person in the set is

A. 12

B. 4

C. 18

D. 11

11. Alice and Bob play the following coins-on-a-stack game. 100 coins are stacked one above the other. One of them is a special (gold) coin and the rest are ordinary coins. The goal is to bring the gold coin to the top by repeatedly moving the topmost coin to another position in the stack.

Alice starts and the players take turns. A turn consists of moving the coin on the top to a position i below the top coin ($0 = i = 100$). We will call this an i-move (thus a 0-move implies doing nothing). The proviso is that an i-move cannot be repeated; for example once a player makes a 2-move, on subsequent turns neither player can make a 2-move.

If the gold coin happens to be on top when it's a player's turn then the player wins the game.

A. Alice has no winning strategy.

B. Initially, the gold coins the third coin from the top. Then

C. In order to win, Alice's first move should be a 0-move.

D. In order to win, Alice's first move should be a 1-move.

12. People meet and shake hands. The maximum number of handshakes possible if there is to be no "cycle" of handshakes is (A cycle of handshakes is a sequence of k people a1, a2, ……, ak (k > 2) such that the pairs {a1, a2}, {a2, a3}, ……, {ak-1, ak}, {ak, a1} shake hands).

A. 7

B. 6

C. 9

D. 8

13. After the typist writes 12 letters and addresses 12 envelopes, she inserts the letters randomly into the envelopes (1 letter per envelope). What is the probability that exactly 1 letter is inserted in an improper envelope?

A. 0

B. 12/212

C. 11/12

D. 1/12

14. 10 suspects are rounded by the police and questioned about a bank robbery. Only one of them is guilty. The suspects are made to stand in a line and each person declares that the person next to him on his right is guilty. The rightmost person is not questioned. Which of the following possibilities are true?

A. All suspects are lying.

B. Leftmost suspect is innocent.

C. leftmost suspect is guilty

   a. A only

   b. A or C

   c. A or B

   d. B only

15. Given 3 lines in the plane such that the points of intersection form a triangle with sides of length 20, 20 and 30, the number of points equidistant from all the 3 lines is

A. 4

B. 3

C. 0

D. 1

16. Alok and Bhanu play the following min-max game. Given the expression N = 15 + X*(Y − Z)

Where X, Y and Z are variables representing single digits (0 to 9), Alok would like to maximize N while Bhanu would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice (X, Y or Z). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok proposes the value for the remaining variable. Assuming both play to their optimal strategies, the value of N at the end of the game would be

17. A hare and a tortoise have a race along a circle of 100 yards diameter. The tortoise goes in one direction and the hare in the other. The hare starts after the tortoise has covered 1/5 of its distance and that too leisurely. The hare and tortoise meet when the hare has covered only 1/8 of the distance. By what factor should the hare increase its speed so as the win the race? (for this values are changed)

A. 8
B. 5
C. 37
D. 80

18. A sheet of paper has statements numbered from 1 to 45. For all values of n from 1 to 45, statement n says "At most n of the statements on this sheet are false". Which statements are true and which are false?

A. The odd numbered statements are true and the even numbered are false.
B. The even numbered statements are true and the odd numbered are false.
C. All statements are true.

19. A hollow cube of size 5 cm is taken, with a thickness of 1 cm. It is made of smaller cubes of size 1 cm. If 1face of the outer surface of the cube are painted, totally how many faces of the smaller cubes remain unpainted?

A. 900

B. 488

C. 563

D. 800

20. The IT giant Tirnop has recently crossed a head count of 150000 and earnings of $7 billion. As one of the forerunners in the technology front, Tirnop continues to lead the way in products and services in India. At Tirnop, all programmers are equal in every respect. They receive identical salaries and also write code at the same rate. Suppose 12 such programmers take 12 minutes to write 12 lines of code in total. How many lines of code can be written by 72 programmers in 72 minutes?

A. 72

B. 432

C. 12

D. 144

21. The teacher is testing a student's proficiency in arithmetic and poses the following question. 1/3 of a number is 3 more than 1/6 of the same number. What is the number? Can you help the student find the answer?

A. 12

B. 18

C. 6

D. 21

22. Where X, Y and Z are variables representing single digits (0 to 9), Alok would like to maximize N while Bhanu would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice (X, Y or Z). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok proposes the value for the remaining variable. Assuming both play to their optimal strategies, the value of N at the end of the game would be

A. 2

B. 4

C. 9

D. -18

23. Horse started to chase dog as it relieved stable two hrs ago. And horse started to ran with average speed 22km/hr, horse crossed 10 mts road and two small pounds with depth 3m, and it crossed two small street with 200 mts length. After travelling 6 hrs, 2hrs after sunset it got dog. compute the speed of dog?

