DELHI PUBLIC SCHOOL
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ANNUAL EXAMINATION 2018

Class: XI   Subject: Computer Science
Time: 3 Hrs.   M.M - 70

Q.1. (a) Why there is a need of array in C++ programming?   [1]
(b) Find the total number of bytes occupied by the given array and structure respectively in the memory.   [1]

    (i) double x [6] [4];   (ii) struct s1 { char x1[30], x2[35]; int a, b; float z1, z2} st var ;

(c) What do you understand by entry and exit controlled loop statement?   [1]
(d) What is the significance of structure variable in the program of structure? How it is related to array.   [2]
(e) Name the header files to which the following function belongs:
    (i) **exit( )**   (ii) **strcmp( )**   (iii) **gets( )**   (iv) **isalnum( )**.   [2]

(f) What are the different kinds of error may occur in a C++ program. Explain briefly.   [2]

Q.2. Differentiate between the following (with relevant programming examples):   **[2 x 4 = 8]**

(a) Actual & Formal Parameters   (b) Implicit and Explicit type conversion

(c) Call By Value & Call By Reference   (d) Global and Local Variable

Q.3. Convert the following: **[0.5x4=2]**
(a) $(11010110110111)_2 = (..........)_{16}$ (b) $(D92C)_{16} = (.............)_2$
(c) $(EAFC)_{16} = (..............)_8$ (d) $(101000111)_2 = (.............)_8$

Q.4. Rewrite the following program after removing syntactical error(s) if any. Underline each correction. **[2 x 2 =4]**

(a)
```
#include<iostream.h>
Void main( )
{ clrscr( );
for (int x=0; x>0; x--)
cout>> x;
getch( );}
```

(b)
```
#include<iostream.h>
structure Swimmingclub
{ int mem number;
 char memname[20];
  char memtype[ ] = "LIG"; };
 void main( )
{ Swimmingclub per1, per2;
  cin<< "Member Number:";
  cin>>memnumber.per1;
  cout<<"Member Name:";
  cin>>per1.membername;
  per1.memtype = "HIG";
    per2 = per1;
  cin<< "Member Number: " <<per2.memnumber;
  cin<< "Member Name: "<<per2.memname;
  cin<< "Member Number: ''<<per2.memtype;}
```

Q.5. Find the outputs of the following program segments (Show the dry run process):   **[2 x 4 = 8]**

(i)
```
#include <iostream.h>
#include <conio.h>
void Spell (int &, int);
void main( )
{
 int a = 2, b=4;
 cout<<"Output of the program \n";
 cout<<"values of a and b are"<<a<<b<< "\n";
 Spell(a,b);
 cout<<"values of a and b are"<<a<<b;
}
void Spell(int &a, int b)
{
 a=13, b=15;            }
```

(ii)
```
#include<iostream.h>
#include<conio.h>
float sum(float);
void main ( )
{
float x=18.0, y;
y=sum(x);
cout<<x<<" " <<y<< "\n";
}
float sum(float x)
{
return (x*x);
}
```
P.T.O

(iii)
```
# include < iostream.h>
#include < ctype.h>
void AlterIt(char Text[ ], char C)
{ for (int K= 0; Text [K] ! = '\0'; K++)
{ if (Text [K] > = 'F' && Text[K] < = 'L')
Text [K] = tolower(Text[K]);
else if (Text[K] = = 'E' || Text[K] = = 'e')
Text[K] = C;
else if (K % 2 = = 0)
Text [K] = toupper(Text [K]);
else
Text[K] = Text[K – 1]; } }
void main ( )
{ char OldText[ ] = "pOtENTiaLEneRGy";
AlterIt(OldText, '%');
cout<< "New Text: ''<< OldText<< "\n";}
```

(iv)
```
# include < iostream. h>
# include <stdlib.h>
const int LOW = 15;
void main ( )
{ randomize ( );
int POINT = 5, Number;
for(int i = 1; i < = 4; i++)
{ Number = LOW + random(POINT);
cout << Number<< " : '';
POINT - - ;
} }
```
Select the correct option given below:
(a) 19 : 16 : 15 : 16 :
(b) 19 : 16 : 14 : 18 :
(c) 14 : 18 : 15 : 16 :
(d) 19 : 16 : 15 : 18 :

Q.6. Write programs using nested loops to produce the following designs: **[3 x 3 = 9]**

(a) * A * A * A *
    * A * A *
      * A *
        *

(b) 1 0 1 0
   0 1 0 1
   1 0 1 0
   0 1 0 1

(c)
            &
       &   &
    &   &
 &   &

Q.7. Write complete C++ programs for the following: **[3 x 10 = 30]**

(a) To search an element in a 1- D array.

     OR

To check the equality between the two matrices.

(b) To find the diagonal sum of a 3 x 3 matrix.

     OR

To multiply two matrices.

(c) That checks whether a given character is an alphabet or not. If it is an alphabet check whether it is a lowercase character or an uppercase character?

(d) To find the row sum and column sum of a matrix.

(e) To count the number of words present in a line.

(f) To generate Armstrong number from 1 to 1000.

     OR

WAP to check whether the number entered is palindrome or not

(g) To find number of vowels present in a given line of text.

     OR

That reads a string and converts it to uppercase

(h) Create a function named calculate( ) that returns sum of the squares of 'n' even consecutive natural number.

     OR

Create a function named fact( ) that returns the sum of the squares of n consecutive natural number.

(i) That reads a password and print "OK" if correct password is entered otherwise print "Access denied". The user should be given three chances to type the password..

(j) To swap the values of two variables using Call by Reference method.