國立中山大學 109 學年度
碩士暨碩士專班招生考試試題

科目名稱：統計學【財管系碩士班甲組、乙組、丙組】

注意事項：各大題的計分方式與配分不完全相同，請參考各部份開頭說明。

第一部份：複選題（1-8 題，總共 70 分，每題 8.75 分且各有 5 個選項，每錯一選項扣 2.5 分，得分低於零分或所有選項均未作答者，該題以零分計）

提醒：第一部份關於假說檢定的題目，顯著水準皆為 0.05；若無特別說明，母體皆為常態分配。此部份有許多 R 語言之指令或報表，如果你/妳未學過或不熟悉 R 語言，請不要慌張，靜心思考每個題目或報表內容與統計學知識的連結。

【題組，包括第 1-6 題】研究者想了解大學生對於「非試不可」網路社群的使用頻率，設計問卷請填答者針對「非試不可」網路社群勾選最符合填答者自己的使用頻率，數字愈大表示使用頻率愈高；1 表示完全不使用，5 表示使用頻率極高。問卷內容如表一所示。

表一：問卷內容

	1	2	3	4	5
非試不可					

　　填答者勾選後，系統會記錄對應的數字，例如：若填答者在 3 對應的空格勾選，系統會記錄 3，其它數字依此類推。研究者亦請填答者填寫性別與就讀年級。所有問題（包括性別、就讀年級、使用頻率）皆有回答，才視為有效問卷。收集 466 份有效問卷資料後，研究者運用 R 語言進行分析。研究者將「非試不可」的填答數據資料令為變數 FS。

1. 研究者使用 summary(FS)這個指令得到「非試不可」的填答結果敘述統計，請問以下哪些或哪一項數據**不會**出現在報表中？

    (A) 平均數　　　　(B) 標準差　　　　(C) 中位數　　　　(D) 第一四分位數　　　　(E) 眾數

2. 承第 1 題，令「非試不可」使用頻率的母體平均數為 μ，研究者使用 t.test(FS, mu=3, alternative="greater") 這個指令得到報表，請參閱下頁表二（其中(??)是指表格中原本有這些數據，作答時若有用到需自行判斷或計算）。以下敘述哪些或哪一項正確？

    (A) 這個檢定的對立假說是 $\mu > 3$。

    (B) (甲)這格數字為正值。

    (C) (乙)這格數字為 464。

    (D) 2.2e-16 即為 2.2^{-16}。

    (E) 母體平均數有 95% 的機率大於 4.5731。

【試題未完，請繼續下一頁】

表二：用於第 2 題

> One Sample t-test
> data: FS
> t = (甲),　df = (乙),　p-value < 2.2e-16
> alternative hypothesis: true mean is greater than 3
> 95 percent confidence interval:
> 4.5731　　　Inf
> sample estimates:
> mean of x
> (??)

3. 承第 1 題，研究者使用 ftable(FS) 這個指令得到報表，請參閱表三。令「非試不可」使用頻率極高的母體比率為 p，研究者設定虛無假說 $H_0 : p = 0.7$，對立假說 $H_1 : p \neq 0.7$，使用指令 prop.test(342,466,0.7,alternative="two.sided",correct = F) 得到報表，請參閱表四。以下敘述哪些或哪一項正確？（註：表格中的(??)是指表格原本有這些數據，作答時若有用到需自行判斷或計算）

(A) 此檢定若使用 Z 分配進行檢定，得到檢定統計量之值四捨五入至小數點後第二位，得到 1.62。

(B) (丙)這格數字為 1。

(C) (丁)這格數字四捨五入至小數點後第三位，得到 0.734。

(D) 此檢定結果為「拒絕虛無假說」。

(E) 如果研究者將 H_0 與 H_1 分別改為 $H_0 : p \geq 0.7$，$H_1 : p < 0.7$，可推斷此檢定之 p-value 是 0.8898。

表三：用於第 3 題

FS	1	2	3	4	5
	(??)	(??)	(??)	(??)	342

表四：用於第 3 題

> 1-sample proportions test without continuity correction
>
> data: 342 out of 466, null probability 0.7
> X-squared =2.551,　df =(丙),　p-value =0.1102
> alternative hypothesis: true p is not equal to 0.7
> 95 percent confidence interval:
> (??)　　　(??)
> sample estimates:
> p
> (丁)

【試題未完，請繼續下一頁】

4. 研究者想了解男生與女生使用「非試不可」頻率的母體變異數是否有顯著不同，將男生、女生於「非試不可」的填答數據資料分別令為變數 male_FS、female_FS。使用指令 var.test(male_FS, female_FS, alternative="two.sided") 得到報表，請參閱表五（其中(??)是指表格中原本有這些數據，作答時若有用到需自行判斷或計算）。以下敘述哪些或哪一項正確？

(A) (戊)這格數字為 0.9394。

(B) 男生樣本有 235 人，女生樣本有 229。

(C) 男生樣本變異數小於女生樣本變異數。

(D) 此檢定結果為『男生與女生使用「非試不可」頻率的母體變異數沒有顯著不同』。

(E) 若將指令改為 var.test(female_FS, male_FS, alternative="two.sided")，亦即 male_FS 與 female_FS 在指令中的順序不同，得到的報表數字不同，檢定結論也會不同。

表五：用於第 4 題

```
        F test to compare two variances

data:  male_FS and female_FS
F = (戊),   num df = 235,   denom df = 229,   p-value = (??)
alternative hypothesis: true ratio of variances is not equal to 1
95 percent confidence interval:
 0.7256    1.2156
sample estimates:
ratio of variances
      0.9394
```

5. 承第 4 題，研究者想了解男生與女生使用「非試不可」頻率的母體平均數是否有顯著不同，使用指令 t.test，考慮兩種指令內容：

第一種指令：t.test(male_FS, female_FS, alternative="two.sided", mu=0, paired=F, var.equal=F)

第二種指令：t.test(male_FS, female_FS, alternative="two.sided", mu=0, paired=F, var.equal=T)

得到兩種報表，請參閱下頁表六、表七（其中(??)是指表格中原本有這些數據，作答時若有用到需自行判斷或計算），其中表六對應於第一種指令，表七對應於第二種指令。以下敘述哪些或哪一項正確？（選項請見下一頁）

