

SAMPLE PAPER TERM-I EXAMINATION, 2019-20
SUBJECT- COMPUTER SCIENCE
CLASS-XII

TIME: 3 Hrs

MAX.MARKS: 70

General Instructions:-

- ❖ *All questions are compulsory.*
- ❖ *Programming Language C++.*

Q1.(a) Find the correct identifiers out of the following, which can be used for naming variables, constants or functions in c++ program. **(2)**

For,while,INT,NeW,delete,1stName,Add+Subtract,name1

- (b)** What is difference between type casting and automatic type conversion? Explain with suitable example in C++. **(2)**
- (c)** Which C++ *header files* will be essentially required to be included to execute the following code void main()

(2)

```
{ int stuno = 5 ;  
  
char sname[ ]="Amit Joshi";  
  
cout<<setw(10)<<stuno<<endl;  
  
puts(sname); }
```

- (d)** Rewrite the following program after removing all syntactical error(s), if any. Underline each correction:

```
#include<iostream.h> (2)  
struct Display  
{  
int ROW, COL;  
}  
void ShowPoint(Display D)  
{  
    cout<< D.ROW << D.COL << endl;  
}  
void main( )  
(  
    Display Disp1 = ( 10, 20 );  
    Disp1. Showpoint( );
```

```

        Display Disp2 = Disp1;
        ROW += 15;
        Showpoint.Disp2;
    }

```

- (d) What is the problem with the following code fragment? How might you fix it? Explain. (2)

```

char buf[] =" Hi There";

int main ( ) {

char *ptr; for( int i=0;buf[i]!='\0';++i)

ptr[i] = buf[i]; return 0; }

```

- (e) Give the output of the following program (Assuming that all required header files are included in the program) (3)

```

void STROP(char *st, char ch)

{ int i;

for(i=0; st[i]!='\0' ;i++)

{ if(st[i]>='D' && st[i]<='J')

st[i]=tolower(st[i]);

else

if(st[i]=='A' || st[i]=='a' || st[i]=='B' || st[i]=='b')

st[i]=ch;

else

if(i%2!=0)

st[i] = tolower(st[i]);

else st[i]=st[i-1]; } }

void main( )

```

```

{ char Text[]="BpEaCeFAvourEr";

STROP(Text,'&');

cout<<"\nNewstring : "<<Text; }

```

(f) Observe the following program and select the possible output from it:(Justify the answer)

(2)

```

#include<iostream.h>
#include<stdlib.h>
const int BIG = 3 ;
void main()
{
    randomize( );
    int Digit ;
    Digit = 90 + random (BIG );
    for (int K = DIGIT ; K >= 90 ; K --)
        cout<< K << "$";
}

```

- (i) 93\$93\$92\$91\$90\$
- (ii) 91\$90\$
- (iii) 90\$91\$92\$
- (iv) 90\$92\$

(g) What will be the output of the following code fragment:- **(3)**

```

#include<iostream.h>

int main () { int a[] = {7,5,6,7}; int *p,**q,**r,*s,*t,**ss;

p=a; s=p+1; q= &s; t = (*q+1); ss=&t; r=&ss;

cout<<*p<<'\t'<<**q<<'\t'<<***r<<endl; return 0;

```

Q2.(a) Differentiate between Function Overloading and Default Arguments with suitable example. **(2)**

(b) Answer the questions (i) to (ii) after going through the following class: **(3)**

```

class Teacher

```

```

{
    char Subject[30];
    int Salary;
public:
    Teacher() // Function 1
    {
        strcpy (Subject, " Economics");
        Salary = 15000;
    }
    Teacher ( char T[ ]) // Function 2
    {
        strcpy (Subject, T);
        Salary = 15000;
    }
    Teacher ( int S) // Function 3
    {
        strcpy (Subject, "Economics");
        Salary = S;
    }
    Teacher (char T[ ], int S) // Function 4
    {
        strcpy (Subject, T);
        Salary = S;
    }
}

```

- (i) Which feature of object oriented programming is demonstrated using Function1, Function2, Function3 and Function4?
- (ii) Write statement in C++ that would call Function 2 and Function 3 and Function 4 of class Teacher.
- (c) Differentiate between Parameterized constructor and Copy Constructor. Illustrate with example. **(2)**
- (d) Mention the various situations when a copy constructor is automatically invoked. **(3)**
- (e) Define a class named STREAM in C++ with following description: **(4)**

Private Members:

- AD_NO Integer
- NAME Array of Character
- Percentage Float
- FEES Float

Public Members:

- A constructor to initialize the members.
- A function Read_Data() to input the values of AD_NO, NAME and Percentage.

