## Task 7.1.3 Practice Exercises

Dynamic Binding and Polymorphism

1. The transfer () method of the superclass Account calls both deposit () and withdraw() methods as shown below. Assume that withdraw() and deposit() methods are overridden in the subclasses SAccount and CAccount.

```
public boolean transfer(Account account, double amount) {
    if (withdraw(amount)) {
        account.deposit(balance);
        return true;
    }
        else return false;
}
```

Which withdraw() and deposit() methods will be called as a result of the statements below ?

```
SAccount acc1 = new SAccount("s12345","Clinton",1000);
CAccount acc2= new CAccount("c12345","Bush",2000);
```

a. `acc1.transfer(acc2,100);`
   withdraw() of class _____ deposit() of class _____

b. `acc2.transfer(acc1,150);`
   withdraw() of class _____ deposit() of class _____

2. Given that Salesman and Clerk are subclasses of Employee and that all classes have default constructors what will be the result of the following? (compilation error, run-time error, no problem)

```
a. Employee e = new Salesman();
   Salesman s = (Salesman) e;
```

```
b. Employee e = new Salesman();
   Salesman s = e;
```

```
c. Employee e1 = new Salesman();
   Employee e2 = e1;
```

```
d. Employee e = new Salesman();
   Clerk c = (Clerk) e;
```

```
e. Clerk c = new Salesman();
   Salesman s = (Salesman) c;
```

3. Look up the API documentation for the Rectangle class (package java.awt) and note the inheritance relationships it has. After the Rectangle is declared as per the code below:

```
Rectangle r = new Rectangle(5,10,15,25);
```

Which of the following conditions evaluate to true?

a. `if (r instanceof Rectangle) ...`
b. `if (r instanceof Point) ...`
c. `if (r instanceof Object) ...`
d. `if (r instanceof RectangularShape) …`