【試題未完，請繼續下一頁】

（以下為第 5 題的選項）

(A) 表六(己)這格數字為 464。

(B) 表七(庚)這格數字不是整數。

(C) 男生樣本平均數大於女生樣本平均數。

(D) 根據第 4 題的結論，應該使用第一種指令、使用表六進行分析。

(E) 此檢定結果為『男生與女生使用「非試不可」頻率的母體平均數沒有顯著不同』。

表六：對應於第 5 題的第一種指令

```
    Welch Two Sample t-test

data: male_FS and female_FS
t = 0.96793,    df = (己),    p-value = 0.3336
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -0.06734    0.19807
sample estimates:
mean of x    mean of y
   (??)         (??)
```

表七：對應於第 5 題的第二種指令

```
    Two Sample t-test

data: male_FS and female_FS
t = 0.96832,    df = (庚),    p-value = 0.3334
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -0.06729    0.19802
sample estimates:
mean of x    mean of y
   (??)         (??)
```

【試題未完，請繼續下一頁】

6. 研究者想了解不同就讀年級的學生使用「非試不可」之頻率是否一致，就讀年級(grade)分為大一、大二、大三、大四共四類。使用特定指令得到報表，請參閱表八（其中(??)是指表格中原本有這些數據，作答時若有用到需自行判斷或計算）。以下敘述哪些或哪一項正確？

   (A) (辛)這格數字為 4。

   (B) (壬)這格數字為 0.85。

   (C) (癸)這格數字為 461。

   (D) 此檢定背後有一些假設，其中一項假設是：這四個年級的學生使用「非試不可」之頻率母體變異數一致。

   (E) 此檢定結果為『四個年級的學生使用「非試不可」頻率不完全相同』。

表八：用於第 6 題

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
grade	(辛)	2.55	(壬)	(??)	0.187
Residuals	(癸)	244.22	(??)		

【題組，包括第 7-8 題】

研究者設計迴歸模型如下：$Y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \beta_3 x_{i3} + \beta_4 x_{i4} + \varepsilon_i$，其中 ε_i 為誤差項，i 表示第 i 筆樣本。Y 為連續變數；x_1、x_2 為一般變數(可能是整數、小數、正數、負數或 0，不是虛擬變數)；x_3 為虛擬變數，若第 i 筆樣本具備 A 條件，則令 $x_{i3} = 1$，反之令 $x_{i3} = 0$；$x_{i4} = x_{i1} x_{i2}$，為 x_{i1} 與 x_{i2} 之相乘項。研究者收集 300 筆樣本資料，每筆皆有完整的 y、x_1、x_2、x_3 之觀察值。

7. 研究者使用 R 語言關於迴歸分析的指令得到報表，部份內容參閱下頁表九（其中(??)是指表格中原本有這些數據，作答時若有用到需自行判斷或計算）。以下敘述哪些或哪一項正確？

   （選項請見下一頁）

【試題未完，請繼續下一頁】

（以下為第 7 題的選項）

(A) (子)這格數字介於 0.01 與 0.05 之間。

(B) (丑)這格數字為 296。

(C) 令 $W_i = 10Y_i$，以 W_i 作為新的應變數，所有的自變數不變，則所有係數估計值為表九
對應數字之 10 倍。

(D) 令 $W_i = 10Y_i$，以 W_i 作為新的應變數，所有的自變數不變，則所有 t value 為表九
對應數字之 10 倍。

(E) 應變數為 Y_i，令 $\widetilde{W}_i = 10x_{i2}$，以 $\widetilde{W}_i$ 取代 x_{i2}，其它自變數不變，則 β_2 係數估計值為表九
對應數字之 10 倍。

表九：用於第 7 題與第 8 題

Coefficients:				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	28.6145	1.6412	17.436	< 2e-16 ***
β_1	1.8548	0.4137	4.484	1.05e-05 ***
β_2	1.4888	0.3885	3.832	0.000155 ***
β_3	-4.0970	2.1915	-1.869	0.062551 .
β_4	-0.2242	0.1062	-2.110	(子)　*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 17.94 on (??) degrees of freedom
Multiple R-squared: 0.1046,　　　Adjusted R-squared: 0.09249
F-statistic: 8.618 on 4 and (丑) DF,　　p-value: 1.368e-06

8. 承第 7 題與表九，仍以 Y_i 為應變數，以 x_1、x_2、x_3、x_4 為自變數，以下敘述哪些或哪一項正
確？

(A) 考慮 $H_0 : \beta_2 = 1$，$H_1 : \beta_2 \neq 1$，由表九之資訊可推斷：不拒絕 $H_0 : \beta_2 = 1$。

(B) 由 β_3 之估計值 -4.0970 可知：在其它條件相同的前提下，「A 條件具備與否」顯著影響 Y。

(C) 「x_1 增加時對於 Y 的影響程度」與 x_2 無關。

(D) Adjusted R-squared 小於 0.1，表示：研究者設計的迴歸模型與分析結果不具參考價值。

(E) 表九最下方『p-value: 1.368e-06』之統計意義是：有足夠證據支持 β_1、β_2、β_3、β_4
不全為零。

【試題未完，請繼續下一頁】

第二部份：<u>單選題</u>（9-14 題，總共 30 分，每題 5 分，答錯倒扣 2 分，至多扣至本部份總分為 0 分；未作答者，該題以 0 分計）

【題組，包括第 9-14 題】X 與 Y 為兩個連續隨機變數，聯合機率密度函數如下：

$$f_{X,Y}(x,y) = \begin{cases} c \cdot e^{-2y} & if \quad 0 < x < y \\ 0 & o.w. \end{cases}$$

9. c 值是以下何者，方能使 $f_{X,Y}(x,y)$ 為良好定義之聯合機率密度函數？

(A) 1　　　　(B) 2　　　　(C) 3　　　　(D) 4　　　　(E) 5

10. 期望值 $E(XY)$ 是以下何者？

(A) 0.2　　　　(B) 0.25　　　　(C) 0.5　　　　(D) 0.75　　　　(E) 1

11. 機率值 $P(Y > 2)$ 是以下何者？

(A) $2e^{-2}$　　　(B) $3e^{-2}$　　　(C) $3e^{-4}$　　　(D) $4e^{-4}$　　　(E) $5e^{-4}$

12. 條件期望值 $E(Y|X = 1)$ 是以下何者？

(A) 1.5　　　　(B) 2　　　　(C) 2.5　　　　(D) 2.75　　　　(E) 3

13. 令 U 為隨機變數，其機率密度函數如下：

$$f(u) = \begin{cases} 1 & if \quad 0 < u < 1 \\ 0 & o.w. \end{cases}$$

以下何者的分配與 X 之分配完全一致？

(A) $-\ln(1 - U)$　　　(B) $-\ln\left(\frac{1-U}{U}\right)$　　　(C) $-0.5\ln(1 - U)$　　　(D) $-2\ln(1 - U)$