24. A and B play a game between them. The dice consist of colors on their faces (instead of number). When the dice are thrown, A wins if both show the same color, otherwise B wins. One die has 3 red faces and 3 blue faces. How many red and blue faces should the other die have if the both players have if the both players have the same chances of winning?

A. 5 red and 1 blue faces.

B. 1 red and 5 blue faces.

C. 3 red and 3 blue faces.

25. In planet OZ planet there are 8 days, Sunday to Saturday and 8th day is Oz day. There is 36 hours in a day. What is angle between 12.40?

    A. 80

    B. 81

    C. 87

    D. 89

26. Ramu & sangeetha went for biological analysis to a island which is 34km from their place. They travelled in a boat which went at a speed of 2m/s. when they are in half a distance in the boat sangeetha note there are 7 leg & 8 leg octopuses under the water. Ramu counted the total number of legs of octopuses and got 54. Sangeetha instantly said I know how many 7 leged octopuses are there under the water. They both reached the island after 20 min they left . How many seven leged octopuses does sangeetha calculate?

    A. 4

    B. 5

    C. 6

    D. 7

27. By using 1,2,3,4,5,how many 5 digit no. can be formed which is divisible by 4,repetation of no. is allowed??

28. Person travels from A- to b in 9km/hr, and B to A in 4 Km/hr. What is the average speed?

29. Avg marks of 5 sub is 61. Six sub marks is 89. What is the average after adding 6th?

30. Find number of 3's between 1 & 100?

31. A pipe can fill a tank at the rate 1 litre/hr, the tank is 1/32 filled in 6 hours. After how many hows the tank is filled completely

32. A man has to get air-mail. He starts to go to airport on his motorbike. Plane comes early and the mail is sent by a horse-cart. The man meets the cart in the middle after half an hour. He takes the mail and returns back, by doing so, he saves twenty minutes. How early did the plane arrive?

33. 2 trees are there. One grows at 3/5 of the other. In 4 years total growth of the trees is 8 ft. what growth will smaller tree have in 2 years.

34. There is a six digit code. Its first two digits, multiplied by 3 gives all ones. And the next two digits multiplied by 6 give all twos. Remaining two digits multiplied by 9 gives all threes. Then what is the code?

35. There are 4 balls and 4 boxes of colours yellow, pink, red and green. Red ball is in a box whose colour is same as that of the ball in a yellow box. Red box has green ball. In which box you find the yellow ball?

36. A bag contains 20 yellow balls, 10 green balls, 5 white balls, 8 black balls, and 1 red ball. How many minimum balls one should pick out so that to make sure the he gets at least 2 balls of same color.

37. What is the number of zeros at the end of the product of the numbers from 1 to 100

38. 10 Digit number has its first digit equals to the numbers of 1's, second digit equals to the numbers of 2's, 3rd digit equals to the numbers of 3's .4th equals number of 4's..till 9th digit equals to the numbers of 9's and 10th digit equals to the number of 0's. what is the number?.(6marks)

39. A and B are shooters and having their exam. A and B fall short of 10 and 2 shots respectively to the qualifying mark. If each of them fired atleast one shot and even by adding their total score together, they fall short of the qualifying mark, what is the qualifying mark?

40. Gavaskar average in first 50 innings was 50. After the 51st innings his average was 51 how many runs he made in the 51st innings

41. Anand finishes a work in 7 days, Bittu finishes the same job in 8 days and Chandu in 6 days. They take turns to finish the work. Anand on the first day, Bittu on the second and Chandu on the third day and then Anand again and so on. On which day will the work get over?
    A. 3rd
    B. 6th
    C. 9th
    D. 7th

Round2: **Interview**

We were asked to register in a form before we appear for TCS interview. Those who have Educational gaps explain a proper reason for it. in the interview, they mainly concentrate on your knowledge in the basics of the subject.

