Started on	Friday, 25 July 2025, 4:39 PM
State	Finished
Completed on	Friday, 25 July 2025, 4:48 PM
Time taken	9 mins 28 secs
Marks	13.00/18.00
Grade	**72.22** out of 100.00

Question 1
Complete
Mark 1.00 out of 1.00

What is the time complexity of the following code snippet?

```
for (int i = 0; i < n; i++) {
   for (int j = i; j > 0; j--) {
      System.out.println(i + ", " + j);
   }
}
```

- a. O👎
- b. $O(n^3)$
- c. O(n log n)
- d. $O(n^2)$

Question 2
Complete
Mark 0.00 out of 1.00

An image processing applciation begins with two n X n matrices A and B.
The first phase of preprocessing the inputs takes O(n^2) steps for each of A and B.
The second step involves a convolution of A and B to yield a new matrix C in time O(n^3).
This is followed by an edge detection phase that takes times O(n^2) for matrix C.

What is the most accurate and concise description of the complexity of the overall algorithm?

- a. O(n^2+n^3)
- b. O(n^2)
- c. O(n^3)
- d. O(n^5)

Question 3
Complete
Mark 1.00 out of 1.00

What is the time complexity of the following loop?

```
for (int i = 1; i < n; i *= 2) {
   System.out.println(i);
}
```

- a. O(n log n)
- b. $O(n^2)$
- c. O(log n)
- d. O👎

Question 4

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following code?

```
for (int i = 1; i <= n; i++) {
   for (int j = 1; j <= n; j *= 2) {
      System.out.println(i + ", " + j);
   }
}
```

- a. O(log n)
- b. O👎
- c. $O(n^2)$
- d. O(n log n)

Question 5

Complete

Mark 1.00 out of 1.00

Find the time complexity of the program below

```
function(int n){
   if(n == 1)
      return;
   for(int i = 1 ; i<= n;i++){
      for(int j = 1;j <= n;j++){
                  printf("*");
                  break;
            }
      }
}
```

- a. O(n^logn)
- b. O👎
- c. O(n^2)
- d. O(nlogn)

Question 6

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following code?

```
for (int i = 0; i < n; i++) {
   for (int j = i; j < n; j++) {
      System.out.println(i + ", " + j);
   }
}
```

- a. O(n!)
- b. $O(n^2)$
- c. O👎
- d. O(n log n)

Question 7

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following code?

```
int count = 0;
for (int i = 0; i < n; i++) {
   for (int j = 0; j < n; j++) {
      if (i == j) {
         count++;
      }
   }
}
```

- a. $O(n^3)$
- b. O👎
- c. $O(n^2)$
- d. O(n log n)

Question 8

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following code?

```
for (int i = 0; i < n; i++) {
   for (int j = 0; j < n * n; j++) {
      System.out.println(i + ", " + j);
   }
}
```

- a. $O(n^2)$
- b. O👎
- c. O(log n)
- d. $O(n^3)$

Question 9

Complete

Mark 0.00 out of 1.00

What is the time complexity of accessing an element in an array by its index?

```
int x = arr[i];
```

- a. $O(n^2)$
- b. O(log n)
- c. O(1)
- d. O👎

Question 10

Complete

Mark 1.00 out of 1.00

What is the time complexity of given program

```
void function(int n){
    int i,j,k,count=0;
    for(i=n/2;i<n;i++)
      for(j=1;j+n/2<=n;j=j+1)
        for(k=1;k<=n;k=k*2)
            count++;
}
```

- a. O(n^2)
- b. O(nlogn)
- c. O(n^2logn)
- d. O(logn)

Question 11

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following code?

```
for (int i = 1; i <= n; i *= 2) {
   for (int j = 1; j <= i; j++) {
      System.out.println(j);
   }
}
```

- a. $O(n^2)$
- b. O👎
- c. O(n log n)
- d. O(log n)

Question 12

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following recursive function?

```
int fibonacci(int n) {
   if (n <= 1) return n;
   return fibonacci(n - 1) + fibonacci(n - 2);
}
```

- a. $O(n^2)$
- b. O(n log n)
- c. $O(2^n)$
- d. O👎

Question 13

Complete

Mark 0.00 out of 1.00

What is the space complexity of following code

```
function(int n){
    int a[10];
    for(int i=0;i<10;i++)
        a[i]= i;
}
```

a. O(nlogn)

b. O(log n)

c. O👎

d. O(1)

Question 14

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following code?

```
for (int i = 0; i < n; i++) {
  for (int j = 0; j < n; j++) {
    for (int k = 0; k < n; k++) {
      System.out.println(i + ", " + j + ", " + k);
    }
  }
}
```

a. O(n!)

b. $O(n^2)$

c. $O(n^3)$

d. O(log n)

Question 15

Complete

Mark 1.00 out of 1.00

What is the time complexity of the following recursive function?

```
int factorial(int n) {
  if (n == 0) return 1;
  return n * factorial(n - 1);
}
```

a. O(log n)

b. $O(n^2)$

c. O👎

d. $O(2^n)$

Question 16

Complete

Mark 0.00 out of 1.00

Find the Time complexity of below function.

```
void function(int n){
    if(n < = 1) return ;
    if(n > 1) {
            printf("*");
            function(n/2);
            function(n/2);
           }
}
```

a. O👇

b. O(nlogn)

c. O(n^2)

d. O(n^logn)

Question 17

Complete

Mark 0.00 out of 1.00

When analyzing space complexity, what should be included in the calculation?

a. Only the space used by data structures, such as arrays and linked lists

b. All memory used by the program, including variables, data structures, and the call stack

c. Only the space used by variables declared in the main function

d. Only the space used by global variables

Question 18

Complete

Mark 1.00 out of 1.00

What is the time complexity of finding the maximum element in an unsorted array?

```
int max = arr[0];
for (int i = 1; i < n; i++) {
  if (arr[i] > max) {
     max = arr[i];
  }
}
```

a. O👇

b. O(n log n)

c. $O(n^2)$

d. O(1)