

## CS 101 Lab MidTerm Solution

### Section A

**Note: Answers are highlighted**

1. The statement `i++;` is equivalent to (1)
  - a) `i = i + i;`
  - b) `i = i + 1;`
  - c) `i = i - 1;`
  - d) `i --;`
2. Which of the following is the boolean operator for logical-and? (1)
  - a) `&`
  - b) `&&`
  - c) `|`
  - d) `|\&`
3. Which of the following is the correct operator to compare two variables? (1)
  - a) `:=`
  - b) `=`
  - c) `Equal`
  - d) `==`
4. Which of the following is a correct comment? (1)
  - a) `*/ Comments */`
  - b) `** Comment **`
  - c) `/* Comment */`
  - d) `{ Comment }`
5.  $(125)_8 = ( ? )_2$  (2)
  - a) `1010101`
  - b) `1010010`
  - c) `1011000`
  - d) `1010100`
6. Code: (Assume this code is mentioned in `int main()` and header files are included) (3)

```
int x = 3;
if( x == 2 );
    x = 0;
if( x == 3 )
    x++;
```

```
else x += 2;
```

What value will x contain when the sample code above is executed?

- a) 1
- b) 2**
- c) 3
- d) 4
- e) 5

7. Code: (Assume this code is mentioned in int main() and header files are included) (2)

```
int i=7;  
cout<<i++;  
i++;
```

What will be the Output if we run and execute the above code?

- a) 8
- b) 9
- c) Error
- d) 7**

8. Code: (Assume this code is mentioned in int main() and header files are included) (6)

```
int n;  
cout << "Enter an integer: ";  
cin >> n;  
if (n < 10)  
cout << "less than 10" << endl;  
else if (n > 5)  
cout << "greater than 5" << endl;  
else  
cout << "not interesting" << endl;
```

i) What will be the output of the fragment above if the interactive user enters the integer value 7 ? 3

less than 10

ii) What values for n will cause the output of the fragment above to be "not interesting"? 3

no such input exists

9. Code: (Assume this code is mentioned in int main() and header files are included)(3)

```
int x = 3;
if(x==3)
cout<<x++<<" ";
if(x==4)
cout<<x--<<" ";
else
cout <<x--<<" ";
```

Output:

**3 4**

## Section B

### Code Questions

(Marks: 30)

- 1) Code a C++ program which accepts days as integer type and display total number of years, months and days in it. (Marks:10)

```
e.g. Enter no. of days :
796
Years : 2
Months : 2
Days : 6
```

### Solution:

```
#include<iostream>
using namespace std;

int main(){

    int n;
    int years,months, days;

    cout<<"Enter Number of days";
    cin>>n;

    years=n/365;
    n = n-years*365;
```

```

        months = n/30;
        cout<<endl<<endl;
        days = n - 30*months;

        cout<<"years: "<<years<<endl;
        cout<<"months: "<<months<<endl;
        cout<<"days: "<<days<<endl;

        system("pause");
        return 0;
    }

```

2) Petrol =104.5 Rs

Code a C++ program to print the following number pyramid of number structure:(Marks:10)

```

      1
    1 2 3
  1 2 3 4 5
1 2 3 4 5 6 7
1 2 3 4 5 6 7 8 9

```

**Solution:**

```

#include <iostream>
using namespace std;
int main()
{
    int i ,rows ,space,k;
    cout<<"enter the value of rows\n";
    cin>>rows;

    for(i=1;i<=rows;i++)
    {

        for(space=1;space<=rows-i;space++)
        {
            cout<<" ";
        }

        for(k=1;k<=2*i-1;k++)
        {

            cout<<k<<" ";

```

```

    }
    cout<<endl;
}
system("pause");
return 0;
}

```

- 3) Construct a c++ program that asks for an integer number and calculates its factorial. If zero or negative number is entered, the program should call it an invalid number. The user should be able to calculate the factorial of any number of inputs by asking if the user wants to quit or continue. (Marks:10)

```

#include<iostream>
using namespace std;

int main()
{
    char decide;
    int n,fact;
    do
    {

        fact=1;
        cout<<"enter number";
        cin>>n;
        for(int i=n;i>=1;i--)
        {fact=fact*i;
        }

        cout<<"factorial of "<<n<<" is: "<<fact<<endl;;

        cout<<"Do you want to continue? if yes enter 'Y' or 'y'\n";
        cin>>decide;
    }
    while(decide == 'y' || decide == 'Y');

    system("pause");
    return 0;

}

```