Question 1

Write a class *Item* that stores information about an object in a store. It should have variables for:

- the name of the item
- the full price of the item
- the sales price of the item

Each price of the item should be stored as a *double*.
Write two constructors for this class: one which has the name of the item, the full price, and the sales price as parameters, and one which only has the name of the item and the full price as parameters. In the second case, the sales price should be set to half the full price.
Write a *static* method called *format* which takes a double as its parameter and returns a string representing the double as a price. Specifically, put a $ in front of the double value, and truncate (or round) the value to have exactly 2 decimal places. If the double value is less than 0, return $0.00. If the double value only has one decimal place, add a 0 at the end (ex. 6.7 becomes $6.70)
Write a method *toString()* which displays information about the item in the following format:
Item: item_name Full price: formatted_full_price Sales price: formatted_sales_price where formatted_full_price is the full price of the item, formatted by calling the method *format* on it, and formatted_sales_price is the sale the sales price of the item, formatted by calling the method *format* on it.
Write a driver program that instantiates several objects of type Item and demonstrates the class. It should test the method *format* by calling it on at least 3 different cases of doubles.

Question 2

The Java class called Holidayis started below. An object of class Holiday represents a holiday during the year. This class has three instance variables: ● name, which is a Stringrepresenting the name of the holiday ● day, which is an int representing the day of the month of the holiday ● month, which is a String representing the month the holiday is in public class Holiday { private String name; private int day; private String month; // your code goes here } a) Write a constructor for the class Holiday, which takes a String representing the name, an int representing the day, and a String representing the month as its arguments, and sets the class variables to these values. b) Write a method inSameMonth, which compares two instances of the class Holiday,and returns the Boolean value true if they have the same month, and false if

they do not. c) Write a method avgDate which takes an array of base type Holiday as its argument, and returns a double that is the average of the day variables in the Holiday instances in the array. You may assume that the array is full (i.e. does not have any null entries). d) Write a piece of code that creates a Holiday instance with the name “Independence Day”, with the day “4”, and with the month “July”.