(E) 以上皆非

14. 令 S_1、S_2、S_3、S_4、S_5 是一組隨機樣本，各變數的分配與 X 之分配完全一致，

令 $T = Min(S_1, S_2, S_3, S_4, S_5)$，以下何者為 T 之期望值？

(A) 0.05　　　　(B) 0.1　　　　(C) 0.2　　　　(D) 0.5　　　　(E) 1

【試題至此全部結束，以下無其他試題】

國立中山大學 109 學年度
碩士暨碩士專班招生考試試題

科目名稱：微積分【財管系碩士班甲組】

一作答注意事項一

考試時間：100 分鐘

- **考試開始鈴響前不得翻閱試題，並不得書寫、劃記、作答。**請先檢查答案卷（卡）之應考證號碼、桌角號碼、應試科目是否正確，如有不同立即請監試人員處理。

- **答案卷限用藍、黑色筆(含鉛筆)書寫、繪圖或標示，**可攜帶橡皮擦、無色透明無文字墊板、尺規、修正液（帶）、手錶(未附計算器者)。每人每節限使用一份答案卷，不得另攜帶紙張，請衡酌作答。

- 答案卡請以 2B 鉛筆劃記，不可使用修正液（帶）塗改，未使用 2B 鉛筆、劃記太輕或污損致光學閱讀機無法辨識答案者，其後果由考生自行負擔。

- 答案卷（卡）應保持清潔完整，不得折疊、破壞或塗改應考證號碼及條碼，亦不得書寫考生姓名、應考證號碼或與答案無關之任何文字或符號。

- 可否使用計算機請依試題資訊內標註為準，如「可以」使用，廠牌、功能不拘，唯不得攜帶具有通訊、記憶或收發等功能或其他有礙試場安寧、考試公平之各類器材、物品（如鬧鈴、行動電話、電子字典等）入場。

- **試題及答案卷 (卡) 請務必繳回，未繳回者該科成績以零分計算。**

- **試題採雙面列印，考生應注意試題頁數確實作答。**

- **違規者依本校招生考試試場規則及違規處理辦法處理。**

本科目共有二十題，每題五分，滿分為一百分。
請於答案卷上詳列計算過程，若只有答案將不予計分。

1. 數列$\{a_n\}$中，已知$a_1 = 1$，$a_{n+1} > a_n$，且$a_{n+1}^2 + a_n^2 + 1 = 2(a_{n+1} \times a_n + a_{n+1} + a_n)$，$S_n$表示數列前面 n 項的總和，求$\lim\limits_{n \to \infty} \dfrac{S_n}{n \times a_n} = $ _____ 。

2. 求$\int_0^1 \int_y^1 e^{\max\{x^2, y^2\}} \, dx \, dy = $ _____ ，$\max\{x^2, y^2\}$ 代表x^2和y^2兩者之間最大值。

3. The total production P of a certain product depends on the amount L of labor used and the amount K of capital investment. When $P = cL^\alpha K^{1-\alpha}$, the maximum production occurs at $mL = \alpha p$ and nK=_____ if $mL + nK = p$.

4. 求$f(x, y) = 5x^2 + 4xy + 2y^2$在$x^2 + y^2 \leq 1$上之絕對極大值和極小值及其所發生之處。

5. In economies, the evaluations of marginal effect and elasticity are commonly applied. Suppose that a variable of y depends on the variable of x, i.e. $y = y(x)$, then

   the marginal effect of x on y is defined as: $\dfrac{dy}{dx}$

   the elasticity of y respect to x is defined as: $\dfrac{x}{y} \cdot \dfrac{dy}{dx}$

   The following equations ①~② describe the relationships between the dependent variable y and the independent variable x. Find the marginal effect of x on y and the elasticity of y respect to x respectively.
   $$\ell n \left[\frac{y}{1-y} \right] = 1 + 2x \quad \cdots\cdots\cdots\cdots\cdots ①$$
   $$\ell n \left[\frac{y}{1-y} \right] = 1 + 2x - x^2 \quad \cdots\cdots\cdots\cdots\cdots\cdots ②$$
   where $\ell n(\cdot)$ is the logarithm operator.

6. Find the Taylor series for $f(x) = \log_e(1 + x)$ about x=0.

7. Evaluate the double integral
   $$\int_{-1}^1 \int_0^{\sqrt{1-x^2}} (x^2 + y^2)^{\frac{3}{2}} \, dy \, dx$$

8. 設某商品的需求函數 D(x)及供給函數 S(x)分別為
   $p = D(x) = -0.1x^2 + 25$；$p = S(x) = 0.4x^2 - 3.5x + 10$
   其中 p 為商品的單位價格，x 為需求量或供給量。
   (1)試求均衡價格。
   (2)試求在均衡價格時的生產者剩餘。

9. What is the minimum value of $f(x, y) = x^2 y$ for $\{(x, y): x^2 + y^2 = 1\}$?

10. Using Taylor's formula, a quadratic approximation of $f(x, y) = \cos x \cos y$ at the origin can be found to be_____.

11. 用$u = x + y$，$v = y - x$之代換，求$\int_0^{\frac{1}{2}} dx \int_x^{1-x} (x - y)^2 e^{(x+y)^2} \, dy$。

12. 求$\lim\limits_{x \to 1} \dfrac{(1 - \sqrt{x})(1 - \sqrt[3]{x}) \cdots (1 - \sqrt[n]{x})}{(1-x)^{n-1}}$。

13. 求$\int_1^4 \sqrt{x}(1 - \sqrt{x})^4 \, dx$。

14. If the least amount of paper per volume is required to make a conical paper cup then the ratio $\dfrac{h}{r}$ of the height h and the radius r of the rim is _____.

15. If $w = e^{\frac{1}{x+y}} \sin(xy)$ and $x = r \cos \theta$, $y = r \sin \theta$. Calculate $\dfrac{\partial w}{\partial r}$ and $\dfrac{\partial w}{\partial \theta}$ at r = 1 and $\theta = \dfrac{\pi}{2}$.