1. Questions related to the language using which the project is done

2. Questions related to the field of interest.

3. Write a query to create another table which has the same structure as previous table

4. What is meant by Function overloading? Write a program to implement it

5. Difference between primary key and other keys. OOPS concepts

6. What is RDBMS

7. Software engineering lifecycle models

8. Hierarchical dbs,network dbs

9. Difference between c and c++?

10. Difference between c++ and java/

11. What is inline function?

12. What is inheritance?

13. Given string is palindrome or not -program?

14. OSI layers and functions of each layer?

15. Network topologies?

16. Synchronous and asynchronous communication?

17. What is referential integrity?

18. Normal forms-with example

19. Questions about malloc, calloc, free, new and delete?

20. Explain about your project

21. Simple SQL queries

22. Write a simple program and give line by line explanation

23. what is mean by data structure

24. Discuss about linked list and their types

25. What do you know about 2G and 3G

26. Write a CPP program to string comparison

27. Write a program to find factorial of a given number

28. Difference between C and CPP, CPP and java

29. What do you know about cloud computing

30. Why do you want to join TCS?

31. Questions regarding polymorphism.

32. Tell me about your weakness.

33. Difference between Ext3 and NTFS file system

34. Difference between windows and Linux

35. Discussion about hashing techniques

36. Write a program to reverse a linked list

37. Give various test cases for tree delete

38. Write a SQL query to retrieve third maximum salary

Inautix

Round1: **Written Test**

No of questions	15+15+15
Duration	1 hour
Negative marks	Nothing

◆ Vocabulary

◆ General Aptitude

◆ Technical Aptitude

1. Struct

   {

   Int a:1;

   }b={1};

   Int main()

   {

   Printf("%d",b.a);

   Return 0;

   }

   What is the output?

2. Int foo(int n)

   {

   Int i=1,sum=0;

   For(;n>>=1;i*=2)

```
 Sum+=(n&1)*I;

Return sum;

}
```
What is the return value for foo(12)?

3. What is all the information contained in process address space?

   a. Primary memory location

   b. Process table entry

   c. Pointer to u-area

   d. Pointer swap space

4. Which is important for fore ground process?

   a. Memory

   b. Clock cycle

   c. Registers

Round2: **Group Discussion**   *Duration: ½ hour*

   Major elimination in GD. Be precise in your statements. Sometimes you will be allowed to suggest your own discussion topic. Some Topics given are:

        "Love Marriage Vs Arranged Marriage"

        "Consider yourself as a fruit"

        "Co-education is effective or not."

Round3: **Tech and HR Interview**   *Duration: ½ hour*

   1. Simple program to read and write to a file in C.

2. You are given with two strings s1 and s2. Write a code print first character   in string s1 and print second string s2.

3. Questions regarding basic terminology in data structures

4. Basic operating system concepts (virtual memory, page replacement algorithms and dead lock)

5. Questions from your resume, say, project, paper and training(if you have undergone)

6. Some puzzles(quite easy)

7. Asked about c++ basics

8. Asked the questions related to field of interest

9. Why java is platform independent?

10. Query to find the name of person who got first mark

11. First three Normal forms.

12. What is the use of B-tree in DB?

13. Draw ER-diagram for some relation
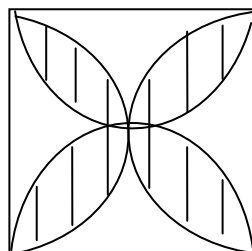
Athena Health

Constraint: CGPA above 7 with no standing arrears
Learn: Operating system, C, C++, Data structures and puzzles

Round1: **Written Test**

No of questions	10
Duration	1 hour
Negative marks	Nothing

1. Income in November is 2/5 of December. December is 5/7 of January. How many times the mean of income is December and November income in January?

2. Probability that lightening can occur in a rainy day is 1 in a million. It rains three days a week. Some guys go to play golf on Monday and Wednesday. So what is the probability that he will be struck by lightening?

3. Two opposite corners of chess board are removed. How many dominos can be placed in the chess board? (one domino = 2 square)

4. In a group 5 men and 5 women are there. A committee should be formed with 2 men and 3 women. How many ways are there to form this committee from the above group?

5. There are 5 fully filled basket, 11 half filled basket and 8 empty baskets are there. Three guys wanted to share both water and basket equally. How will you do that? You should not pour the water from one basket to another.

6. Both the side of the square and radius of the semi-circle are 10cm. Find the area of the shaded portion

7. If the number is a multiple of 5, it is between 10 and 30. If it is not a multiple of 7, it is between 31 and 50. If it is not a multiple of 10, it is between 51 and 60. Find the number.

8. In an examination, there are two questions. 75% got first question correct. 55% got second question correct. How many percentages got both correct?

