

第一部分:回答下列 6 題單選題，每題 10 分。請作答於答題本”選擇題作答區”上，否則不予計分。

第二部分(填空題):第 7 ~ 10 題，請於答題本上作答，“需列出”計算過程

第一部分：單選題

1. What is not true about number zero.

- A) Even
- B) Additive identity
- C) Additive inverse of zero
- D) All of above are true

2. Concept of the divisibility only exists in set of

- A) natural numbers
- B) integers
- C) rational numbers
- D) real numbers

3. What is the value of the limit as x approaches 0 of $(\sin(x) - x) / x^3$?

- A) $-1/6$
- B) $-1/3$
- C) 0
- D) $1/3$

4. The law of one price implies no arbitrage.

- A) True
- B) False

5. Suppose the Capital Asset Pricing Model (CAPM) holds, and the market return is normally distributed. Then, the market is arbitrage-free.

- A) True
- B) False

6. Assuming the risk-free asset is traded, a valid stochastic discount factor (SDF) projected into the space of returns has the maximal Sharpe ratio.

- A) True
- B) False

第二部分：填充題（共四十分。每題 10 分）

注意事項：

※※所有問題均請詳列計算過程，若只有答案將不予計分※※

※※填充題題型請至少計算至小數點後第二位※※

※※答案請於答題本上標示清楚，如 ANS: XXXXXX ※※

※※一律作答於所附之考試答案本上。若於試題卷上作答者，將不予計分※※

(7)	(7)之答案與計算過程
(8)	(8)之答案與計算過程
(9)	(9)之答案與計算過程
(10)	(10)之答案與計算過程

7. Two years ago the Jynx Restaurant purchased a grill for \$40,000. The owner has learned that a new grill is available that will cook Jynx Patties twice as fast as the existing grill. This new grill can be purchased for \$60,000 and would be depreciated straight line over 8 years, after which it would have no salvage value. The owner expects that the new grill will produce EBITDA of \$35,000 per year for the next eight years while the existing grill produces EBITDA of only \$23,000 per year. The current grill is being depreciated straight line over its useful life of 10 years after which it will have no salvage value. All other operating expenses are identical for both grills. The existing grill can be sold to another restaurant now for \$20,000. The Jynx's tax rate is 33%. Compute the IRR for upgrading to the new grill. If the Jynx's opportunity cost of capital is 15%, then based on the IRR rule, should the Jynx install the new grill? ANS: _____

8. Suppose the term structure of interest rates is shown below:

Term	1 year	2 years	3 years	5 years	8 years	10 years	20 years
Rate (EAR%)	7.00%	6.80%	6.50%	5.00%	4.50%	4.25%	3.50%

Consider an investment that pays \$1000 certain at the end of each of the next four years. If the investment costs \$3,266 and has an NPV of \$166, then the fourth-year risk-free interest rate is closest to? ANS: _____

9. Suppose you have \$22,000 in cash to invest. You decide to sell short \$2,000 worth of MIT stock and invest the proceeds from your short sale, plus your \$22,000 into one-year U.S. treasury bills earning 4%. At the end of the year, you decide to liquidate your portfolio. MIT Industries has the following realized returns:

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國立臺灣大學 112 學年度碩士班招生考試試題

科目：財務管理與財金數學

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	P_0	Div_1	P_1
MIT	\$45.00	\$4.50	\$49.50

The return on your portfolio is closest to? ANS: _____

10. Psyduck's stock has a required return of 17%, and the stock sells for \$77 per share. The firm just paid a dividend of \$7.70, and the dividend is expected to grow by 15% per year for the next 4 years. After $t = 4$, the dividend is expected to grow at a constant rate of $Z\%$ per year forever. What is the stock's expected constant growth rate after $t = 4$?
ANS: _____

試題隨卷繳回