

國立臺北科技大學 100 學年度碩士班招生考試

系所組別：4221、4222 經營管理系碩士班乙組

第一節 財務管理 試題

第一頁 共一頁

注意事項：

1. 本試題共 5 題，每題 20 分，配分共 100 分。
2. 作答時可採用中文。
3. 請標明大題、子題編號作答，不必抄題。
4. 全部答案均須在答案卷之答案欄內作答，否則不予計分。
5. 考生得自行攜帶計算機入場應考。

1. A stock offers an expected dividend of \$3.50, has a required return of 14%, and has historically exhibited a growth rate of 6%. Its current price is \$35.00 and shows no tendency to change. How can you explain this price based on the constant growth dividend discount model? (20 points)
2. Low-energy light bulbs typically cost \$3.50, have a life of 9 years, and use about \$1.60 of electricity a year. Conventional light bulbs are cheaper to buy, for they cost only \$0.50. On the other hand, they last only about a year and use about \$6.60 of energy. If the real discount rate is 5%, what is the relative cost of the two products based on equivalent annual annuity? Which light bulb would you suggest to purchase, and why? (20 points)

Annuity Factor Table

no. of years	1%	2%	3%	4%	5%	6%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601

3. Consider the following list of projects:

Project	Investment	NPV
A	405,000	18,000
B	600,000	90,000
C	375,000	60,000
D	450,000	6,000
E	525,000	30,000
F	225,000	30,000
G	240,000	27,000
H	600,000	60,000
I	150,000	12,000
J	270,000	30,000

You are given a budget of only \$1,800,000 to invest in projects. Which projects will you select, in what order will you select them, and why? (20 points)

4. Suppose that in the coming year, you expect Exxon-Mobil stock to have a volatility of 42% and a beta of 0.9, and Merck's stock to have a volatility of 24% and a beta of 1.1. The risk free interest rate is 4% and the market's expected return is 12%.
 - (a.) Which stock has the highest total risk? (5 points)
 - (b.) Which stock has the highest systematic risk? (5 points)
 - (c.) Calculate the cost of capital for a project with the same beta as Exxon Mobil's stock (5 points)
 - (d.) Calculate the cost of capital for a project with the same beta as Merck's stock (5 points)
5. What is a firm's weighted-average cost of capital if the stock has a beta of 1.45, Treasury bills yield 5%, and the market portfolio offers an expected return of 14%? In addition to equity, the firm finances 35% of its assets with debt that has a yield to maturity of 9%. The firm is in the 35% marginal tax bracket. (20 points)