TA3110 Mining Engineering I
Final Exam, January 18th, 2007
Open Pit Section – Time 1.5 hours
This is a closed book exam

Answer any three of the following five questions. All questions are of equal value.

1. A. Discuss the limitations placed by pit geometry and safety on increasing the wall angle of an open mine.
   B. Describe why one would wish to increase the bench height of an open pit mine but give two limitations on doing so.

2. A. Describe how the use of the COSR ratio leads to establishing the economic pit limit or to the decision to move underground.
   B. Describe the intermediate stripping ratios which exist within an ultimate pit design.

3. During the past twenty there has been a significant increase in the productive capacity of open pit mining operations. Discuss up to five factors which you see as restricting that expansion in the future.

4. You are planning a mining operation for a major open pit mine. What factors would you have to take into account in planning equipment, blending, stockpiling or waste disposal if the mine is based on the following orebody type?
   A. A porphyry copper mine
   B. An epithermal gold mine
   C. A uranium nine

5. Answer the following short questions on drilling and blasting operations at an open pit mine.

   A. Define blast delay scatter and how it might affect your blasting efficiency.
   B. How would you define an adequate bailing velocity?
   C. How would you modify the burden and spacing by choosing a blast layout?
   D. What are a couple of advantages and disadvantages of larger blasthole sizes?
   E. What three factors define drill productivity?