Round2: Programming   Duration: 1 hour

1 .Reversing the sentence

    Input: I love India

    Output: India love I

2. To check the relation between two names using FLAMES

3. The maximum sum from the first to the last row. i.e.

    1+2+4+14,1+3+5+18,1+2+5+14…

```
                 1
          2           3
     4          5          7
12        14        18        19
```

Round 3: Tech Interview I   Duration: ½ hour

1. Project discussion

2. General knowledge question (about Einstein)

3. Some puzzles

4. Explain heap sort

5.Write a code to find kth maximum of n elements

Round 4**: Tech Interview II**   Duration: 1hour

1. Code for heap sort

2. Write some code for time complexity O(log log n)

3. Discussion regarding merits and demerits of sorting algorithms

4. Which is better B-Tree or Hash table?

5. Data structure used for indexing purposes.

Wipro

Round1: **Written Test**

Most of the questions were from the topics below:

- ◆ C aptitude
- ◆ Unix System calls
- ◆ DS
- ◆ Algorithms
- ◆ Quantitative Aptitude
- ◆ verbal

Round2: **Tech Interview**

They asked about the resume, project, and current year project. They asked the questions related to the field of interest. Some questions asked there are:

1. What is data model?

2. What is data mining?

3. What is data warehousing?

4. Asked some queries.

Round2: **HR Interview**

The candidates selected in the technical round are given a form. They should fill it. The questions asked in the HR round were mainly based on the information filled in the form.

Tavant

Round1: **Written test**   *Duration: 1 Hour*

Questions from Operating system, C, C++ and data structure.

There are four sections:
- Quantitative Aptitude
- Verbal(Reading Comprehension)
- Logical Reasoning
- Technical (Which includes more of DS, C, C++)

Round2: **Tech Interview**

Questions were asked from pointers in C, memory management in operating system, Compilation and some basic programs.

1. Handshake problem
2. Dug out the core of the earth and if a ball throws from the top of the earth will it fall or not?
3. If a hole is made on the top and bottom of the earth and if a ball is thrown from the top hole of the earth, what will happen?

Round3: **HR Interview**

HR in this company is so simple that you can clear it easily. Some questions they asked were:

1. Will you work anywhere? (As the company is located in Noida too)
2. About your family
3. Some simple common questions like "*tell me about yourself*".

Alcatel Lucent

> Constraint: Top ten in the class
> Learn: C, C++, Java, Networks, DBMS, DS and OS

Round1: **Written Test**

Written test consist of seven sections Analytical Section, Network Section, Data Structure Section, C Section, OS section, Programming Section and Puzzle section.

No of questions	10+10+10+10+10+2+2
Duration	1 hour
Negative marks	1

Analytical Section:

Questions include logical reasoning, General aptitude (Time & work, Trains).

Network Section:

1. Session initiation protocol present in which layer?

2. How many octets in IPv6?

3. Question regarding packet switch network.

4. Flexible network topology

5. Who introduced 3g services in India?

Data Structure Section:

1. The time complexity for insertion in priority queue

2. Depth-wise search is used for

    a. Backtracking problems

    b. Greedy algorithms

3. Which data structure is used for symbol table?

4. Application for binary trees

C Section:

1. A question related to Pointer to a member function
2. Does C support function overloading?
3. Difference between definition and a declaration.

OS section:

1. Difference between livelock and deadlock.

Programming Section:

1. Write a program for merge sort without using temporary variable by using following prototype void merge(list*,list*)?
2. {5,10,15,25,50} program to find the ways the one rupee formed using these coins(note: given are the types of coins in the bags.the count of each type is infinite)

Puzzle section

1. Five pirates puzzle
2. 2 bulbs dropped from 100 floors puzzle

Round2: **Tech Interview** *Duration: ¾ - 1 hour*

Interview is many to one interview. Mostly they concentrate on all the subjects.

1. Memory representation for virtual function and ordinary function
2. What is memory fragmentation?
3. Why there are no pointers in java? What replaces pointers in java?
4. How will you implement socket programming?
5. Difference between TCP and UDP.
6. Memory Layout
7. Storage representation of static variable
8. Segmentation fault?
9. Discussion about Dangling pointer.

10. Need for network security.

11. Template programming.

12. Standard Template Library in C++.

13. Explain the layers of network, protocols and their functions?

14. Difference between call by value and call by reference?

15. Polymorphism and its types?

16. Difference between trees and graphs?

17. Hashing function?

18. Insert a new node to a doubly sorted linked list?

19. Delete a node in a doubly sorted linked list?

20. Define a structure for the dictionary and insert a new word in it. Delete a word from it.

21. Write a program for Quick sort?

22. Memory management concepts?

23. Virtual memory and page table?

24. What is RDBMS? Difference between RDBMS and DBMS?

25. What is cursor?

26. What is JDBC?

27. What is normalization and its types?

28. ER model for given data base?

29. Write a program for client and server model?

30. What is vector?

31. Difference between array and linked list?

32. Questions regarding Virtual functions?

33. Garbage collection in C++ and java?

34. new and delete operator in C++?

