INTERNATIONAL INDIAN SCHOOL, RIYADH

Grade- XII **Computer Science Worksheet**

Ch 1 – C++ Revision tour

1) Explain in brief the purpose of function prototype with the help of a suitable example.
2) What is the benefit of using default parameter/argument in a function? Give a suitable example to illustrate it using C++ code.
3) What is the need of defining a MACRO? Explain with suitable example.
4) What is recursion? Explain with an example.
5) What is a function declaration? How is a function different from function definition?

Differentiate between

6) Global variable and Local variable with example.
7) Run time error and Syntax error with example.
8) Logical error and Syntax error with example.
9) #define and const with example.
10) Type casting and automatic type conversion with example.
11) Call by value and call by reference with respect to memory allocation with example
12) Actual parameter and formal parameter with example.
13) Identifiers and Keywords
14) 'x' and "x" in C++
15) Break and continue statements.
16) Entry control loop and exit control loop.
17) While and do – while loop
18) getche() and getch()
19) cout and puts()
20) Arrays and Structures
21) Structures and Classes
22) Character constants and string literals in terms of size.
23) Procedural programming and OOP

INTERNATIONAL INDIAN SCHOOL, RIYADH

Grade- XII **Computer Science Worksheet**

Ch 2 – Object Oriented Programming

Ch 3 – Function Overloading

1. What is polymorphism? Give an example in C++ to show its implementation in C++.
2. What is Inheritance? Give an example in C++ to show its implementation in C++.
3. What is the difference between Object Oriented Programming and Procedural Programming?
4. Reusability of classes is one of the major properties f OOP. How is it implemented in C++.
5. Define the following terms: Inheritance and Encapsulation
6. Illustrate the concept of function overloading with the help of an example.
7. What is Function Overloading?
8. With the multiple definitions of single function name, what makes them significantly different?

INTERNATIONAL INDIAN SCHOOL, RIYADH

Grade- XII Computer Science Worksheet

Ch 4 – Classes & Objects

1) Define a class employee with the following specifications: 4

Private members of class employee :

empno integer
ename 20 characters
basic,hra,da float
netpay float
calculate( ) A function to calculate basic + hra + da with float return type

Public member functions of class employee :

havedata( ) function to accept values for empno, sname, basic , hra ,da and invoke calculate( ) to calculate netpay
dispdata( )function to display all the data members on the screen .

2) Define a class TEST in C++ with following description: 4

Private Members

- TestCode of type integer
- Description of type string
- NoCandidate of type integer
- CenterReqd (number of centers required) of type integer
- A member function CALCNTR() to calculate and return the number of centers As (NoCandidates/100+1)

Public Members

- A function SCHEDULE() to allow user to enter values for TestCode, Description, NoCandidate & call function CALCNTR() to calculate the number of Centres
- A function DISPTEST() to allow user to view the content of all the data Members

3) **Define a Class department with the following specifications :-**

private data members

- **protype string (50 char) // product name**
- **list_price long**
- **Discount float**
- **dis_type char**
- **calculate() The 20% discount on every product it sells . At the time of festival season the discount will be 10% after 20% regular discount. If discount type is 'F' means festival and 'N' means non-festival. The calculate() will calculate the discount net price and net price on the basics of following data**

Product name	list price(Rs)
printer	12000
laptop	41000
TV	35000
speaker	6000

Public members:-

constructor to initialize the string element with "NULL" , numeric element with 0 character elements with 'N'

Allow() :- ask to enter the product name ,list price and discount type and function will invoked calculate to calculate the net price and discount price.

show():- to generate the bill to the customer with all the details including net price and discount price.

INTERNATIONAL INDIAN SCHOOL, RIYADH

Grade- XII Computer Science Worksheet

Ch 5 – Constructors & Destructors

1) Answer the questions after going through the following class.

```
class Exam
{       char Subject[20] ;
        int Marks ;
public :
        Exam()                              // Function 1
        {strcpy(Subject, "Computer" ) ;
        Marks = 0 ;}
        Exam(char P[ ])                     // Function 2
        {strcpy(Subject, P) ;
        Marks=0  ; }
       Exam(int M)                          // Function 3
      {       strcpy(Subject, "Computer") ;
              Marks = M ;     }
       Exam(char P[ ], int M)               // Function 4
      {  strcpy(Subject, P) ;
         Marks = M ;}  };
```

a) Which feature of the Object Oriented Programming is demonstrated using Function 1, Function2, Function 3 and Function 4 in the above class Exam?

b) Write statements in C++ that would execute Function 3 and Function 4 of class Exam.

