1. a. What is the meaning of the term volatile primary memory? What can be done to overcome the problem of volatility? 

b. What is the correlation among digital, analog, special-purpose and general-purpose computers?

c. Name the first generation computers with full form.

d. What are the different types of Operating System?

e. Convert the following:

   i. \((10010011.01)_2 = (\_\_\_)_{10}\) 

   ii. \((25.250)_{10} = (\_\_\_)_8\)

f. What are the different types of ROM? Differentiate it.

2. a. What is a token? Name the different tokens available in C++.

b. Which one condition every C++ program must fulfill?

c. What are data type modifiers?

d. What is a variable? In C++, two values are associated with a symbolic variable. What are these?

e. What is the process of type promotion? What is integral promotion?

f. What is the significance of break statement in a switch statement? What is the effect of absence of break in a switch statement?

3. a. Rewrite the following if-else statement in terms of switch-case statement.
int i, x;
if (i == 0 || i == 1)
    x += 1;
else if (i == 2 || i == 3)
    x += 3;
else
    x += 4;
cout « x;

b. Rewrite it using if-else.

char ch = 'a';
ch = (ch == 'b') ? ch : 'b';
cout«ch;

c. Rewrite using do while loop
#include<iostream.h>
void main()
{
    int x = 0;
    for (int i = 0; i < 15; i++)
        if (i % 3 == 0)
            { x++;
                cout«x;
            }
}

d. Evaluate the following expression if a = 2, b = -1, c = 1, d = -3.
a-c < b || d < c+b && a >= d - c && b >= !(a+c*d)

e. Write the corresponding C++ expressions for the following mathematical expressions:

i) \[ Z = \frac{x^5 + y^6 \cdot \sqrt{x \cdot y}}{2} \]

ii) \[ F = \frac{ab + 2ab^2}{3ab + 8a^2b} \]

f. Construct logical expressions to represent the following conditions:
   i) Price is in the range 5000-10000 or category is 1
   ii) X is even and positive

g. Name the header file required for the following functions.
   i) setw()
   ii) exit(0)
h. How many times will the following loop execute?

```c
int x=0, y=2;
while(++y < 5)
    x += y-1;
```

4. Write the output of the following program segments. (Assuming all required header files are included in)

a. 
   ```c
   #include<iostream.h>
   void main()
   {
       int a= 9, b=5, x, y=4;
       x = ¾ * a;
       y += a++; + b++/2;
       cout<<"x="<<x<<endl<<"y="<<y<<endl;
       cout<<"a="<<a<<endl<<"b="<<b;
   }
   ```

b. 
   ```c
   void main()
   {
       int i, j, a, b;
       i=j=10;
       a= 160;
       b= 20;
       if(a<100)
           if(b>50)
               i+1;
       else
           j+1;
       j++; i++; 
       cout<< "i="<<i <<"\n"<<"j="<<j;
   }
   ```

c. 
   ```c
   void main()
   {
       int a = 10, b;
       for(int i=0; i<a; i++);
       cout << ++i << endl;
       b = a;
       ++a;
       b++; 
       cout<< a <<"\n"<< b<<"\n"<< a --b<<endl;
   }
   ```
5. Identify the errors and write the correct form
a. // include<iostream.h>
   void main()
   float a;
   const int b;
   b=10;
   a = b % 3.1;
   cout <<"a="a;
   }

b. #include "iostream."
   Main()
   { int ch;
      switch[ch]
      case '1': cout<<"first";
      break;
      case 2 :cout<<"second"
      }

c. #include<iostream.h>
   void main()
   { int x;
    cin<<x;
    for( y=0,y<x,y++)
    cout>>x+y;
   }

6. Write C++ program for the following.
   a. Write a program to find the smallest of 4 integers using conditional operator.
   b. Write a program to count the number of composite numbers from 1 to n.
   c. Write a program to generate the following pattern
      1
      2  3
      4  5  6
   d. Write a program to display the Fibonacci series 0 1 1 2 3 5 8....
   e. Write a program to print sum of negative numbers, sum of positive even numbers, sum of positive odd numbers from a list of numbers entered by the user. The list terminates when the number entered is zero.
   f. Write a program to calculate area of square, a rectangle,circle or a triangle depending upon user’s choice.
INTERNATIONAL INDIAN SCHOOL, DAMMAM
FIRST TERMINAL EXAMINATION 2012