16. Find the interval of convergence of the given power series.

$$\sum_{k=1}^{\infty} \frac{(k!)^2}{(2k)!} x^k$$

17. Use a power series to approximate $\int_0^1 e^{-x^2} dx$ and discuss how to ensure an approximation error of less than 0.01.

18. Find the largest value of z on the surface $3x^2 + 2y^2 + z^2 + xz - yz = 1$.

19. 已知 $\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}$，求 $\int_0^{\infty} x^{\frac{3}{2}} e^{-x} dx$。

20. 求

$$\int_{\ell n4}^{\infty} \frac{dx}{e^x - 1 - 6e^{-x}} = \underline{\qquad}。$$

試題請隨卷繳回，請留意背面是否有題

國立中山大學 109 學年度
碩士暨碩士專班招生考試試題

科目名稱：經濟學【財管系碩士班乙組】

—作答注意事項—

考試時間：100 分鐘

- **考試開始鈴響前不得翻閱試題，並不得書寫、劃記、作答。**請先檢查答案卷（卡）之應考證號碼、桌角號碼、應試科目是否正確，如有不同立即請監試人員處理。

- **答案卷限用藍、黑色筆(含鉛筆)書寫、繪圖或標示，**可攜帶橡皮擦、無色透明無文字墊板、尺規、修正液（帶）、手錶(未附計算器者)。每人每節限使用一份答案卷，不得另攜帶紙張，請衡酌作答。

- 答案卡請以 2B 鉛筆劃記，不可使用修正液（帶）塗改，未使用 2B 鉛筆、劃記太輕或污損致光學閱讀機無法辨識答案者，其後果由考生自行負擔。

- 答案卷（卡）應保持清潔完整，不得折疊、破壞或塗改應考證號碼及條碼，亦不得書寫考生姓名、應考證號碼或與答案無關之任何文字或符號。

- 可否使用計算機請依試題資訊內標註為準，如「可以」使用，廠牌、功能不拘，唯不得攜帶具有通訊、記憶或收發等功能或其他有礙試場安寧、考試公平之各類器材、物品（如鬧鈴、行動電話、電子字典等）入場。

- **試題及答案卷（卡）請務必繳回，未繳回者該科成績以零分計算。**

- **試題採雙面列印，考生應注意試題頁數確實作答。**

- **違規者依本校招生考試試場規則及違規處理辦法處理。**

單選題共 100 分，每題 2.5 分。

For problem 1-2, please use the following estimated demand function

$Q_1=8-2P_1+2P_2-P_3+I$, where Q_1 is the quantity of good 1, P_1 is the own price, P_2 and P_3 are prices of other goods, I=income.

1. What is the "own price elasticity" of demand, when $P_1=P_2=P_3=I=1$?
    A. -1
    B. -1.25
    C. -0.5
    D. -0.25
    E. None of the above

2. Given $P_1=P_2=P_3=I=1$, what is the "income elasticity", E_1?
    A. 0.125
    B. 1.5
    C. 1
    D. -0.5
    E. None of the above

For problem 3-4, please use the following information

	Firm A increases price	Firm A doesn't increase price
Firm B increases price	A's profit=40 B's profit=20	A's profit=26 B's profit=6
Firm B does not increase price	A's profit=8 B's profit=30	A's profit=20 B's profit=10

There is a kinked demand problem with two firms. Each firm assumes that there is a 50% chance the other firm will increase price.

3.　What are the strategies that could maximize each firm's expected profit?

    A. Both firms will increase price
    B. Both firms will not increase price
    C. Firm A will crease price but Firm B will not
    D. Firm B will crease price but Firm A will not
    E. None of the above

4. Assume each firm manager is very risk averse and wants to avoid the worst situation. What are the strategies that each firm may take?
    A. Both firms will increase price
    B. Both firms will not increase price
    C. Firm A will crease price but Firm B will not
    D.　Firm B will crease price but Firm A will not
    E.　None of the above

5. What would be the consequence to the economic society if there exists an asset that had a correlation

of -1 with the market portfolio?
A. There would be less overall risk undertaken and less variation in the economic system.
B. There would be less overall risk undertaken but more variation in the economic system.
C. There would be more overall risk undertaken and more variation in the economic system.
D. There would be more overall risk undertaken but less variation in the economic system.
E. Nothing would change in overall risk taking or in the economic system.

6. You have a Cobb-Douglas Production Function: $Q=AL^\alpha K^\beta$. L is the amount of labor and K is the amount of capital stock. Which of the following production situations could not possible occur?
   A. decreasing returns to scale with diminishing returns to labor and increasing returns to capital stock
   B. increasing returns to scale with diminishing returns to labor and increasing returns to capital stock
   C. decreasing returns to scale with diminishing returns to labor and diminishing returns to capital stock
   D. increasing returns to scale with increasing returns to labor and increasing returns to capital stock
   E. None of the above

7. NSYSU is a monopoly company in Kaohsiung and has the following information.
   Demand curve: P=2-0.3Q
   Production function is Q=L, where Q is output and L is the amount of labor
   To hire L unit of labor, NSYSU needs to pay a wage of 1+0.2L per unit of labor.
   What is the profit maximizing output for NSYSU?
   A. 1
   B. 2
   C. 3
   D. 4
   E. None of the above

For problem 8-9, please use the following information

DOOK is a monopoly company in energy industry and has the following information.
Demand curve: P=120-Q
Marginal cost function: MC=Q

8. Assume the number, α, equals the output that maximizes the sum of supplier and consumer surplus, while the number, β, equals the output that maximizes the profits. What is the combination of (α,β)?

