Work Time: 30min

Please copy the subjects and then close your laptops.

Default (1p).

1 (3p). Given the following Java collection:

List<Integer> numbers = Arrays.asList(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14,15);

Using Java functional style (Java streams), please write a Java stream program that is doing the following operations in the following order:

a)keep only the numbers which are either multiple of 5 or multiple of 2;

b)transform each remaining number into a string, that consists of a prefix "N", the number and the suffix "R"

(eg. 5 is transformed into "N5R")

c)concatenate all the strings

2 (3p). Given the following four classes in Java:

```
class A {...}   class B extends A {...}   class C extends A {...}
class Amain{
        ...  method1(... list) { return list.get(1);}
       void method2(...  list,  A el) {  list.add(el);}
       void method3(A elem){
           ArrayList<A> listA=new ArrayList<A>(); listA.add(new B());listA.add(new C());
           ArrayList<B> listB = new ArrayList<B>(); listB.add(new B());listB.add(new B());
           ArrayList<C> listC = new ArrayList<C>(); listC.add(new C());listC.add(new C());
           this.method1(listA); this.method1(listB); this.method1(listC);
           this.method2(listA,elem); this.method2(listB,elem); this.method2(listC,elem);
        }
}
```

Please complete the most specific wildcard types for the class Amain methods (method1 and method2) such that the entire program is correct. Please justify your solution. If it is not possible to find a solution please explain the reason.

3 (3p). Is the following Java code correct? Please explain your answer.

```
class A {
    protected int f1;
    static int s1=0;
    public A(int a)  { this.f1=a*s1;s1=s1+1; }
    static int getS()  { return getS1(s1); }
    int getS1(int x)  {return (x*getS());}
}
```