35. Difference between malloc, calloc and realloc?

Exeter Group Inc.

> *Constraint*: No standing arrears
> *Learn*: Database and Design Patterns

Round1: **Written Test**

No of question	1
Duration	2 hours
Negative marks	Nothing

Case Study

Your client, the cuisine supermarket, needs a software package to track inventory in their only outlet. This software should be able to track all suppliers, the goods they sell to cuisine and the costs of these goods. The buyers of cuisine consist of bulk retailers (who buy goods in a lot and get a discount for the same) and individuals.

Some sample reports that the application will provide are:

- The cost of "sunflower oil" from vendor "XYZ" a couple of months back.
- The total sales obtained from "Colgate" 200ml packs along with the buyers and the quantities.
- The number of magazines and periodicals sold in the month of May this year.

Prepare the following documents to deliver to the client:

- <u>Functional Specification</u>:   (15 marks)

- o Describe the various functionalities that the proposed software package will perform. Use figures and flowcharts wherever necessary to depict the various scenarios

- ◆ Design Specification: (20 marks)
  - o For computer science background students only: provide the design for the proposed software package using an E-R diagram and an overall architecture diagram.
  - o For non-Computer science Background Students only: For each of the functionalities, create an algorithm to compute the required values. The algorithm should state the data that needs to be collected, the computation involved and the results.

- ◆ Screen prototype: (10 marks)
  - o Assuming that the software package is a web based application, identify a key functionality in the system and draw the UI screens for the chosen functionality.

- ◆ Test plan: Provide the various test cases to test this application   (5 marks)

Important:

- ◆ Feel free to make any assumptions. Please state all your assumptions clearly, in a separate section at the beginning of the answer script.
- ◆ Your answer script will be evaluated based on the contents as well as the presentation, including format, layout, English grammar and spelling.
- ◆ As long as each of the above documents and requirements are delivered, you can structure the documents as per your discretion.

◆ Questions were asked only from the written round case study.

◆ Here you need to refine your solution for the case study

◆ You can expect some queries and normalization questions.

ADP

Round1: **Written test**

Had the following mentioned sections

Section A:

It has totally 40 questions. time 20 minutes.

10 questions -analogies

10 questions-fills up the blanks

(u have to study barrons GRE to be able to answer these questions.) Remaining 20 questions from maths aptitude. Study R.S.Agarwal thoroughly. Most of the them are profit-loss, percentages, time-distance/ work and numbers.

Section B:

20 questions to answer in 30 minutes.

All questions are based on C programming. the questions are something like find the output of the program, compilation errors, find which line of the given program has an error. u ought to be thorough with data structures in C to answer them. You will not find simple C programming questions be thorough with data structures using C.

Section C:

A long C program which is about 2-1/2 pages long and it has only 5 questions to answer in 10 minutes.

Section D:

Duration 10 minutes....

An essay of 100 words has to be written on the given topic. first the given topic was "My few favourite things".

Round2: **Tech & HR Interview I**

Questions were not purely technical. You need to be strong in basics of OS, DS, DB, C and C++

1. Tell me about yourself
2. Write a programme for binary searching
3. What is a semaphore and where do we use them
4. What is meant by LRU(least recently used)
5. Tell me about your family
6. About your higher studies and plans for the future
7. Why ADP?
8. What is the difference between structures and unions?
9. How do we declare the variables in an union?
10. Discussion about CPP concepts (memory)
11. Question regarding inheritance
12. What is the relation between class and object
13. Explain quick sort and heap sort algorithm
14. Questions regarding DDL and DML statements
15. Is memory needed for views?
16. Difference between C and CPP

17. Why structure oriented language is not better than object oriented language?

18. Which object oriented language is better one CPP or java

Round3: **Tech & HR Interview II**

1. Tell me about yourself
2. About your family back ground
3. What is a linked list
4. What are the conditions that you check while traversing through a linked list
5. What is a computer, and what is internet. Imagine that you are explaining this to a person who didn't even see or knew what a computer really is?

Round4: **HR Interview**

1. Tell me about yourself
2. Your family details
3. Why ADP?
4. Will you sign a bond of 3 years
5. Are you interested in further education and what are your plans regarding that
6. What companies did you attend and why you lost in those and what are the companies you are planning to attend?
7. What do you want to become?
8. Why are you leaving the company in which you already placed?

.... ALL THE BEST ....

Microsoft

Round1: **Written test**

   It contains two sections. First section comprises objective questions from programming, operating system, theory of computation and database systems. Section 2 is to verify your programming knowledge. It consists of one programming question, one debugging, test case writing and requirement analysis for software with its class diagram.