   A. (20, 40)
   B. (40, 60)
   C. (40, 20)
   D. (60, 40)
   E. None of the above

9. What is the total deadweight loss if DOOK decides to pursue the profit maximizing output?
   A. 100
   B. 200
   C. 300
   D. 400
   E. None of the above

10. An investor set up a floating hotel in the North Korean tourist industry. What is the advantage of a

floating hotel over one built on land?
A. Avoids vertical integration
B. Reduces specific investment
C. Equivalent to a complete contract
D. Avoids inventory
E. None of the above

11. In an eBay auction for multiple units of an item, all winning bidders pay the price of the lowest successful bid. This illustrates a _____ .
A. Discriminatory auction
B. Non-discriminatory auction
C. Winner's curse
D. Reserve price
E. None of the above

12. Which of the following statement is associated with *price discrimination mechanism*?
A. Trade credit serves to facilitate the exchange of goods.
B. Holding cash will cause insufficient investment of agency problem between managers and stockholders.
C. Trade credit can allow firms to reduce their precautionary cash.
D. Since trade credit exposes the seller to default risk, offering trade credit reduces the effective price to low-quality borrowers.
E. None of the above

13. Which of the following statements is more likely related to *moral hazard* of using trade credit?
A. Firms not paying dividends are more likely to substitute bank credit with trade credit.
B. Firms that can obtain funds at low cost tend to extend credit to firms that are credit constrained.
C. Upstream firms utilize more trade credit since they are further up in the supply chain and are less sensitive to the success of the final product.
D. Firms that offer trade credit to their customers tend to reduce liquidity reserve and earn excess returns.
E. None of the above

14. If Tina's utility function is $X^{0.5}Y^{0.5}$, where X and Y are two goods. The price of X and Y are $1 and $2, respectively. Currently, Tina has income of 100. What is the maximum utility that Tina can achieve?
A. $25\sqrt{2}$
B. $20\sqrt{2}$
C. $10\sqrt{2}$
D. $15\sqrt{2}$
E. None of the above

For problem 15-17, please use the following information

Consider the utility function $u(\chi_1, \chi_2) = a \ln \chi_1 + b \ln \chi_2$. The budget constraint is $p_1 \chi_1 + p_2 \chi_2 = m$, where p_1 and p_2 are the prices for χ_1 and χ_2, respectively.

15. What is the customer's Marshallian demands for good 1?

A. $x_1 = \dfrac{a}{a+b}\dfrac{m}{p_1}$

B. $x_1 = \dfrac{1}{a+b}\dfrac{m}{p_1}$

C. $x_1 = \dfrac{a}{b}\dfrac{m}{p_1}$

D. $x_1 = \dfrac{b}{a}\dfrac{m}{p_1}$

E. None of the above

16. What is the customer's Marshallian demands for good 2?

A. $x_2 = \dfrac{a}{a+b}\dfrac{m}{p_2}$

B. $x_2 = \dfrac{b}{a+b}\dfrac{m}{p_2}$

C. $x_2 = \dfrac{a}{b}\dfrac{m}{p_2}$

D. $x_2 = \dfrac{b}{a}\dfrac{m}{p_2}$

E. None of the above

17. What is the indirect utility function $v = (p_1, p_2, m)$?

A. $a\ln(\dfrac{a}{a+b}\dfrac{m}{p_1}) + b\ln(\dfrac{b}{a+b}\dfrac{m}{p_2})$

B. $a\ln(\dfrac{a}{b}\dfrac{m}{p_1}) + b\ln(\dfrac{b}{a}\dfrac{m}{p_2})$

C. $a\ln(\dfrac{m}{p_1}) + b\ln(\dfrac{m}{p_2})$

D. $ab\ln(\dfrac{b}{a+b}\dfrac{m}{p_1+p_2})$

E. None of the above

For problem 18-20, please use the following information

An economy has the simple general equilibrium structure:

1) It exists for just two periods. The interest rate is zero and consumers do not care in which period they receive utility.

2) There are only two produced goods. Production occurs only in period 1 and consumption only in period 2. In period 1, labor is the only resource available and each of the N consumers has one unit of labor. All consumers are employed by one and the same monopoly which produces two goods from the production functions $y_1 = N^a$, $y_2 = N^b$; $a, b > 0$. Note that this is a joint production process, where the same labor hired once and is input into both production functions without splitting into two parts.

3) The produced quantities are sold by the monopoly to the consumers in the beginning of period two.

試題請隨卷繳回，請留意背面是否有題

Each consumer has the same utility function $u = x_1^\alpha x_2^\beta$, $\alpha + \beta = 1$, $1 > \alpha, \beta > 0$. The consumer's income is her share of the monopoly's profits from period 1 (these are equally distributed among the consumers), plus wages received in period 1. With this income, each consumer decides her consumption of the two goods at the beginning of period 2.

18. What is the customer's Marshallian demand for good 1?

A. $x_1(p_1, p_2, m) = \alpha \dfrac{m}{p_1}$

B. $x_1(p_1, p_2, m) = \beta \dfrac{m}{p_1}$

C. $x_1(p_1, p_2, m) = (\alpha + \beta) \dfrac{m}{p_1}$

D. $x_1(p_1, p_2, m) = \alpha\beta \dfrac{m}{p_1}$

E. None of the above

19. What is the customer's Marshallian demands for good 2?

A. $x_2(p_1, p_2, m) = \alpha \dfrac{m}{p_2}$

B. $x_2(p_1, p_2, m) = \beta \dfrac{m}{p_2}$

C. $x_2(p_1, p_2, m) = (\alpha + \beta) \dfrac{m}{p_2}$

D. $x_2(p_1, p_2, m) = \beta \dfrac{\alpha m}{p_2}$

E. None of the above

20. What's the indirect utility function of the consumer?

A. $v(p_1, p_2, m) = p_1^{-(\alpha+1)} p_2^{-(\beta+1)} m$

B. $v(p_1, p_2, m) = p_1^\alpha p_2^\beta m$

C. $v(p_1, p_2, m) = p_1^{\alpha+\beta} p_2 m$

D. $v(p_1, p_2, m) = p_1^{-\alpha} p_2^{-\beta} m$

E. None of the above

21. If Taiwan's central bank purchase US$ in the foreign exchange market, what will not happen? (A) NT$ depreciates against U.S.$ (B) U.S.$ appreciates against NT$ (C) Taiwan's interest rates fall (D) Taiwan's money supply falls

22. The recent Taiwan's unemployment rate in percentage term (A) $1\% \leq u < 2\%$ (B) $2\% \leq u < 3\%$ (C) $3\% \leq u < 4\%$ (D) $4\% \leq u < 5\%$

23. The rate of inflation usually reported is (A) the month-to-month percentage change (B) the quarter-to-quarter percentage change (C) the percentage change of a monthly index from the same month a year ago (D) the percentage change of a 6-month index from the previous year

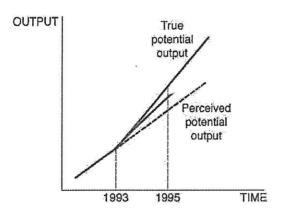24. In making international comparison of GDP, one way is to convert a country's GDP to U.S. dollar

term by the market exchange rate and the other by the exchange rate derived from PPP. From data provided by IMF, the ranking of the 2018 GDP on PPP basis shows (A) U.S. > China > Japan (B) China > U.S. > Japan (C) U.S. > Japan > China (D) China > Japan > U.S.

