CS 372/469 – Spring 2022

Homework 1

Due: 02/13/2022 11:59 pm

1) In each of the following situations, indicate whether f = O(g), or f = Ω(g) or both (in which case f = θ(g)) (Each of the 10 sub-questions are worth 10 points)

f(n) g(n)

(a) n-100 n-200

(b) 100n+logn n+ (logn)2

(c) n logn 10n log 10n

(d) 10 log n log(n)2

(e) n1.01 n log2 n

(f) n2/logn n(logn)2

(g) n2n 3n

(h) 2n 2n+1

(i) n! 2n

2) Arrange the following functions in the increasing order of the complexity (10 points)

1) f1(n) = 2n

2) f2(n) = n3/2

3) f3(n) = nlogn

4) f4(n) = nlogn

Submission Instructions: Put all your solutions in a word document file named *hw1\_lastname\_firstname.docx*, then submit it via Canvas.