No of questions	11+4
Duration	1 ½ hour
Negative marks	2/3

Section1:

1. while(var<=1000){

    var=pow(2,var);

    x=x+1;

    }

    What is the output of x?

2. x=0

thread1	thread2
x=x+1	x=x+1
x=x+1	x=x+1
x=x+1	x=x+1
	x=x+1
	x=x+1

What is the minimum and maximum value for x?

3. Find the corresponding string accepts by a given finite automata?

4. What is the basic requirement for a database?

5. What is the average number of search occurs in a given binary tree?

6. In producer consumer problem, increasing buffer size will leads to?

   a. Deadlock avoidance

   b. Improving performance

   c. It can easily satisfy the requirements and etc

Section 2:

1. Find the element present in all rows of a given N*M matrix? Specify time/space complexity

2. Optimize the given code:(They gave a code to find the no of times a pattern occurs in a given string)

3. Find the test case for the following application:

 int text_equivalent(int number)

  ex:- text_equivalent(5400) - Five thousand four hundred

4. An application meant for storing the recruitment details....we were asked to find the requirements of the application and we were asked to represent it by class diagrams....

Round2: **Tech Interview**   *Duration: above 3 hours*

There were four members conducting the interview. These four members were conducting the interview individually. This round mainly focused on programming skills. They want test cases for each program the need is that there must be thorough knowledge in the fundamentals of data structure.

1. Basics of the data structures like heap, full binary tree, array, graph.
2. Basics in the OS like scheduling, context switching, multi threading
3. They asked our idea to improve their works like MS word, Internet Explorer. They asked about my current year project
4. Least Common ancestor problem
5. Towers of Hanoi
6. Permutations of string
7. Reversing a sentence
8. Maximum subsequent sum in a given array
9. Finding maximum depth of a given tree
10. Finding the no of nodes in complete binary tree?
11. Data structure which can be used to prevent the unauthenticated users to be allowed inside the network?
12. Removing the duplicates in a given string in O(n) complexity
13. Some test cases for inserting in a circular linked list. The head node is not given in this case.
14. Write a program to sort a linked list.
15. Petrol bunk problem?
16. Requirements for chat server?
17. Write a program to test a string reverse function
18. Write test cases for the above function
19. Write a program for heap sort.
20. Write a program to reverse a linked list having n nodes by k parts where k<n.
21. Write a program to change the left and right child of each node.
22. What is kernel object?
23. What is heap, dynamic memory allocation?

24. Write a program to check whether the given list is circular linked list or not.

25. Discuss about memory leak

26. unsigned int i;

    for(i=100;i>=0;i--) printf("%d",i);

    output for the above program?

27. How will you test the given object? (Like ball point pen, water bottle etc)

28. Gold bar puzzle.

29. Apple and orange puzzle.

30. Write a program to find the longest repeating substring in a string?

31. Derive a equation to find the acute angle between the hour hand and minute hand in a clock?

NOKIA SIEMENS

Round1**: Written Test** *Duration: 1 Hour*

- ◆ **Analytical**
    Coding, Figures (Find next ?)
- ◆ **Verbal**
    Includes Reading Comprehension
- ◆ **Technical**
    Includes objective type questions from OS, DS

1. where is the disk cache located
2. Folders were introduced in which version?
3. Arrays n Linked list... What is better?
4. What is the problem with linked list?

Round2: **Tech Interview**

Be thorough in your field of interest and common DS problems. Practise puzzles.

1. Traversal of a tree (not lexicographically ordered) to find the smallest element (code).
2. Heap sort.
3. Two eggs are dropped from a building. We have to find the maximum level from which if we drop the egg might break.
4. Procedures in SQL
5. Triggers in SQL

Round3: **HR Interview**

Be confident. Know about the company.

1. Tell me about yourself

2. Why Nokia?

3. What's your weakness?

4. How will you overcome your weakness?

BROADRIDGE

Learn: C, C++, DS and DBMS

Round 1: **Written Test**

- ◆ **Quantitative Aptitude**

  Topics involved in this are clock, probability, simple interest, area and volumes

- ◆ **Essay Writing**

  "life- paradox" and they asked to write some essay in the given topic.

- ◆ **Verbal**

  Questions were in the form of Analogy.There was meaning and opposites

- ◆ **C,C++(debugging)**

- ◆ **Reasoning**

  Questions were in the form of finding the relationships, odd man out from the given set (RS Agarwal –non verbal reasoning). Allot time properly for each section. Don't concentrate only on Essay writing. Try to have your contribution in all the sections.

