1. (5 points) Consider the following piece of code:
   ```java
   int x = 1;
   while(x!=16){
       System.out.println("The value of x is: " + x);
       //line of code here
   }
   ```
   Which of the following statements could be inserted in place of the comment to avoid an infinite loop? Choose ALL that apply.
   a. x = x + 2;
   b. x = x + 3;
   c. x = x + 4;
   d. x = x * 2;
   e. x = x * 3;
   f. x = x - 1;

2. (5 points) The function `twist` is defined as follows:
   ```java
   public void twist(String w1, String w2){
       int L0 = w1.length();
       int L1 = w2.length();
       String tmp = w1.substring(0,1);
       w1 = w2.substring(0,1) + w1.substring(1,L0);
       w2 = tmp + w2.substring(1,L1);
       System.out.println(w1 + " " + w2);
   }
   ```
   What is the output of the function call `twist("HOW", "NEAT");`?
   a. NOW NOW
   b. HOW HOW
   c. NOW HOW
   d. HOW NEAT
   e. NOW HEAT

3. (5 points) Consider the following code:
   ```java
   int y = 4;
   double z = 4.0;
   y = y + 2;
   z = y + 5.0;
   ```
   What is the value of y after the code above executes?
   a. 4
   b. 6
   c. 8
   d. 9
   e. 11
4. (5 points) What is the value of the array \( a \) after the following code executes?

\[
\begin{align*}
\text{int}[] \ a &= \{1,1,1,1,1,1,1\}; \\
\text{for(int } i=1; i< a.\text{length; } i++){ \\
\quad \text{if( } (i\%2) == 1 \} \\
\quad \ a[i] = a[i] + a[i-1]; \\
}\}
\end{align*}
\]

a. \{1,1,1,1,1,1,1\} \\
b. \{1,2,2,2,2,2\} \\
c. \{1,2,1,2,1,2\} \\
d. \{1,2,3,5,8,13,21\} \\
e. \{1,2,3,4,5,6,7\}

5. (5 points) What does the following code print when it is executed?

\[
\begin{align*}
\text{int num} &= 20; \\
\text{if } (\text{num <= 40) } \{ \\
\text{\quad System.out.println("hi");} \\
\} \text{ else if } (\text{num <= 30) } \{ \\
\text{\quad System.out.println("bye");} \\
\} \text{ else if } (\text{num <= 20) } \{ \\
\text{\quad System.out.println("sigh");} \\
\} \text{ else } \{ \\
\text{\quad System.out.println("cry");} \\
\}
\end{align*}
\]

a. hi \\
   bye \\
   sigh \\
   cry \\
b. hi \\
   bye \\
   sigh \\
c. hi \\
   bye \\
d. hi \\
e. sigh