

CBSE Sample Paper for Computer Science Class XII.

Time allowed : 3 hours

Maximum marks : 70

Question-1

1. (a) Define Multilevel and Multiple Inheritance with example . [2 Mark]

(b) Define a class ELECTION in C++ with the following descriptions: Write a suitable main () function also to declare 3 objects of ELECTION type and find the winner and display the details .[4 Mark]

Private members :

Data : candidate_name , party , vote_received

Public members :

Functions: Enterdetails () – To input data Display () – To display the details of the winner

Winner () – To return the details of the winner through the object after comparing the votes received by three candidates .

(c). Answer the questions (i) to (iv) based on the following code : [4 Mark]

```
class RED
{
char n [ 20 ];
void input ( );
protected :
int x , y ;
void read ( );
public :
RED ( );
RED ( int a );
void get_red ( );
void put_red ( );
};
class WHITE : protected RED
{
void a , b ;
protected :
int c , d ;
void get_white( );
```

```

public:
WHITE ( );
Void put_white ( );
};
class BLACK : private WHITE
{
void * p ;
char st[20];
protected :
int q;
void get_black( );
public:
BLACK ( );
void put_black ( );
}ob;

```

- i. Name the data members and functions which are accessible by the objects of class BLACK.
- ii. Give the size of object ob
- iii. Name the OOPS concept implemented above and its type .
- iv. Name the members accessible by function get_black();

Question-2

2. (a) What do you understand by Data Encapsulation and Data Hiding? Also, give a suitable C++ code to illustrate both. [4 Mark]

(b) Answer the questions (i) and (ii) after going through the following class: [6 Mark]

```

class Seminar
{
int Time;
public:
Seminar() //Function 1
{
Time=30;cout<<"Seminar starts now"<<end1;
}
void Lecture() //Function 2
{
cout<<"Lectures in the seminar on"<<end1;
}
Seminar(int Duration) //Function 3

```

```

{
Time=Duration;cout<<"Seminar starts now"<<end1;
}
~Seminar()
//Function 4
{
cout<<"Vote of thanks"<<end1;
}
};

```

- i) In Object Oriented Programming, what is Function 4 referred 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.

Question-3

3. (a) Write a function in C++ to merge the contents of two sorted arrays A & B into third array C. Assuming array A and B are sorted in ascending order and the resultant array C is also required to be in ascending order. **[3 Mark]**

(b) An array S[40][30] is stored in the memory along the row with each of the element occupying 2 bytes, find out the memory location for the element S[20][10], if the Base Address of the array is 5000. **[3 Mark]**

(c) Write a function in C++ to perform Insert operation in a dynamically allocated Queue containing names of students. **[3 Mark]**

(d) Write a function in C++ to find the sum of both left and right diagonal elements from a two dimensional array (matrix). **[3 Mark]**

(e) Evaluate the following postfix notation of expression: 20, 30, +, 50, 40, -, * **[3 Mark]**

Question-4

4. (a) Write a function in C++ to delete a name from a list of names. **[4 Mark]**

(b) An array A[13][14] is stored in the memory along the column with each element occupying 4 bytes. Find out the Base address and address of the element A[3][7] if the element A[4][4] is stored at the address 1300. **[4 Mark]**

(c) Consider the following portion of a program , which implements names queue for Books. Write the definition of function Insert(), to insert a new node in the queue with required information. [4 Mark]

```
struct Book
{
char names[4][20];
};
class QueueofBooks
{
Book Q[10];
public :
int front ,rear;
QueueofBooks()
{
front=rear=-1;
}
void Insert();
void Delete();
};
```

(d) Evaluate the following postfix expression using a stack and show the contents of stack after execution of each operation: A-B+C*D^E*G/H [3 Mark]

Question-5

5.(a) What is the difference between Auto variables and Static variables? Give an example to illustrate the same. [4 Mark]

(b) Name the header files for the following functions [4 Mark]

