

Seminar 1

A. Short Answer Questions

Provide brief responses to the following questions.

A1. What do you understand by the term “value maximization”? Who maximizes this value and why? Explain.

A2. What do you understand by the term “time value of money”? What is its relevance to our understanding of finance? Explain.

B. Multiple Choice Questions

For each question pick the most reasonable response based on the information provided.

B1. If you invest \$50,000 in a savings account paying 6% p.a., the lump sum amount you will have accumulated after five years is closest to:

a. \$50,250. b.\$63,124. c. \$66,911. d. \$67,443.

B2. If you invest \$4,000 every year in a savings account paying 6% p.a., the lump sum amount you will have accumulated after seven years is closest to:

a. \$6,015. b.\$28,000. c. \$28,613. d. \$33,575.

B3. You have just seen the following advertisement at your local bank: “Deposit \$20,000 today and receive \$2,000 per annum forever”. If the first cash flow you receive from the bank is at the end of year 1, the implied annual interest rate that the bank is offering you is closest to:

a. 1.0%. b. 6.0%. c. 8.0%. d. 10.0%.

B4. An investor expects to receive the following cash flows over the next four years where the cash flows are received at the beginning of each year.

Beginning of Year	Cash Flow
1	\$20,000
2	\$20,000
3	\$20,000
4	\$20,000

If the interest rate is 6% p.a. compound annually the present value today of this series of cash flows is closest to:

a. \$56,668. b. \$69,302. c. \$73,460 d. \$80,000.

B5. You have been told that the effective interest rate that BOA Bank is charging on its home loans is 8.33% with interest compounded on a daily basis. Based on this information, the stated (or nominal) interest rate is closest to:

a. 7.80%. b. 8.00%. c. 8.33%. d. 8.67%.

C. Problems

C1. Anne is offered one of the following alternative cash flows:

Alternative 1: \$9,700 now. **Alternative 2:** \$1,850 per year for the next 8 years. **Alternative 3:** \$150 per month for the next 8 years. **Alternative 4:** \$21,000 at the end of 8 years.

If the interest rate on all investments is 10% p.a. compounded monthly, which alternative should Anne choose? Assume end-of-the-period cash flows.

C2. Jack and Jill wish to purchase a new home costing \$200,000 and they plan to make a 20% down payment on the property. First Australia Bank (FAB) will lend them the required funds at a fixed interest rate of 9% per annum for a 25-year period, with monthly payments to begin in one month's time. Assume end-of-month cash flows.

a. Compute the monthly payments that Jack and Jill will make on their home loan.

b. Develop an amortization schedule for the loan for months 1 - 4 and obtain the following information from this schedule.

i. The total amount owed at the end of month 4.

ii. The total interest paid in month 2.

iii. The total principal repaid in month 3.

c. Suppose it is now the end of year 10 (that is, 120 months have elapsed since the funds were first borrowed) and Jack and Jill have decided to repay the amount outstanding in full. What amount do they now need to pay the bank? Assume that Jack and Jill have been making regular monthly payments over the past 10 years.

d. What is the effective annual rate on the loan?

C3. Compute the present value of a £100 cash flow for the following combinations of times and interest rates

a. $r = 10\%$, $t = 5$ years

b. $r = 6\%$, $t = 6$ years

c. $r = 9\%$, $t = 15$ years

- C4.** You would like to travel the world in 5 years' time. You expect the trip to cost £5000. If interest rates are 8%, how much would you need to invest today to fund the proposed trip?
- C5.** You deposit £3000 in the bank today. If interest rates are 5%, how much will have accumulated after 8 years assuming:
- simple interest, and
 - compound interest.
- C6.** Find the interest rates implied by the following combinations of future and present values:

Present Value	Years	Future Value
£100.00	3	£109.27
£250.00	10	£447.71
£630.17	6	£1,000.00

- C7.** Find the APR for each case

Effective annual rate	Interest	Compounding period
16.075%		1 month
10.38%		3 months
8.16%		6 months

- C8.** You want to buy a new car. You can put down £1500 and make monthly payments of £250.
- What is the maximum price you can pay if you finance the purchase over 36 months and the APR is 6%?
 - What is the maximum price you can pay if you finance the purchase over 60 months and the APR is 12%?