國立中央大學102學年度碩士班考試入學試題卷

所別：企業管理學系碩士班 企業電子化庚組(一般生)　科目：資料結構　共 1 頁 第 1 頁

本科考試禁用計算器

＊請在試卷答案卷（卡）內作答

參考用

1. (20%) Convert the expression ((a + b) * c - (d - e) ^ (f + g)) to equivalent Prefix and Postfix notations.

2. (20%) Does the minimum spanning tree of a graph give the shortest distance between any 2 specified nodes? Why or why not? Please provide your illustration if needed.

3. (20%) You have only three-dollar and five-dollar stamps. If you have an unlimited supply of these two types of stamps, do you think that there is a number N such that for every n> N, you can make n dollars' worth of postage? Please prove your answer.

4. (20%) If you have ten million named objects and you want to store them in a data structure that lets you insert new objects quickly and search for an object by name quickly, what data structure should you use? Discuss your answer(s) with possible situation(s)

5. (20%) When you visit on your friend's Facebook profile, there is a mutual friend section where common friends are listed. Now let's assume that your friend do the same thing, he/she visit his/her friend other then you, now the people other than common are connected to you by a distance of two. Similarly think you are given two people on Facebook, how do you find this connectivity? (Please draw diagram(s) to illustrate your idea and give your solution in pseudo-code manner, not just verbal description)