

Questions

- (4-1) Define each of the following terms:
- PV; I; INT; FV_N ; PVA_N ; FVA_N ; PMT; M; I_{NOM}
 - Opportunity cost rate
 - Annuity; lump-sum payment; cash flow; uneven cash flow stream
 - Ordinary (or deferred) annuity; annuity due
 - Perpetuity; consol
 - Outflow; inflow; time line; terminal value
 - Compounding; discounting
 - Annual, semiannual, quarterly, monthly, and daily compounding
 - Effective annual rate (EAR or EFF%); nominal (quoted) interest rate; APR; periodic rate
 - Amortization schedule; principal versus interest component of a payment; amortized loan
- (4-2) What is an *opportunity cost rate*? How is this rate used in discounted cash flow analysis, and where is it shown on a time line? Is the opportunity rate a single number that is used to evaluate all potential investments?
- (4-3) An *annuity* is defined as a series of payments of a fixed amount for a specific number of periods. Thus, \$100 a year for 10 years is an annuity, but \$100 in Year 1, \$200 in Year 2, and \$400 in Years 3 through 10 does *not* constitute an annuity. However, the entire series *does contain* an annuity. Is this statement true or false?
- (4-4) If a firm's earnings per share grew from \$1 to \$2 over a 10-year period, the *total growth* would be 100%, but the *annual growth rate* would be *less than* 10%. True or false? Explain.
- (4-5) Would you rather have a savings account that pays 5% interest compounded semi-annually or one that pays 5% interest compounded daily? Explain.

Self-Test Problems

Solutions Appear in Appendix A

- (ST-1) Assume that 1 year from now you plan to deposit \$1,000 in a savings account that pays a nominal rate of 8%.
- Future Value
- If the bank compounds interest annually, how much will you have in your account 4 years from now?
 - What would your balance be 4 years from now if the bank used quarterly compounding rather than annual compounding?
 - Suppose you deposited the \$1,000 in 4 payments of \$250 each at the end of Years 1, 2, 3, and 4. How much would you have in your account at the end of Year 4, based on 8% annual compounding?
 - Suppose you deposited 4 equal payments in your account at the end of Years 1, 2, 3, and 4. Assuming an 8% interest rate, how large would each of your payments have to be for you to obtain the same ending balance as you calculated in part a?
- (ST-2) Assume that 4 years from now you will need \$1,000. Your bank compounds interest at an 8% annual rate.
- Time Value of Money