

IE 342 18-19 Summeer

Study Set 1

Please do not submit your answers as they will not be graded!!

(Solutions will not be provided)

- 1) John is planning to make two deposits: \$25,000 now and \$30,000 at the end of year 6. He wants to withdraw C each year for the first six years and $(C+1000)$ each year for the next six years. Determine the value of C if the deposits earn 10% interest compounded annually.

Answer: \$5793

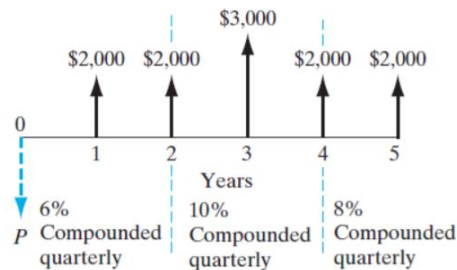
- 2) A fund has grown at a rate of 11% compounded annually since its beginning. If it is anticipated that it will continue to grow at that rate, how much must be invested every year so that \$15,000 will be accumulated at the end of five years?

Answer: \$2,408.56

- 3) The 'Lokma Company' is considering purchasing additional equipment for its four branches in Ankara. The company needs to borrow \$35,000 to purchase the equipment. A deal has been made between a local bank and the company that the company would pay the loan back over a five-year period with the following payment terms: 15%, 20%, 25%, 30%, and 35% of the initial loan at the end of first, second, third, fourth, and fifth years, respectively. Find the rate of interest is the bank earning from this loan? (Find i)

Answer: $i=6.91\%$

- 4) Consider the accompanying cash flow diagram, which represents three different interest rates applicable over the five-year time span shown:



(a) Find P

(b) Find F (at year 5)

(c) Calculate the equal-payment-series cash flow A that runs from $n=1$ to $n=5$

Answer: a) \$8,875 b) \$13,186 c) \$2,194

- 5) What equal series of payments must be paid into a sinking fund to accumulate the following amount?

(a) \$21,000 in 10 years at 6.45% compounded semiannually when payments are semiannual.

(b) \$9,000 in 15 years at 9.35% compounded quarterly when payments are quarterly.

(c) \$24,000 in 5 years at 6.55% compounded monthly when payments are monthly

Answer: a) \$764.4 b) \$70.2 c) \$338.4

- 6) A series of equal quarterly payments of \$5,000 for 12 years is equivalent to what present amount at an interest rate of 9% compounded:
- a) Quarterly?
 - b) Monthly?
 - c) Semi-annually

Answer: a) \$145,848 b) 145,270.0852 and c) $P = \$5000(P/A, 0.2225\%, 48)$

- 7) Ji Chang-Wook is planning to retire in 15 years. Money can be deposited at 8% compounded quarterly. What quarterly deposit must be made at the end of each quarter until he retires so that he can make a withdrawal of \$25,000 semi-annually over the first five years of his retirement? Assume that his first withdrawal occurs at the end of six months after his retirement

Answer: \$1,774.4