ST. XAVIER'S SR. SEC. SCHOOL, DELHI-110054

Std. 11 Time: 3hrs.

27-02-2015 Final Examination in **COMPUTER SCIENCE** M. Marks: 70

Instructions: (i) All questions are compulsory.
(ii) Programming language: C++

1. Name the header files to which the following function belong to : [3]
   a. setw( ) b. getch( ) c. strcmpi( ) d. isalnum( ) e. random( ) f. exit( )

2. Write any two differences between the following. [12]
   a. Arrays and Structures
   b. Under dimensioning and Over dimensioning
   c. Function prototype and Function definition.
   d. Local variable and Global variable.
   e. Actual parameters and Formal parameters.
   f. puts( ) and putchar( )

3. Write the output of given program segments.

a) [1]
```
int x=0
if(x= = 1)
cout<<"was equal";
else
cout<< "Not equal";
cout<<"****";
```

b) [3]
```
int k=2, n=4, r=3, i, j;
for (j=k; j<=n; j++)
{
for (i =1; i <= r ; i++)
cout << i * j << "\t";
cout << "\n";
}
```

c) [1]
```
int i = 2, j = 4, x;
x = i * 3/4 + j/4 +8 - i + 5/8.0;
cout << x;
```

d) [1]
```
void main( )
{
int a, b = 0;
int c[10]={1,2,3,4,5,6,7,8,9,0};
for(a = 0; a<10; a++)
{
if((a%2) = = 0)
b+ = c[a];
}
cout <<b;
}
```

e) [3]
```
void Pattern(char M, int B=2)
{
if(B%2= =0)
B = B + 10
else
B = B * 2;
for(i = 0; i < B; i++)
cout << M;
}
void main( )
{
```

```
Pattern('*');
Pattern('#', 4);
Pattern('@', 3);
}
```

f) [3]

```
void main( )
{
char Line[ ] = "Good@LOGIC!";
for(int I=0; Line[ I ]!= '\0'; I++)
{
if (isalpha(Line[ I ]))
Line[ I ] = '$';
else
if(islower(Line[ I ]))
Line[ I ] = Line [ I ] +1;
else
Line[ I ]=Line[ I+1];
}
cout<<Line;
}
```

4. Correct the errors in the given program segment

a) [4]

```
#include<string.h>
int a[2] = {4, 3, 7};
int a[3][ ]={7, 3, 9, 4, 3, 2};
char S[20] = ABCDE;
for (int i=0; S[ i ]≠ / 0; i++)
S[ i ] =Topper(S[ i ]);
Putchar(S);
```

b) [3]

```
Struct A;
{
int rno=2;
char name[10];
float C;
} A1=[4, 24.5, KUNWAR];
```

c) [2]

```
void sum(const int a=20, int b);
{ a =a+7;
return(a+b);
}
void main( )
{
sum(40);
}
```

d) [2]

```
int calculate(float a, float b, float c)
{
cout<<a*b*c;
}
void main( )
{
float a1, b1;
char c1;
cin >>a1>>b1>>c1;
cout<<calculate(a1, b1 );
}
```

5. a) Write a statement that declares a string array to store coin's types and initializes it with the values 10 - paise, 25 - paise, 50 - paise, l - rupee, 2 - rupee, 5 - rupee, 100 - rupee. [2]
   b) Declare a two-dimensional array Marks of 4 rows and 5 column of type integer. Also initialize all the elements of Marks with the value 0. Construct one statement to assign the value 999 to 3rd row and 4th column element. [2]

6. a) Write a function that returns the sum of given series. Write main function also. [3]
   $1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{9} + \cdots \; upto\; n\; term$
   b) Declare a structure having following members. Customer no, name, number of units consumed and bill. The bill is calculated according to following condition. [4]

Unit consumed	Tariff
For the first 100 units	Rs 0.40 per unit
For the next 200 units	Rs 0.50 per unit
For the next 300 units	Rs. 0.75 per unit
For the next 400 units	Rs. 1.00 per unit
For the next 1000 units	Rs. 1.50 per unit

Write a program to calculate the bill and display the information of the customer.

   c) Write a C++ program to read a line of text from the keyboard and display number of words and number of characters except blank space. [3]
   d) Write a program to print the leading and trailing diagonal values of a 2D array having 4 rows and 4 columns. [4]
   e) Write a program to input an integer number and check whether it is a palindrome or not. For example the number 121 is a palindrome as it reads the same from left to right and from right to left. [3]
   f) Write a function subsequence( ) in C++ with two arguments float x and integer n. It should perform sum of given series. [3]
   $x + x^2 + x^3 + \cdots n\; term$
   Write main( ) function also
   g) Write a function that takes two char arguments and returns 0 if both the arguments are equal. The function returns -1 if the first argument is smaller than second and 1 if the second argument is smaller than the first. Write main( ) function also. [4]
   f) Write a program using structure in C++ to store the information of 5 countries, country name, their capital name and per capita income. Perform the following operations depending on user's choice. [4]
   If choice is 1, display country name and per capita income given its capital.
   If choice is 2, display capital name and per capita income given its country.
   If choice is 3, display country name and capital name given its per capita income.
   The program should continue till the user wants.

-x-x-x-x-x-