CT-2

Total Marks: 30

Time Limit: 25 minutes + 10 minutes for submission

1. Define necessary classes **with proper abstraction**[*Concrete*/*Abstract*/*Interface*] and **make method implementations common wherever is applicable** so that the following output of the right side can be generated from the codes of the left side and mention the reason behind your choice of class types[Concrete/Abstract/Interface] in brief.
   [No need to write the following codes in the answer script. Just write the solution part.]

[15]

```
public class Final {
    public static void main(String[] args) {
        Human neurologist = new Doctor();
        Human cs1 = new CSEngineer();
        Human civil1 = new CivilEngineer();
        Engineer cs2 = new CSEngineer();
        Engineer civil2 = new CivilEngineer();

        neurologist.study();
        cs1.study();
        civil1.study();
        cs2.study();
        civil2.study();

        System.out.println("");

        neurologist.work();
        cs1.work();
        civil1.work();
        cs2.work();
        civil2.work();
    }
}
```

```
Studying Human Anatomy
Solving ODE/PDE
Solving ODE/PDE
Solving ODE/PDE
Solving ODE/PDE

Dissecting Human Body
Coding in Java
Designing Structures
Coding in Java
Designing Structures
```

2. Write a concrete class named “StudentAccount”, inheriting both “BankAccount” and “Taxable” from the following code. Define constructors and methods for the class properly. **[15]**

```
public abstract class BankAccount {
    public String id;
    public double balance;
    public BankAccount(String id) {
        this.id = id;
    }
    public abstract double calculateInterest();
}
public interface Taxable {
    void taxCharged(double amount);
}
```