**Quiz CSE 221**

**SET-B**

**Name:**

**Student ID:**

**Question 1 [3+3=6]**:  True or False? Justify any two your answers for

1. 2n4+2 = O(n5)
2. n4.3 ≠ O(n4)
3. = O(logn)
4. ½ n2 -2n = O(*n*2)

**Question 2 [5+5 = 10]:**

Find out the Running Time for the following Code Segments.

Express it in Big-Oh Notation.

Order them in AsymptoticOrder

(i)

intfun(intn)

{

  Int count = 0;

  for(int i = n; i> 0; i /= 2)

     for(int j = 0; j < n; j++)

        count += 1;

  return count;

}

Ans:O(n)

(ii)

for(inti=0;i<n+100; ++i){

for(int j = 0; j<i \* n; ++j){

sum = sum+j;

}

}

for(int k=0; k < n+ n; ++k)

{

c[k] = c[k] + sum

}

Ans: O(n3 + n) = O(n)

**Question 3 [5+2+3=10+2(Bonus)]**:

1. Apply Merge Sort for the following sequence of numbers. Divide the N-element sequence into **Three** Subsequences of **n/3** elements each.

Show the simulation of every step.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 3 | 12 | 5 | 7 | 0 | 4 | 2 | 6 |

1. Write down Recurrence Relation.
2. Draw the Recursion Tree.
3. Compute Total Cost.**(Bonus)**