Round 2: **Tech Interview**

It was two to one interview. They checked how far we know the basic concepts in all the fields C++, DB, DS.

1. What is overloading and overriding?

2. Can there be more than one foreign key?

3. Why we do use normalization? What is the purpose of normalization?

4. What is meant by a class?

5. What is meant by an object?

6. What is the difference between an array and structure?

7. Write a code to factorial for a number using a function and without a function?

.... ALL THE BEST ....

8. How is memory represented for a structure and an union?

Round 3: **HR Interview**

1. They asked about the current year project progress.

2. Introduce yourself

3. Are you having any previous offer? if yes they why Broadridge?

4. Say about the project (mentioned in the resume)

SAPIENT

Learn: C, C++, java, DS and

Round1: **Written Test**   *Duration: 2.30 hours*

Section I - **Quantitative aptitude**

- Simple Interest
- Logarithms ($\log_1 0$)
- Time and Work
- Boats and streams
- Ratios and Proportions

Section II - **Verbal**

- Error in a given sentence
- GRE Words(Synonym and Antonym)
- Reading Comprehension (Was easy)

Section III – **Programming**

Should be good with basic concepts of C, C++ and DS

1. How many nodes in complete binary tree
2. What is BFS?
3. For arranging books in a library, what type of sort is to be used?
4. Number of stacks required to form a queue
5. When a queue is implemented as linked list, what's the time complexity of insertion?

.... ALL THE BEST ....

6. In a program A, a set of lines are made as a separate function, as those set of lines repeat and is saved as B. Whose runtime is less ?

7. We always look to reduce the runtime and not compile time. Why?

8. Output for the following:

   Fun(int b, int a){   return (b-a); }   void main(){ int a=12, b=5; fun(a,b);

   }

9. Fun(a,b){

   ```
   if(a>b) return(-1);
   else if(a<b) return(+1);
   }
   Void main(){
   int a=12,b=10;
   if(a>b) fun(a,b);
   else if(a==b) return(0);
   }
   ```

Round2: **Tech Interview**

   They asked important concepts in C++, C, and DB and for some they asked to write a query and they checked the analytical skills too. Questions asked are:

1. What is a friend function? Is friend function public to all classes?

2. What is meant by runtime polymorphism?

3. Write a code for virtual function?

4. What is meant by overriding? write a code to implement that

5. Identity column, difference between primary and unique column

6. Write a code for bubble sort.

7. Write a code for binary search.

8. Write a query to find top ten students in the student table

9. What is abstract method, abstract class.

10. What is default package used in Java?

11. Write a program to swap two numbers using *,/

12. What is multi-tier architecture of DBMS? How to implement indexing for database?

13. Given two rods. How to differentiate it as magnetic rod and iron rod?

14. Three man standing in the corner of triangle. What is the probability of not dashing against each other?

Round3: **HR Interview**

Be confident while you are speaking. Be sure that your answers for any situation should not contradict your strength which you mentioned before. They asked some scenarios and checked our view how to face that. Some questions are:

1. How to handle a situation when all the group members of ur project refused to accept your opinion and keep on holding in their opinion?

2. How did you make yourself relieve from a situation which was too frustrating?

Amazon

Round1:**Written Test**

No of questions	20+2
Duration	90 min
Negative marks	1/3

The written test consists two sections. First section has 20 multiple choice questions from DS, OS, C, quantitative aptitude and Logical reasoning. In programming section, they asked to write a code for the given problem and we can use the online compiler (C, C++ or Java).

Section I **- MCQ Section**

1. There are n steps. A frog can climb those steps either jumps in 1 step or2 steps or 3 steps. Which of the following recursion can be used to find the total number of ways to climb those steps?

    a. f(n)=f(n-1)+f(n-2) if f(1)=1 f(2)=1

    b. f(n)=1+f(n-1)+f(n-2)+f(n-3) if f(1)=1 f(2)=2 f(3)=4

    c. f(n)=f(n-1)+f(n-2)+f(n-3) if f(1)=1   f(2)=2 f(3)=4

2. const char*p;

    const * char q;

    Which of the following is true about above statements?

    a. *p='A' is illegal

    b. p="hello" is legal;

c. *q='A' is legal

d. All the above

3. int main()

   {

   int x[]={1,2,3,4,5};

   int u;

   int *ptr=x;

   ?????

   for(u=0;u<5;u++)

   printf("%d-",x[u]);

   return 0;

