Section: B A

Quiz 4

Roll number: 58

[10]

Q1: What is the time complexity of the following code snippets:

1.
```
void func(int n) {
  for (int i = 1; i < n; i *= 2) {
    cout << i << endl;
  }
}
```
a) O(n) b) O(n log n) c) O(log n) ✓ d) O(n^2)

2.
```
void func(int n) {
  for (int i = 0; i < n; ++i) {
    for (int j = 0; j < n; ++j) {
      cout << i << " " << j << endl;
    }
  }
}
```
a) O(n) b) O(n log n) c) O(n^2) ✓ d) O(n^3)

3.
```
int fun(int n) {
  int count = 0;
  for (int i = n; i > 0; i /= 2) {
    for (int j = 0; j < n; j++) {
      count += 1;
    }
  }
  return count;
}
```
a) O(n) b) O(n log n) c) O(log n) ✓ d) O(n^2)

4.
```
void func(int N, int M) {
  int a = 0, b = 0;
  for (int i = 0; i < N; i++) {
    a = a + rand();
  }
  for (int j = 0; j < M; j++) {
    b = b + rand();
  }
}
```
a) O(N*M) ✓ b) O(N + M) ✓ c) O(N) d) O(M)

5.
```
void func(int N) {
  int a = 0;
  for (int i = 0; i < N; i++) {
    for (int j = N; j > i; j--) {
      a = a + i + j;
    }
  }
}
```
a) O(N) b) O(N * log N) c) O(N * sqrt(N)) d) O(N^2) ✓

Section: B

Quiz 4

Roll number:

6.

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

a) O(n) b) O(n log n) c) O(n^2) d) O(n^2 log n)

7.

```
void func(int n) {
  int value = 0;
  for (int i = 0; i < n; i++) {
    for (int j = 0; j < i; j++) {
      value += 1;
    }
  }
}
```

a) O(n) b) O(n +1) c) O(n(n-1)/2) d) O(n(n+1))

8.

```
void func(int n) {
  for (int i = 0; i < n; i++) {
    for (int j = 0; j < n; j++) {
      for (int k = 0; k < n; k++) {
        cout << i << " " << j << " " << k << endl;
      }
    }
  }
}
```

a) O(n) b) O(n^2) c) O(n^3) d) O(n log n)

9.

```
void func(int n) {
  for (int i = 1; i <= n; i++) {
    for (int j = 1; j <= i; j++) {
      for (int k = 1; k <= j; k++) {
        cout << i << " " << j << " " << k << endl;
      }
  }}
}
```

a) O(n^2) b) O(n^3) c) O(n^4) d) O(n^6)

10.

```
void func(int n) {
  for (int i = 1; i < n; i *= 2) {
    for (int j = 0; j < n; j++) {
      cout << i << " " << j << endl;
    }
  }
}
```

a) O(n log n) b) O(log n) c) O(n^2) d) O(n)