Course/ Batch: BTech/ SCSET
Course Code: CSET244
Semester: Even
Session: 2024-2025

Course Type: Core
Course Name: Design and Analysis of Algorithms

Tutorial Assignment: Week 2

Tutorial title: Asymptotic notations: Big Oh, Theta, Omega

CO Mapping

Question no	CO1	CO2	CO3
Q1	✓		
Q2	✓		
Q3	✓		
Q4	✓		

Q1. Consider the following two claims:
(i) $2^{n+1} = O(2^n)$?
(ii) $2^{2n} = O(2^n)$?
Which of these claims are correct?

Q2. Let f and g be functions of natural numbers given by f(n)=n and $g(n)=n^2$. Choose the appropriate asymptotic notation(s) that makes the relation correct. Choose all answers that apply.
f(n) = **?**(g(n))

Q3. Consider the following three functions
$f(n)=3n^{\sqrt{n}}$
$g(n)=2^{\sqrt{n}\log_2 n}$
h(n)=n!
Which of these claims is correct?
(i) h(n)=O(f(n))
(ii) h(n)=O(g(n))
(iii) g(n)!=O(f(n))
(iv) f(n)=O(g(n))

Q4. Consider the following two functions: $f(n) = \log_2 n^{\log_2 7}$ and $g(n) = \log_2 7^{\log_2 n}$; what is the asymptotic relationship between f(n) and g(n)?