(1) cgets

(2) floor

(3) isalpha

(4) gets

(c) In the following C++ program what is expected value of myscore from options (i) to (iv) given below. [1 Mark]

```
#include
#include
void main( )
```

```

{
randomize( );
int score[]={ 25, 20,34,56, 72, 63};
int myscore=score[2+random(2)];
cout<<myscore<<endl;
}

```

i) 25 ii) 34 iii) 20 iv) None of these

(d)Give the output of thefollowing program (Assuming all required header files are included in the program). **[3 Mark]**

```

void swap(char &c1,char &c2)
{ char temp;
temp=c1;
c1=c2;
c2=temp;
}
void update(char *str)
{ int k,j,l1,l2;
l1 = (strlen(str)+1)/2;
l2=strlen(str);
for(k=0,j=l1-1;k<j;k++,j--)
{
if(islower(str[k]))
swap(str[k],str[j]);
}
for(k=l1,j=l2-1;k<j;k++,j--)
{
if(isupper(str[k]))
swap(str[k],str[j]);
}
}

void main()
{
char data[100]="gOoDLUck";
cout<<"Original Data : "<<data<<endl;
update(data);
}

```

```
cout<<"Updated Data "<<data;
}
```

(e) Give the output of the following program segment : **[3 Mark]**

```
void main()
{ int x[] = { 11,22, 33, 55, 112};
int *p = x ;
while(*p<110) { if(*p%3 !=0) *p=*p+1 ; else *p=*p+2 ; P++ ; } for( int i=4 ;i>=1 ;i--)
{ cout<<x[i]<< '*' ;
if(i%3= =0 )
cout< } cout<<x[0]*3< }
```

Question-6

6. (a) What is the difference between Global Variable and Local Variable? Also, give a suitable C++ code to illustrate both. **[2 Mark]**

(b) Which C++ header file(s) will be essentially required to be included to run / execute the following C++ code: **[1 Mark]**

```
void main()
{
char Msg[ ]="Sunset Gardens";
for (int l=5;l<strlen(Msg);l++) puts(Msg); } (c) Rewrite the following program after removing the
syntactical errors (if any). Underline each correction. #include [iostream.h] class MEMBER { int
Mno;float Fees; PUBLIC: void Register(){cin>>Mno>>Fees;}
void Display{cout<<Mno<<" : "<<Fees<<endl;}
};
```

```
void main()
{
MEMBER M;
Register();
M.Display();
}
```

(d) Find the output of the following program: **[2 Mark]**

```
#include
struct GAME
{ int Score, Bonus;};
```

```

void Play(GAME &g, int N=10)
{
g.Score++;g.Bonus+=N;
}
void main()
{
GAME G={110,50};
Play(G,10);
cout<<G.Score<<": "<<G.Bonus<<endl;
Play(G);
cout<<G.Score<<": "<<G.Bonus<<endl;
Play(G,15);
cout<<G.Score<<": "<<G.Bonus<<endl;
}

```

(e) Find the output of the following program: [2 Mark]

```

#include
void Secret(char Str[ ])
{
for (int L=0;Str[L]!='';L++);
for (int C=0;C<L/2;C++)
if (Str[C]=='A' || Str[C]=='E')
Str[C]='#';
else
{
char Temp=Str[C];
No. Questions Marks
Str[C]=Str[L-C-1];
Str[L-C-1]=Temp;
}
}
void main()
{
char Message[ ]="ArabSagar";
Secret(Message);
cout<<Message<<endl;
}

```

Success Comes in Way...

(f) In the following program, if the value of Guess entered by the user is 65, what will be the expected output(s) from the following options (i), (ii), (iii) and (iv)? **[2 Mark]**

```
#include  
#include  
void main()  
{  
int Guess;  
randomize();  
cin>>Guess;  
for (int l=1;l<=4;l++)  
{  
New=Guess+random(l);  
cout<<(char)New;  
}  
}
```

(i) ABBC

(ii) ACBA

(iii) BCDA

(iv) CABD7

