



INDIAN SCHOOL DARSAIT

FIRST TERM EXAM-SAMPLE PAPER II

COMPUTER SCIENCE (083)



Class: XII

Max.Marks: 70

General Instructions:

(i) All questions are compulsory.

1. a) Explain in brief the purpose of function definition with the help of a suitable example. 2

b) Write the names of the header files, which is/are essentially required to run/execute the following C++ code: 1

```
void main (){
char C, String [] = "Excellence Overload";
for (int I=0; String [I] != "\0";I++)
if (String [I] == " ")
cout<<endl;
else{
C=toupper(String [I]);
cout<<C;}}
```

c) Rewrite the following program after removing any syntactical errors. Underline each correction made. 2

```
#include<conio.h>
#include<iostream.h>
#include<string.h>
#include<stdio.h>
class product{
int product_code,qty,price;
char name[20];
public:
product(){
product_code=0;qty=0;price=0;
name=NULL;}
void entry(){
cout<<"\n Enter code,qty,price";
cin>>product_code>>qty>>price;
gets(name);}
void tot_price() {return qty*price;}};
void main(){
p product;
p.entry();
cout<<tot_price();}
```

d) Find the output of the following C++ program. 2

```
#include<iostream.h>
#include<ctype.h>
void strcon(char s[]){
for(int i=0,l=0;s[i]!='\0';i++,l++);
for(int j=0; j<l; j++) {
if (isupper(s[j]))
```

```

s[j]=tolower(s[j])+2;
else if ( islower(s[j]))
s[j]=toupper(s[j])-2;
else
s[j]='@';
}}
void main(){
char *c="Romeo Joliet";
strcon(c);
cout<<"Text= "<<c<<endl;
c=c+3;
cout<<"New Text= "<<c<<endl;
c=c+5-2;
cout<<"last Text= "<<c}

```

e) Give the output of the following code:

3

```

class seminar{
char topic[30];
int charges;
public:
seminar(){
strcpy(topic,"Registration");
charges=5000;}
seminar(char t[]){
strcpy(topic,t);
charges=5000;}
seminar(int c){
strcpy(topic,"Registration with Discount");
charges=5000-c;}
void regis(char t[],int c){
strcpy(topic,t);
charges=charges+c;}
void regis(int c=2000){
charges=charges+c;}
void subject(char t[],int c){
strcpy(topic,t);
charges=charges+c;}
void show(){
cout<<topic<<"@"<<charges<<endl;
}};
void main(){
seminar s1,s2(1000),s3("Genetic Mutation"),s4;
s1.show();
s2.show();
s1.subject("ICT",2000);
s1.show();
s2.regis("Cyber Crime",2500);
s2.show();
s3.regis();
s3.show();
s4=s2;
s4.show();
getch();}

```

2. a) Mention the advantages of OOP. 1
- b) What is a conditional operator? Explain with an example. 2
- c) Rewrite the following program after removing any syntactical errors. Underline each correction made. 2
- ```
#include<iostream.h>
void main()
intA[10];
A=[3,2,5,4,7,9,10];
for(p = 0; p<=6; p++)
{ if(A[p]%2=0)
int S = S+A[p]; }
cout<<S; }
```
- d) Observe the following program carefully and attempt the given questions: 2
- ```
void main(){
randomize();
int CHANGER;
CHANGER=random(3);
char CITY[][25]={"DELHI","MUMBAI","KOLKATA","CHENNAI"};
for(int I=0;I<=CHANGER;I++)
{
for(int J=0;J<=I;J++)
cout<<CITY[J];
cout<<endl;
}}
```
- I. Out of all the four cities stored in the variable city, which city will never be displayed in the output?
- II. Mention the minimum and the maximum value assigned to the variable CHANGER?
- e) Find the output of the following C++ program. 3
- ```
void repch(char s[]){
for (inti=0;s[i]!='\0';i++)
{
if(((i%2)!=0) &&(s[i]!=s[i+1]))
{
s[i]='@';
}
else if (s[i]==s[i+1])
{
s[i+1]='!';
i++;
}
}}
void main(){
char str[]="SUCCESS";
cout<<"Original String"<<str
repch(str);
cout<<"Changed String"<<str;}
```
3. a) Is it possible to perform Function Overloading with different return types? Explain with an example. 2
- b) Bring out the difference between data hiding and data abstraction with an example. 2

- c) Explain hybrid inheritance with an example. 3  
 d) Bring out the different visibility modes of a class with an example. 3

4. a) Answer the questions (i) and (ii) after going through the following class: 2

```
class Exam{
intRollno;
char Cname[25];
float Marks ;
public :
Exam()//Function 1
{
Rollno = 0 ;
Cname="" ;
Marks=0.0;}
Exam(intRno, char candname) //Function 2
{
Rollno = Rno ;
strcpy(Cname,candname);}
~Exam()//Function 3
{
cout<< "Result will be intimated shortly" <<endl ;}
void Display()//Function 4
{
cout<< "Roll no :"<<Rollno;
cout<<"Name : " <<Cname;
cout<<" Marks:"<<Marks;}} ;
```

- (i) Which OOP concept does Function 1 and Function 2 implement? Explain?  
 (ii) What is Function 3 called? When will it be invoked?

