Instructions. PLEASE WRITE YOUR NAME ON EACH PAGE. Write your answer in the space provided or in an equal space on the back. The space limitation is enforced. Illegible and invisibly tiny writing are penalized. The exam is closed book and closed note. Formulas are on the last page. If you have a question during the exam, please raise your hand.

1. Answer the following:

   (a) Give examples of opportunity cost, side effects, and sunk cost and explain briefly.

   (b) The value of a bond can be separated into the value of the coupon payments and the value of the principal. Suppose the coupons have a market value of $645 and the principal has a market value of $351. What is the value of the bond? Use the concept of no-arbitrage prices to explain your answer.
2. A parent is saving for the college education of a child who will begin college at $t = 15$ years from the present, which is $t = 0$. The child will complete college in four years. The cost of college will be $23,000 per year payable at the beginning of each year. The parent will make equal annual deposits beginning at $t = 0$, and ending the year the child leaves college. The annual interest rate is six percent. How much money must the parent deposit in each year? Show how value builds in the savings account for the first two years.
3. What are the problems involved in using internal rate of return as an investment criterion?