- A function `Select_Stud ()` to choose students for different streams depending upon their percentage and assign the fees they have to deposit as given below:

Percentage	Stream	Fees
Percentage ≥ 90	Computer	20000
Percentage <90 but ≥ 80	Biology	18000
Percentage <80 but ≥ 70	Commerce	14000

- A function `Disp_Data()` to display the value of all the data members.

(f) Answer the questions (i) to (iv) after going through the following class:

(4)

```
class Person
{
    char Name[30];
protected:
    char Address[20];
public:
    Person();
    void read_Person ();
    void disp_Person( );
};
class Employee : protected Person
{
    int ENo;
protected:
    float Salary;
public:
    Employee();
    void read_Employee();
    void disp_Employee();
};
class Student : private Person
{
    int RollNo;
    float Marks;
public:
    Student();
    void read_Sudent();
    void disp_Student ();
};
```

(i) Which type of Inheritance is shown in the above example?

- (ii) Mention the name of ALL members that are accessible by the member function of class Employee.
 - (iii) Mention the name of member functions that are accessible by the object of class Student.
 - (iv) How many bytes will be required by an object of class Employee?
- (g) Distinguish between the following two statements: (2)

Time T1(13,10,25); // statement 1 time T2= time(13,10,25); // statement 2

Q3. (a) Given an array named A with following elements 3,-5,1,3,7,0,-15,3,-7,-8 write a C++ function to shift all the positive numbers to right so that the resultant array may look like -5,-15,-7,-8,3,1,3,7,0,3 [3]

(b) Write the definition of a function Alter (int A[], int N) in C++, which should change all the multiples of 5 in the array to 5 and rest of the elements as 0. [3]

(c) Suppose an array P containing float values. Write a user defined function in C++ to sort an array using selection sort. The function should have the parameters as (i) an array (ii) number of element N. [3]

(d) An array P[20][30] is stored in the memory along the column & along the row with each of the element occupying 4 bytes, find out the Base Address of the array, if an element P[2][20] stored at the memory location 5000. [3]

(e) Write a function REVCOL (int P[][5], int N, int M) in C++ to display the content of a two dimensional array, with each column content in reverse order [3]

(f) Suppose a one dimensional array AR containing integers arranged in ascending order. Write a user defined function in C++ to search for one integer from AR with the help of binary search method, returning an integer 0 to show absence of the number and integer 1 to show presence of the number in the array. The function should have three parameters: (an array, number to be searched and the number of elements in an array) [4]

Q4. (a) What is the difference between get() and getline() functions even when they share similar prototypes? [1]

- (b) Make a user defined function CREATE() to create a file and write the contents i.e given below into the file and Read() in C++ to count the word “are” as an independent word present in a text file SEARCH.TXT.

[3]

Example:

If the Line contains:

“Those are wild animals. They are carnivores.”

Then the output should be:

The Word “are” = 2

- (c) Write a function in C++ to count the number of digits and upper case alphabets present in a text file"TEST.TXT".

[3]

- (d) Find the output of the following C++ code considering that the binary file CLIENTS.DAT exists on the hard disk with records of 100 members. [3]

```
class CLIENTS
{ int Cno;char Name[20];
public : void In(); void Out(); };
void main() { fstream CF;
CF.open("CLIENTS.DAT",ios:: binary| ios::in) ; CLIENTS C;
CF.read((char*)&C,sizeof(C));
CF.read((char*)&C,sizeof(C));
CF.read((char*)&C,sizeof(C));
int POS=CF.tellg()/sizeof(C); cout<<"PRESENT RECORD:"<<POS<<endl;
CF.close(); }
```

- (d) Write a function in C++ to add new object at the bottom of 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;
```