

## National University of Computer and Emerging Sciences, Lahore Campus



Course: Computer Programming  
Program: BS(Computer Science)  
Duration: 60 Minutes  
Paper Date: 12-April-2018  
Section: All  
Exam: Midterm-II

Course Code: CS103  
Semester: Spring 2018  
Total Marks: 30  
Weight: 15  
Page(s): 1  
Roll No:

**Question [30 Marks]** Complete the definition of the class given below such that the main program runs successfully. Make sure that your program doesn't consume extra memory space and it should not leak any memory.

```
class BinaryNum
{
private:
    int* binNum;    //integer array to save binary number
    int noOfBits;   //total no. of bits
public:
    void Print()
    {
        if(binNum != 0)
        {
            for(int i = 0 ; i< noOfBits ; i++)
                cout<<binNum[i];
        }
        cout<<endl;
    }
};

void main()
{
    BinaryNum b1;           //noOfBits = 0, binNum is NULL
    BinaryNum b2("101");   //noOfBits = 3, binNum is {1,0,1}
    BinaryNum b3("1001");  //noOfBits = 4, binNum is {1,0,0,1}

    cout<<"b1 = ";b1.Print(); //Prints Nothing
    cout<<"b2 = ";b2.Print(); //Prints 101
    cout<<"b3 = ";b3.Print(); //Prints 1001

    b1 = b2+b3;
    cout<<"b1 = ";b1.Print(); //Prints 1110
    cout<<"b1[0] = "<<b1[0]<<endl; //Prints 1 (0th bit in b1)
    cout<<"b1[3] = "<<b1[3]<<endl; //Prints 0 (3rd bit in b1)

    (b3++).Print();        //Prints 1001
    b3.Print();             //Prints 1010
    b1 = "111" + b2;
    b1.Print();             //Prints 1100
}
```