2) Answer the questions after going through the following class.

```
class Travel
        { int days;
        public:
        Travel ( ) // Function 1
        {Days = 50; cout << " Journey starts now" << endl; }
        void sightseeing( ) // Function 2
        {cout << " Sightseeing in the journey starts" << endl;}
```

Travel (int Duration) // Function 3

{Days = Duration; cout << " Journey starts now" << endl; }

~ Travel ( ) // Function 4

{cout << " Happy journey" << endl; }

};

i. In Object Oriented Programming, what is 'Function 4' referred to as and when does it get invoked/called?

ii. In Object Oriented Programming, which concept is illustrated by Function 1 and Function 3 together? Write an example illustrating the calls for these functions.

iii. What type of constructors are Function 1 and Function 3?

iv. How is Function 4 different from Function 3?

4) Define a class Sports in C++ with following descriptions:

Private members:

- S_Code of type long
- S_Name of type character array (String)
- Fees of type integer
- Duration of type integer

Public members:

- Constructor to assign initial values of S_Code as 1001, S_Name as "Cricket", Fees as 500, Duration 70
- A function NewSports() which allows user to enter S_Code, S_Name and Duration. Also assign the values to Fees as per the following conditions:

S_Name	Fees
Table Tennis	2000
Swimming	4000
Football	3000

- A function DisplaySports() to display all the details.

INTERNATIONAL INDIAN SCHOOL, RIYADH

Grade- XII Computer Science Worksheet

Ch 6 – Inheritance

1)
```
class vehicle
{
int wheels;
protected:
int passenger;
public:
void inputdata( int, int);
void outputdata();
};
class heavyvehicle: protected vehicle
{
int dieselpetrol;
protected:
int load;
public:
void readdata( int, int);
void writedata();
};
class bus:private heavyvehicle
{
char marks[20];
public:
void fetchdata(char);
void displaydata();
};
```

(i) Name the class and derived class of the class **heavyvehicle.**
(ii) Name the data members that can be accessed from function **displaydata()**
(iii) Name the data members that can be accessed by an object of **bus class**
(iv) Is the member function outputdata() accessible to the objects of **heavyvehicle class.**

2) class book

```
{
char title[20];
char author[20];
int noof pages;

public:
        void read();
        void show();
};
class textbook: private textbook
{
int noofchapters, noof assignments;
protected:
int standard;
void readtextbook();
void showtextbook();
};
class physicsbook: public textbook
{
char topic[20];
public:
void readphysicsbook();
void showphysicsbook();
};
```

(i) Name the members, which can be accessed from the member functions of class physicsbook.
(ii) Name the members, which can be accessed by an object of Class textbook.
(iii) Name the members, which can be accessed by an object of Class physicsbook.
(iv) What will be the size of an object (in bytes) of class physicsbook.

INTERNATIONAL INDIAN SCHOOL, RIYADH

Grade- XII Computer Science Worksheet

Ch 7 – Data File Handling

1. Write a function in a C++ to count the number of uppercase alphabets present in a text file "BOOK.txt"
2. Write a function in a C++ to count the number of alphabets present in a text file "BOOK.txt"
3. Write a function in a C++ to count the number of digits present in a text file "BOOK.txt"
4. Write a function in a C++ to count the number of white spaces present in a text file "BOOK.txt"
5. Write a function in a C++ to count the number of vowels present in a text file "BOOK.txt"
6. Write a function in a C++ to count the average word size in a text file "BOOK.txt"
7. Write a function in C++ to print the count of the word "the" as an independent word in a text file STORY.TXT.

   For example, if the content of the file STORY.TXT is

   There was a monkey in the zoo.
   The monkey was very naughty.

   Then the output of the program should be 2.

8. Assume a text file "Test.txt" is already created. Using this file, write a function to create three files "LOWER.TXT" which contains all the lowercase vowels and "UPPER.TXT" which contains all the uppercase vowels and "DIGIT.TXT" which contains all digits.
9. Create a function FileLowerShow() in c++ which take file name(text files)as a argument and display its all data into lower case
10. Write a function in C++ to count the number of lines present in a text file "Story.txt".

11. Write a function in C++ to search for a BookNo from a binary file "BOOK.DAT", assuming the binary file is containing the objects of the following class.

```
class BOOK
{
int Bno;
char Title[20];
public:
int RBno(){return Bno;}
void Enter(){cin>>Bno;gets(Title);}
void Display(){cout<<Bno<<Title<<endl;}
};
```

12. Write a function in C++ to add new objects at the bottom of a binary file "STUDENT.DAT", assuming the binary file is containing the objects of the following class.

```
class STUD
{
int Rno;
char Name[20];
public:
void Enter()
{
cin>>Rno;gets(Name);
}
void Display(){cout<<Rno<<Name<<endl;}
};
```