25. Which of the following counts toward the current GDP? (A) You find $10 on the sidewalk. (B) The local police station buys new patrol cars (C) You fix your own sink (D) You purchase a used stereo from a friend

26. Suppose the following equations compose the AD curve: $Y = C + I + G$; $C = 140 + 0.8Y_d$; $Y_d = Y - T$; $I = 200 - 500r$; $G = 120$; $M/P = L$; $M/P = 100$; $L = 50 + 0.3Y - 500r$. As T increases by 100, what is the horizontal distance the AD moves to the left? (A) $0 \leqq x < 100$ (B) $100 \leqq x < 200$ (C) $200 \leqq x < 300$ (D) $300 \leqq x < 400$ (E) $400 \leqq x$

27. In a typical Keynesian AS-AD model, where the AD is constructed by a typical IS-LM, what happens when autonomous consumption is reduced? (A) the AS curve shifts to the right (B) the AD curve shifts to the right (C) the LM curve shifts to the right (D) the IS curve shifts to the right

28. Suppose there is a typical IS-LM curve:
$Y = C + I + G, \ C = C_0 + \beta Y, \ I = I_0 - \rho r, \ M/P = L_0 + \phi Y - \mu r, \ \beta, \rho, \phi, \mu > 0$. Which of the following will enhance the effect of a money supply increase on income? (A) lower β (B) lower ϕ (C) larger μ (D) lower ρ

29. When a central bank targets interest rates, it adopts a policy to adjust _____ to accommodate _____. (A) money supply; money demand shocks (B) money supply; tax changes (C) money demand; money supply shocks (D) interest rates; money supply

30. The demand for cash is negatively associated with (A) income (B) price level (C) inflation expectations (D) wealth (E) exchange rate

31. Which of the following statements is not true? (A) Menu costs lead to price stickiness. (B) In the classical dichotomy, all prices are flexible (C) Imperfect competition may lead to price inflexibility (D) In the classical dichotomy, a permanent increase in money supply growth leads to a corresponding increase in price but not inflation

32. The chairman of the central bank in 1995 believes that potential output follows the dotted line after 1993, but in actuality, it follows the line denoted "True potential output." The current state of the economy is given by the curve between the two. Given the information in the figure, the chairman _____, because he believes the economy is in a _____, but his decision instead _____. (A) lower interest rates; recession; accelerates inflation (B) raise interest rates; boom; accelerates a recession (C) keep interest rates the same; boom; accelerates inflation (D) lower interest rates; boom; increases unemployment

33. In national income accounting, government spending does not include: (A) transfer payments (B) building highways (C) spending on education (D) spending on defense

34. The life-cycle hypothesis suggests that people base their consumption on their: (A) current incomes (B) average lifetime incomes (C) temporary incomes (D) future incomes (E) past incomes
35. The labor demand curve slopes downward because of: (A) inflexible wages (B) rising wages going along with rising labor demand (C) the diminishing marginal product of labor (D) rising prices
36. Sometimes when discussing inflation, we use a measure of inflation that excludes _____ from its calculation because these prices tend to be volatile. (A) food and housing prices (B) food and energy prices (C) commodity and housing prices (D) clothing and transportation prices
37. Here are some balance of payments data:
    Exports of goods, 100; Imports of goods, 125; Service exports, 90; Service imports, 80
    Income receipts from abroad, 110; Income payments to foreigners, 150
    Increase in home country's ownership of assets abroad, 160
    Increase in foreign ownership of assets in home country, 200
    The balance on financial account is (A) deficits of 40 (B) surpluses of 40 (C) deficits of 80 (D) surpluses of 80
38. Consider the following economy:
    AD: $Y = 450 + 10(M/P)$
    SRAS: $Y = Y^* + P - P^e$
    Okun's law $(Y - Y^*)/Y^* = -2(u - u^*)$
    Full-employment output $Y^* = 500$
    Natural unemployment rate $u^* = 0.06$
    The money supply $M = 1,000$ and the adaptive expected price level $P^e = 50$.
    If the current price level is 100, what is the unemployment rate? (A) $0 \leq u < 0.005$ (B) $0.005 \leq u < 0.01$ (C) $0.01 \leq u < 0.02$ (D) $0.02 \leq u < 0.03$ (E) $0.03 \leq u$
39. Because of automatic stabilizers, various components of the government's budget depend on the level of output, Y. The following are the main components of that budget: Tax revenues $= 1000 + 0.1Y$; Transfers $= 800 - 0.05Y$; Government purchases $= 1600 + 0.1(Y^* - Y)$; Interest payments 100; Full-employment output $Y^* = 10,000$; In a recession, output $= 8,000$. Find the difference between the full-employment fiscal balance and the fiscal balance in recession, D. (A) $0 \leq D < 100$ (B) $100 \leq D < 200$ (C) $200 \leq D < 300$ (D) $300 \leq D < 400$ (E) $400 \leq D$
40. A country can operate a fixed exchange rate and practice independent monetary policy if and only if (A) it eliminates all tariffs (B) it targets a zero inflation rate (C) it imposes wage and price controls (D) it restricts inflows and outflows of financial capital (E) the central bank agrees to monetarize all fiscal deficits

國立中山大學 109 學年度
碩士暨碩士專班招生考試試題

科目名稱：財務管理【財管系碩士班丙組】

第一部分: 單選題（總共 25 題，每題 2 分）

1. (　) A firm has a profit margin of 5%, a return on assets of 9%, and an equity multiplier of 1.5. What is the return on equity? (A) 6.7% (B) 8.4% (C) 11.2% (D) 13.5% (E) 19.6%

2. (　) An increase in which one of the following accounts increases a firm's current ratio without affecting its quick ratio? (A) accounts payable (B) cash (C) inventory (D) accounts receivable (E) fixed assets

3. (　) You are comparing two annuities which offer monthly payments for ten years. Both annuities are identical with the exception of the payment dates. Annuity A pays on the first of each month while annuity B pays on the last day of each month. Which one of the following statements is correct concerning these two annuities?

