Finding All Genes in DNA

Practice Quiz, 4 questions

1 point

1. Which one of the following is the first gene for this strand of DNA where you want to consider all three of the stop codons?

"AATGCTAACTAGCTGACTAAT"

- ATGCTAA
- ATGCTA
- ATGCTAACTAG
- CTAACTAGC
- The empty string
- ATGCTAACTAGCTGA

1 point

2. Consider the following code segment to count the number of times the string "TG" occurs in the string dna, that does not work correctly.

```
1  String dna = "CTGCCTGCATGATCGTA";
2  int pos = dna.indexOf("TG");
3  int count = 0;
4  while (pos >= 0) {
5    count = count + 1;
6    pos = dna.indexOf("TG",pos);
7  }
8  System.out.println(count);
```

Which of the following best describes the error?

- Each time pos is reset in the while loop it finds the same "TG".
- The two lines in the body of the while loop should be swapped so the count happens after pos is given a new value.
- The variable pos should be initialized to 0 in line 2 and only set with indexOf inside the while loop.
- The count is off by 1. The count should be initialized to 1 to take into account the first "TG" that is found.

1 point

3. Consider the following segment of code from a program.

```
1  while (count < 3) {
2    count += 1;
3    newDna = newDna + dna.substring(startPos,pos);
4    startPos = pos+1;
5    pos = dna.indexOf("T", startPos);
6    if (pos == -1) {
7      break;
8    }
9  }
```

How many different ways are there to break out of this loop?

- 2
- 0, it is an infinite loop
- 1
- 3

1 point

4. Which one of the following conditionals correctly evaluates to true if the integer num is an odd number and to false if it is an even number.

```
1  if (num % 2 == 1)
```

```
1  if (num % 2 == 0)
```

```
1  if (num % 2 == (num+1) % 2)
```

```
1  if (num % 2 == num % 2)
```

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