

INTERNATIONAL INDIAN SCHOOL, DAMMAM

FIRST TERMINAL EXAMINATION 2012

SUBJECT: COMPUTER SCIENCE

MAX. MARKS: 70

CLASS: XI

TIME: 3 HRS

SET A

General Instructions:

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

- 1.a. What is the meaning of the term volatile primary memory? What can be done to overcome the problem of volatility? 2
- b. What is the correlation among digital, analog, special-purpose and general-purpose computers? 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. $(10010011.01)_2 = ()_{10}$ 1
 - ii. $(25.250)_{10} = ()_8$ 1
- f. What are the different types of ROM? Differentiate it. 2
- 2.a. What is a token? Name the different tokens 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 C++, two values are associated with a symbolic variable. What are these? 2
- e. What is the process of type promotion? What is integral promotion? 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**.

2

```

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

```

- c. Rewrite using **do while** loop

2

```

#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.

2

$a - c < b \ || \ d < c + b \ \&\& \ a \geq d - c \ \&\& \ b \geq !(a + c - d)$

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

2

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

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

- f. Construct logical expressions to represent the following conditions:

2

- Price is in the range 5000-10000 or category is 1
- X is even and positive

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

1

- setw()
- exit(0)

h. How many times will the following loop execute?

1

```
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) 2

a. #include<iostream.h>

void main()

```
{
    int a= 9, b=5, x, y=4;
    x = 3/4* a;
    y += a++ + b++/2;
    cout<<"x="<<x<<endl<<"y="<<y<<endl;
    cout<<"a="<<a<<endl<<"b="<<b;
}
```

b. void main()

2

```
{
    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. void main()

2

```
{
    int a = 10 , b;
    for(int i=0; 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 2
- 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"
}
```

2
- c.

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

2
6. Write C++ program for the following.
- a. Write a program to find the smallest of 4 integers using conditional operator. 4
- b. Write a program to count the number of composite numbers from 1 to n. 4
- c. Write a program to generate the following pattern 4
- ```
1
2 3
4 5 6
```
- d. Write a program to display the Fibonacci series 0 1 1 2 3 5 8.... 4
- 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. 4
- f. Write a program to calculate area of square, a rectangle, circle or a triangle depending upon user's choice. 4

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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**.

2

```

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

```

- c. Rewrite using **do while** loop

2

```

#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.

2

$a - c < b \ || \ d < c + b \ \&\& \ a \geq d - c \ \&\& \ b \geq !(a + c - d)$

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

2

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

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

- f. Construct logical expressions to represent the following conditions:

2

- 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.

1

- i) pow()      ii) exit(0)

- h. How many times will the following loop execute?

1

```
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. #include<iostream.h>

2

```
void main()
{
 int a= 19, b=15, x, y=4;
 x = 1/4 * a;
 y += ++a + ++b/2;
 cout<<"x="<<x<<endl<<"y="<<y<<endl;
 cout<<"a="<<a<<endl<<"b="<<b;
}
```

- b. void main()

2

```
{
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. void main()

2

```
{
 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>` 2  
`void main()`  
`float a;`  
`const int b;`  
`b=10;`  
`a = b % 3.1;`  
`cout <<\n"a="a;`  
`}`
- b. `#include "iostream."` 2  
`Main()`  
`{ int ch;`  
`switch[ch]`  
`case '1' : cout<<"first";`  
`break;`  
`case 2 :cout<<"second"`  
`}`
- c. `#include<iostream.h>` 2  
`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. 4
- b. Write a program to count the number of prime numbers from 1 to n. 4
- c. Write a program to generate the following pattern 4  

```

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 .... 4
- 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. 4
- f. Write a program to calculate area , perimeter and diagonal of a rectangle depending upon user's choice. 4