    (A) Both annuities are of equal value today.

    (B) Annuity B is an annuity due.

    (C) Annuity A has a higher future value than annuity B.

    (D) Annuity B has a higher present value than annuity A.

    (E) Both annuities have the same future value as of ten years from today.

4. (　) The market price of a bond is equal to the present value of the:

    (A) face value minus the present value of the annuity payments.

    (B) face value plus the present value of the annuity payments.

    (C) annuity payments plus the future value of the face amount.

    (D) face value plus the future value of the annuity payments.

    (E) annuity payments minus the face value of the bond.

5. (　) Which of the following statements concerning bond features is (are) correct?

    I. Bondholders generally have voting power in a corporation.

    II. Bond interest is tax-deductible as a business expense.

    III. The repayment of the bond principal is tax-deductible.

    IV. Failure to pay either the interest payments or the bond principle as agreed can cause a firm to go into bankruptcy.

    (A) II only

    (B) I and II only

(C) III and IV only

(D) II, III, and IV only

(E) II and IV only

6. (　) What is the value of a 9-month call with a strike price of $45 given the Black-Scholes Option Pricing Model and the following information? Stock price $48; Exercise price $45; Time to expiration 0.75; Risk-free rate 5%; $N(d_1) = 0.718891$; $N(d_2) = 0.641713$; $2.71828^{-0.05 \times 0.75} = 0.9632$. (A) $6.69 (B) $4.86 (C) $5.96 (D) $8.81 (E) $2.03

7. (　) Assuming the CAPM or one-factor model holds, what is the cost of equity for a firm if the firm's equity has a beta of 1.2, the risk-free rate of return is 2%, the expected return on the market is 9%, and the return to the company's debt is 7%? (A) 10.2% (B) 10.4% (C) 10.08% (D) 10.6% (E) 10.8%

8. (　) The constant dividend growth model:

　I.　assumes that dividends increase at a constant rate forever.

　II.　can be used to compute a stock price at any point in time.

　III.　states that the market price of a stock is only affected by the amount of the dividend.

　IV.　considers capital gains but ignores the dividend yield.

　(A) I only

　(B) II only

　(C) III and IV only

　(D) I and II only

　(E) I, II, and III only

9. (　) The owner of preferred stock:

　(A) has the right to declare the company bankrupt whenever there are insufficient funds to pay dividends to the common shareholders.

　(B) has the right to veto the outcome of an election held by the common shareholders.

　(C) is entitled to a distribution of income prior to the common shareholders.

　(D) has the right to collect payment on any unpaid dividends as long as the stock is non-cumulative preferred.

　(E) receives tax-free dividends if he is an individual and owns more than 20% of the outstanding preferred shares.

10. (　) If a project has a net present value equal to zero, then:

I.　the present value of the cash inflows exceeds the initial cost of the project.

II.　the project produces a rate of return that just equals the rate required to accept the project.

III.　the project is expected to produce only the minimally required cash inflows.

IV.　any delay in receiving the projected cash inflows will cause the project to have a negative net present value.

(A) II and III only

(B) II and IV only

(C) I, II, and IV only

(D) II, III, and IV only

(E) I, II, and III only

11. (　　) You are trying to determine whether to accept project A or project B. These projects are mutually exclusive. As part of your analysis, you should compute the incremental IRR by determining:

(A) the discount rate that equates the discounted payback periods for each project.

(B) the net present value of each project using the internal rate of return as the discount rate.

(C) the internal rate of return for the cash flows of each project.

(D) the internal rate of return for the differences in the cash flows of the two projects

(E) the discount rate that makes the net present value of each project equal to 1.

12. (　) One purpose of identifying all of the incremental cash flows related to a proposed project is to:

(A) eliminate any cost which has previously been incurred so that it can be omitted from the analysis of the project.

(B) isolate the total sunk costs so they can be evaluated to determine if the project will add value to the firm.

(C) identify any and all changes in the cash flows of the firm for the past year so they can be included in the analysis.

(D) include both the proposed and the current operations of a firm in the analysis of the project.

(E) make each project appear as profitable as possible for the firm.

13. (　　) Changes in the net working capital:

(A) can affect the cash flows of a project every year of the project's life.

(B) only affect the initial cash flows of a project.

(C) are included in project analysis only if they represent cash outflows.

(D) are generally excluded from project analysis due to their irrelevance to the total project.

(E) affect the initial and the final cash flows of a project but not the cash flows of the middle years.

14. (　　) Which of the following statements are correct concerning the accounting break-even point?

I. The net income is equal to zero at the accounting break-even point.

II. The net present value is equal to zero at the accounting break-even point.

III. The quantity sold at the accounting break-even point is equal to the total fixed costs plus depreciation divided by the contribution margin.

IV. The quantity sold at the accounting break-even point is equal to the total fixed costs divided by the contribution margin.

(A) I and III only

(B) I and IV only

(C) II and III only

(D) II and IV only

(E) I, II, and IV only

15. (　　) Which one of the following is a correct ranking of securities based on their volatility over the period of 1926 to 2009? Rank from highest to lowest.

(A) small company stocks, long-term corporate bonds, large company stocks

(B) large company stocks, U.S. Treasury bills, long-term government bonds

(C) small company stocks, long-term government bonds, long-term corporate bonds

(D) long-term corporate bonds, large company stocks, U.S. Treasury bills

(E) small company stocks, large company stocks, long-term government bonds

16. (　　) Which one of the following is a correct statement concerning risk premium?

(A) The greater the volatility of returns, the greater the risk premium.

試題請隨卷繳回，請留意背面是否有題

(B) The lower the volatility of returns, the greater the risk premium.

(C) The lower the average rate of return, the greater the risk premium.

(D) The risk premium is not correlated to the average rate of return.

(E) The risk premium is not affected by the volatility of returns.

17. ( ) Estimates using the arithmetic average will probably tend to _____ values over the long-term while estimates using the geometric average will probably tend to _____ values over the short-term.

(A) overestimate; overestimate

(B) overestimate; underestimate

(C) underestimate; overestimate

(D) underestimate; underestimate

(E) none of the above are correct

18. ( ) You are considering purchasing stock S. This stock has an expected return of 8% if the economy booms and 3% if the economy goes into a recessionary period. The overall expected rate of return on this stock will:

(A) increase as the probability of a boom economy increases.

