Comp248

Solution to Sample Final

Q1. a Q2. a Q3. a Q4. e Q5.d Q6. c Q7. Answer is 11 Q8. b Q9. d Q10. a

Q11.

a) b2 and b1 have the same values
b) if(b1 == b2 && a1 == a2 && a1 == b1)
System.out.println("All variables have the same value");
else if (b1 == b2)
System.out.println("b1 and b2 have the same value");
else if (a1 == a2)
System.out.println("a2 and a2 have the same value");
else
System.out.println("All variables are different");

Q12.

```
String fname, lName;
Scanner keyIn = new Scanner (System.in);
System.out.println("Please enter your names ");
fName = keyIn.next();
lName = keyIn.next();
System.out.println("Your abbreviated name is: " + fName.substr(0,1) + ". "
                                +lName);
```

Q13.

```
public static int alternatingSum(int[] a)
{
    int sum = 0, sign = 1;
    for(int k = 0; k < a.length(); k++)
    {
        sum += sign * a[k];
        sign *= -1;
    }
    return sum;
}
```

Q14. (assuming both integers have 4 digits)

```
public static boolean reverseSame(int a, int b)
{
      if(a % 10 != b/1000)  return false;
      if(a/10%10 != b%1000/100) return false;
      if(a/100%10 != b%100/10) return false;
      if( a/1000 != b%10) return false;
      return true;
}
```

Q15. b) (one version of solution)

```
class Product
{
    private int UPC;
    private String name;
    private double price;
    private int inStock;
    private boolean[] onSale;

    public Product(int upc, String name, int a[])
    {
      upc = upc;
      this.name = name;
     price = inStock = 0;
     onSale = new boolean[52];
     for(int j = 0; j < a.length(); j++)
       onSale[j] = a[j];
    }

    public String getName() {  return name;  }

    public void addStock(int n)  {  instock += n;  }

    public boolean outOfStock()  { return inStock == 0; }

    public boolean equals( Product p)
    {
        boolean same = UPC == p.UPC && name.equals(p.name) &&
                       price == p.price && inStock == p.inStock;
        if (!same) return false;
        for(int j = 0; j < onSale.length(); j++)
           if (onSale[j] != p.onSale[j]
                return false;
        return true;

}
```

c)
```
Product[] store = new product[50];
for(int j = 0; j < store.length(); j++)
   store[j] = new Product(0, "product"+(j+1), 50 * (j + 1));
```

d)
```
for(int j = 0; j < store.length(); j++)
   System.out.print(store[i].getName() + "\t");
```

e)
```
store[store.length()-1].addStock(50);
```

Q16.

```
Pair: 0, 0
Pair: 0, 5
Pair: 2, 3
Pair: 15, 3
0
Pair: 20, 3
Pair: 20, 3
here 1
```

Q17. (Note students had done something similar in the an assignment).

```
Scanner keyIn = new Scanner(System.in);
      int rows = keyIn.nextInt();
      //Top half of hourglass
      for (int i = 0; i < rows/2; i++)
      {
            // print spaces
            for(int j = 0; j < i; j++)
                  System.out.print(' ');


            // print stars
            for (int j = 0; j < rows-(2*i); j++)
            System.out.print('*');
            System.out.println();
      }

      // if odd print single star
      if (rows%2 == 1)
      {
            for(int i = 0; i <rows/2; i++)
                  System.out.print(' ');
            System.out.println('*');
      }

      // Bottom half of hourGlass
      for (int i = rows/2-1; i >=0; i--)
      {
            for(int j = 0; j < i; j++)
                  System.out.print(' ');
            for (int j = 0; j < rows-(2*i); j++)
                  System.out.print('*');
            System.out.println();
      }
```