   }

   what statement should come in place of ???? to get the following output? 1-2-3-10-5-

   a. *ptr + 3=10

   b. *ptr[3]=10

   c. *(ptr+3)=10

   d. *(ptr)+3=10

4. Which of the following statement can be used to check the 20th bit of given number (n) is ON or not?

   a. n AND 0xfff0000 should be equal to 0x00010000

   b. n AND 0x000080000 should be equal to 0x00008000

   c. n OR 0xfffff000 should be equal to 0x00001000

   d. n OR 0x000080000 should be equal to 0x00008000

5. What happens when the parent process gets killed?

    a. Child process also killed

    b. Child process become Zombie

    c. Child process are adopted by init(1)

    d. Continues to run changing its parent as the process at the root of the process hierarchy

6. Which of the following is correct?

    a. Hash table entries increases, collisions increases.

    b. Recursion is efficient

    c. The worst case of quick sort is o(n2).

    d. Binary search using a linked list is efficient.

7. what does the following code imply?

Reverse (s,i,j) –reverse the elements in array s from i to j

Code:

Reverse(s,i,k);

Reverse(s,k+1,n);

Reverse(s,i,n);

8. void fun(int a,int b)

```
{
While(1){
C=a%b;
If(c==0) return b;
a=b;
b=c;
}
}
```

What does this above code does?

9. if |x|>|x+1| find x.

a. ½

b. undefined

c. -1/2

d. -1<x<-1/3

10. Maximum sized packet that can be transported as in IP specification.

    a. Smallest MTU between source and destination links

    b. Maximum packet size of Transport layer protocol

    c. Fixed to 64KB

    d. Configured at command line

11. Consider 2 arrays

array1 sorted in ascending order {1,2,...n}

array2 sorted in descending order {n,n-1,...1}

Let C1 and C2 be the number of comparisons done in quicksort for both the

respective cases

Which is correct?

    a. c1>c2

    b. c1<c2

    c. c1=c2

    d. Can't say for arbitrary n

12. A microprocessor takes 4.5micro seconds to respond to an interrupt. Let

I1,I2,I3 represents the interrupt.

I1 serviced in 25microseconds

I2 serviced in 35microseconds

I3 serviced in 20microseconds

The priority of I1 is the highest and I3 is the lowest. Now predict when will

I3 gets serviced.

13. Hash tables can contribute an efficient average case solution to all except,

a. Counting distinct values: set of n keys, determine number of distinct key values

b. Dynamic dictionary: support insert, search and delete

c. Range search: Given a range a and b find all possible records whose key value is in (a,b)

d. Symbol table look up

14. Most efficient data structure to implement pop, push, find min with no extra space takes,

    a. O(1),O(1),O(n)

    b. O(1),O(n),O(1)

    c. O(n),O(1),O(1)

    d. O(1),O(1),O(1)

15. int main()

    {

    int a[5]={1,2,3,4,5};

    int *__ptr=(int*)__(&a+1);

    printf("%d %d",*(a+1),*(ptr-1));

    }

    What is the output?

    a. 2,2

    b. 2,5
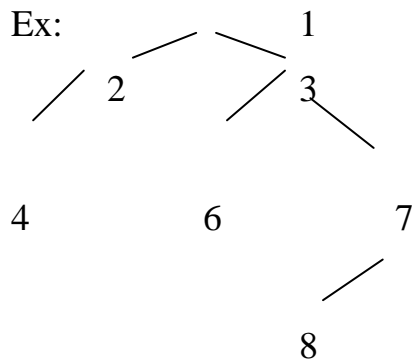
    c. 2,1

    d. none

16. There 6 pop songs, 5 rock songs and 3 folk songs. How many albums can be created that contains at least one pop song and rock song?

17. When a ship is 50km away from seaport, ship get started leaking. It stay can stay only 20 minutes above the water. It can only at the speed of 15kmph. To

rescue passengers to rescue boat takes 4 minutes. In which speed the rescue boat should come from seaport to save all passengers?

Section II - **Programming Section:**

1. Given a tree.

Ex:

In some situations, diameter of the tree is always largest of following

Length of path from and to the leaves through root.

Diameter of left sub tree

Diameter of right sub tree

Write a code to find the diameter of the tree

2. There are M*N chocolate moulds. Some moulds may contain chocolate and some may be empty. The time taken by bacteria to infect the neighbouring

moulds is 1 minute. The infected moulds then infect its neighbouring moulds again. Given a position where the bacteria infects the moulds, find the time taken to infect all the moulds. Some moulds containing chocolate may be isolated from the other. In that case, it is impossible to infect that. At that time, the program must return -1;

Ex:

C X

X C

This is 2*2 chocolate moulds. Given the bacteria position at (1,1) i.e the first one , the time taken is 1 minute