SUBJECT: COMPUTER SCIENCE MAX. MARKS: 70
CLASS: XI TIME: 3 HRS

SET B

General Instructions:

(a) All questions are compulsory
(b) Programming language use C++

1. a. What is a microprocessor and a micro computer? 2
   b. What is the difference between Primary and Secondary Memory? 1
   c. Name the first generation computers with full form. 2
   d. What are the different types of Operating System? 1
   e. Convert the following:
      i. \( (10110101.01)_2 = (\ )_{10} \) 1
      ii. \( (52.250)_{10} = (\ )_8 \) 1
   f. What are the different types of ROM? Differentiate it. 2

2. a. What is a literal? Name the different literals available in C++. 2
   b. Which one condition, every C++ program must fulfill? 1
   c. What are data type modifiers? 1
   d. What is a variable? In how many ways can a variable be declared in C++? 2
   e. What do you mean by type casting? What is type cast operator? 2
   f. What is the significance of break statement in a switch statement? What is the effect of absence of break in a switch statement? 2

3. a. Rewrite the following if-else statement in terms of switch-case statement. 2
int i , x ;
if (i == 0 || i == 1)
    x += 1 ;
else if (i == 2 || i == 3)
    x += 3;
else    x += 4;
cout << x ;

b. Rewrite it using if-else.

    char ch = 'a';
    ch = (ch == 'a') ? 'b' ;
    cout<<ch;

c. Rewrite using do while loop

#include<iostream.h>
void main()
{
    int x = 0;
    for( int i=1; i<10 ; i++)
        if(i % 2 == 0)
        {
            x++;
            cout<< x;
        }
}

d. Evaluate the following expression if  a = 3 , b = -1, c = 2, d = -3.

a-c < b || d < c+b && a >= d - c && b >= !(a+c-d)

e. Write the corresponding C++ expressions for the following mathematical expressions:

i) \( Z = \frac{x^5 + y^6}{2} - \sqrt{xy} \)

ii) \( F = \frac{ab+2ab^3}{3ab+8a^3b} \)

f. Construct logical expressions to represent the following conditions:

i) Price is in the range 10000-15000 or category is 2
ii) X is odd and positive

g. Name the header file required for the following functions.

i) pow()     ii) exit(0)
h. How many times will the following loop execute?

```c
int x=0, y=2;
  while(++y < 5)
    x += y++;
```

4. Write the output of the following program segments. (Assuming all required header files are included in)

a. 
```c
#include<iostream.h>
void main()
{
  int a= 19, b=15, x, y=4;
  x = ⅓ * a;
  y += ++a + ++b/2;
  cout<<"x=“<<x<<endl<<"y=“<<y<<endl;
  cout<<"a=“<<a<<endl<<"b=“<<b;
}
```

b. 
```c
void main()
{
  int i, j, a, b;
  i=j=10;
  a= 60;
  b= 20;
  if(a<100)
    if(b>50)
      i+1;
    else
      j+1;
  j++;  i++;  
  cout<< i="<<i <<"n"<<j="<<j;
}
```

c. 
```c
void main()
{
  int a = 12, b;
  for(int i=2; i< a; i++):
    cout << ++i << endl;
    b = a;
    ++a;
    b++;
    cout<< a <<"n"<< b<<"n"<< --b<<endl;
}
```

5. Identify the errors and write the correct form
a. // include<iostream.h>
   void main()
   {float a;
    const int b;
    b=10;
    a = b % 3.1;
    cout <<"\n"a="a;  
   }

b. #include "iostream."
   Main()
   { int ch;
    switch[ch]
    case ‘1’ : cout<<"first";
    break;
    case 2 :cout<<"second"
   }

c. #include <iostream.h>
   void main()
   {
    int x;
    cin<< x;
    for( y=0,y<x,y++)
    cout>>x+y;
   }

6. Write C++ program for the following.

a. Write a program to find the largest of 4 integers using conditional operator.

b. Write a program to count the number of prime numbers from 1 to n.

c. Write a program to generate the following pattern
   1
   1 2
   1 2 3
   1 2 3 4

d. Write a program to display Fibonacci series 0 1 1 2 3 5 8 ....

e. Write a program to print sum of negative numbers, sum of positive even
   numbers, sum of positive odd numbers from a list of numbers entered by the user.
   The list terminates when the number entered is zero.

f. Write a program to calculate area, perimeter and diagonal of a rectangle
   depending upon user’s choice.