- b) Define a class Ticket in C++ with following description: 4

**Private members:**

- ) Tno of type integer (Ticket number)
- ) Name of type string (Passenger name)
- ) Distance of type integer (distance to be travelled in kms)
- ) Berth of type string ("SL" , "2AC" , "3AC" )
- ) Psngr of type integer (no of passengers)
- ) Fare of type float (Ticket fare)

- ) A member function calcFare() to calculate the fare as per the following

| Berth | Rate per km |
|-------|-------------|
| SL    | 10          |
| 3AC   | 25          |
| 2AC   | 35          |

$$\text{Fare} = \text{Rate per km} * \text{Distance} * \text{No of passengers}$$

**Public members:**

- ) A member function Book() to enter Tno, Name, Distance, berth , Psngr
- ) A member function Print() to display Tno, Name, Distance, berth, Psngr and call calcFare() to calculate the journey fare.

- c) Answer the questions (i) to (iv) based on the following:

```
class PUBLISHER{
char Pub[12];
double Turnover;
protected:
void Register();
public:
PUBLISHER();
void Enter();
void Display();
};
class BRANCH{
char CITY[20];
protected:
float Employees;
public:
BRANCH();
void Haveit();void Giveit();
};
class AUTHOR : private BRANCH , public PUBLISHER{
intAcode;
char Aname[20];
float Amount;
public:
AUTHOR();
void Start();void Show();
};
```

- (i) Write the names of data members, which are accessible from objects belonging to class AUTHOR.
- (ii) Write the names of all the member functions which are accessible from objects belonging to class BRANCH.
- (iii) Write the names of all the members which are accessible from member functions of class AUTHOR.
- (iv) Write the order of invocation of constructor when an object of class AUTHOR is declared.

5. a) Write a function in C++ to print the count of the word the as an independent word in a text file STORY.TXT. 2

*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**

- b) Write a function in C++ to display object from the binary file "PRODUCT.Dat" whose product price is more than Rs 200. Assuming that binary file is containing the objects of the following class: 3

```
class PRODUCT{
int PRODUCT_no;
char PRODUCT_name[20];
float PRODUCT_price;
public:
void enter(){
cin>> PRODUCT_no ; gets(PRODUCT_name) ;
cin >> PRODUCT_price;}
};
```

```

void display()
{
 cout<< PRODUCT_no ; cout<<PRODUCT_name ;cout<< PRODUCT_price;}
int ret_Price()
{
 return PRODUCT_price;
}
};

```

- c) Following is the structure of each record in a data file named “COLONY.DAT” 3

```

struct COLONY
{
 char colony_code[10];
 char colony_name[10];
 int No_of_people;
};

```

Write function in C++ to update the file with the new value of No\_of\_people. The value of Colony\_code and No\_of\_people are read during the execution of the program.

- d) Find the output of the following C++ Code considering that the binary file **CLIENT.DAT** exists on the hard disk with a data of 1000 clients. 2

```

class client
{
 int code;char cname[20];
public:
 void registerc();void displayc();
}
void main()
{
 ifstream f;client c;
 f.open(“CLIENT.DAT”,ios::binary|ios::in);
 f.read((char *)&c,sizeof(c));
 cout<<”Rec:”<<f.tellg()/sizeof(c);
 f.read((char *)&c,sizeof(c));
 f.read((char *)&c,sizeof(c));
 cout<<”Rec:”<<f.tellg()/sizeof(c);f.close();
}

```

6. a) Explain what is degree and cardinality. 2  
 b) Explain the different keys in SQL? 2  
 c) Consider the following tables Product and Client. Write SQL commands for the statement (i) to (iv) and give outputs for SQL queries (v) to (viii) 6

Table: **PRODUCT**

| P_ID | Product Name  | Manufacturer | Price |
|------|---------------|--------------|-------|
| TP01 | Talcom Powder | T.AK         | 40    |
| FW05 | Face Wash     | ABC          | 45    |
| BS01 | Bath Soap     | ABC          | 55    |
| SH06 | Shampoo       | XYZ          | 120   |
| FW12 | Face Wash     | XYZ          | 95    |

Table: **CLIENT**

| C ID | Client Name   | City      | P ID |
|------|---------------|-----------|------|
| 01   | Cosmetic Shop | Delhi     | FW05 |
| 06   | Total Health  | Mumbai    | BS01 |
| 12   | Live Life     | Delhi     | SH06 |
| 15   | Pretty Woman  | Delhi     | FW12 |
| 16   | Dreams        | Bangalore | TP01 |

- (i) To display the details of those Clients whose city is Delhi.
- (ii) To display the details of Products whose Price is in the range of 50 to 100 (Both values included).
- (iii) To display the ClientName, City from table Client, and ProductName and Price from table Product, with their corresponding matching P\_ID.
- (iv) To increase the Price of all Products by 10.
- (v) SELECT DISTINCT Address FROM Client;
- (vi) SELECT Manufacturer, MAX(Price),Min(Price), Count(\*) FROM Product GROUP BY Manufacturer;
- (vii) SELECT ClientName, ManufacturerName FROM Product, Client WHERE Client.Prod\_Id=Product.P\_Id;
- (viii) SELECT ProductName, Price \* 4 FROM Product;

7. a) Verify the following algebraically  
 $(A'+B').(A+B)=A'.B+A.B'$  3
- b) Draw the Logic Circuit using only NAND gates for  $F=A.B'+C'$  2
- c) Express  $P+Q'R$  in POS form 2
- d) Reduce the following Boolean Expression using K-Map: 3  
 $F(U,V,W,Z)=d(0,1,2,4,5,6,8,10)$