

**CMPE 300 ANALYSIS OF ALGORITHMS
MIDTERM**

30.11.2010

1. Give the formal definitions of Θ , O , and o . Explain the meaning and importance of each one. Also, explain the meaning of each one using a graphical notation.
2. Comment on the matrix multiplication problem and the matrix multiplication algorithms in general. (You must write all what we have discussed in the lectures. Answering in another way will cause no points to be given. Write the algorithms and analyze. In addition to these algorithms, you must also comment on this problem in terms of complexity analysis.)
3. Define the topological sorting problem. Write an algorithm for solving this problem and analyze its complexity. (Your algorithm must be based on the strategy that is used for such problems. Do not write a different type of algorithm.)
4. What are the two limitations of the asymptotic analysis? Describe each one and give an example for each.

Notes:

- Questions 2,3:30 points; 1:25 points; 4:15 points
- Time: 1:45 hours
- Close notes and books

Bu konak eski paşalardan birinin,
Bu arsa bir mebusundur.
Bir doktorun bu apartıman,
Bu dükkân benim değil...
Bu çarşıya hükmeden Yahudiler.
Bereket versin
Gökyüzünün tapusu yok,
Herkes bakabilir.
Bulutlara kimse el koyamaz
Hayal kurma hürriyeti var.