(B) increase as the probability of a recession increases.

(C) vary inversely with the growth of the economy.

(D) be equal to 75% of 8% if there is a 75% chance of a boom economy.

(E) be equal to one-half of 8% if there is a 50% chance of an economic boom.

19. ( ) Which one of the following is an example of a nondiversifiable risk?

(A) a poorly managed firm suddenly goes out of business due to lack of sales

(B) a well managed firm reduces its work force and automates several jobs

(C) a key employee of a firm suddenly resigns and accepts employment with a key competitor

(D) a well respected chairman of the Federal Reserve suddenly resigns

(E) a well respected president of a firm suddenly resigns

20. ( ) The risk premium for an individual security is computed by:

(A) adding the risk-free rate to the security's expected return.

(B) multiplying the security's beta by the risk-free rate of return.

(C) multiplying the security's beta by the market risk premium.

(D) dividing the market risk premium by the beta of the security.

(E) dividing the market risk premium by the quantity (1 − beta).

21. (   ) In an efficient market, the price of a security will:

(A) always rise immediately upon the release of new information with no further price adjustments related to that information.

(B) react to new information over a two-day period after which time no further price adjustments related to that information will occur.

(C) rise sharply when new information is first released and then decline to a new stable level by the following day.

(D) react immediately to new information with no further price adjustments related to that information.

(E) be slow to react for the first few hours after new information is released allowing time for that information to be reviewed and analyzed.

22. (   ) MM Proposition I without taxes is used to illustrate:

(A) the value of an unlevered firm equals that of a levered firm.

(B) that one capital structure is as good as another.

(C) leverage does not affect the value of the firm.

(D) capital structure changes have no effect on stockholder's welfare.

(E) All of the above.

23. (   ) Bryan invested in Bryco, Inc. stock when the firm was financed solely with equity. The firm is now utilizing debt in its capital structure. To unlever his position, Bryan needs to:

(A) borrow some money and purchase additional shares of Bryco stock.

(B) sell some shares of Bryco stock and loan it out such that he creates a personal debt-equity ratio equal to that of the firm.

(C) sell some shares of Bryco stock and hold the proceeds in cash.

(D) maintain his current position as the debt of the firm did not affect his personal leverage position.

(E) create a personal debt-equity ratio that is equal to exactly 50% of the debt-equity ratio of the firm.

24. (　) MM Proposition II is the proposition that:

　　(A) supports the argument that the size of the pie does not depend on how the pie is sliced.

　　(B) supports the argument that the capital structure of a firm is irrelevant to the value of the firm.

　　(C) the cost of equity depends on the return on debt, the debt-equity ratio and the tax rate.

　　(D) the cost of equity is equivalent to the required return on the total assets of a firm.

　　(E) a firm's cost of equity capital is a positive linear function of the firm's capital structure.

25. (　) The MM theory with taxes implies that firms should issue maximum debt. In practice, this is not true because:

　　(A) debt is more risky than equity.

　　(B) bankruptcy is a disadvantage to debt.

　　(C) firms will incur large agency costs of short term debt by issuing long term debt.

　　(D) Both A and B.

　　(E) Both B and C.

第二部分：問答與計算題 (總共 10 題，配分 50 分)
注意事項：
計算題請詳列計算過程，若只有答案將不予計分。
計算題如遇非整數，請至少計算至小數點後第二位。

1. 股神巴菲特旗下的波克夏公司 (Berkshire Hathaway)今年首次前往日本發行日圓債券，總金額高達 40 億美元，刷新非日本企業的發債規模紀錄。請寫出至少兩種企業海外發債籌資相較於海外股權籌資的好處。(10%)

2. 假設哈瑪星公司股票目前價格為$35 元，一投資人以 $3 元購買一個履約價為$35 的哈瑪星公司歐式買權，並且同時以$4 賣出一個履約價為$30 的哈瑪星公司股票歐式買權，則到期時股票為多少，該投資人組成的投資組合獲利為零。(3%)

3. 有一美國國庫券面額$1,000，以下是該國庫券的報價資訊：

Maturity	Day to Maturity	Bid	Ask	Change
June 27,2013	90	4.55	4.30	-0.15

　　若一年以 365 天為基準，購買該 90 天期國庫券的實際報酬率是多少？(美國國庫券一年以 360 天為基準報價)。(3%)

4. 併購過程中，如果遭遇目標公司管理高層反對，但主併公司仍執意持續進行股權收購之惡意併購行為，極可能引起目標公司管理高層或股東以各種方法阻饒。請寫出五種對抗購併之方法，並簡要解釋每種方法內容。(10%)

5. 說明三種公司進行外匯避險常採用的方式。(6%)

6. 根據 CAPM 模型，假設無風險報酬率是 3%，市場報酬率的標準差是 21%，投資組合 A 預期報酬率和標準差分別是 8%和 28%，市場報酬率和投資組合 A 報酬率之間的相關係數是 0.6。投資組合 B 預期報酬率的標準差是 35%，市場報酬率和投資組合 B 報酬率之間的相關係數是 0.8，則投資組合 B 的報酬率是多少？(3%)

7. 某投資計畫期初投入$100 萬元，計畫之後每年扣抵折舊費用前之稅前淨利為$40 萬元，計畫年限為 5 年，並採用直線折舊，殘值為 0，若稅率為 10%，則該計畫會計報酬率 ARR 為多少？(3%)

8. 假設哈瑪星公司今年稅前息前盈餘為 500 萬元，支付利息 40 萬元，公司稅率 20%，流通在外股數 100 萬股，本益比為 10。假設哈瑪星公司新發行賣權，履約價格為 40 元，1 年後到期，已知同條件之買權價值 3.2 元，在無風險利率 4%下，試問哈瑪星公司的賣權合理價格為多少？(3%)

9. 哈瑪星公司目前是一間沒有任何負債的公司，公司股東權益的市場價值為 20,000,000 元，權益資金成本為 25%。哈瑪星公司正打算發行價值 500 萬元的公司債，並將此 500 萬元用來買回公司等值的股票，公司債的年利率為 10%。在不考慮公司稅的情況下，試問在公司購回股票後，公司的權益資金成本將為多少？(3%)

10. 公司 A 與公司 B 皆有 1,000 萬元的融資需求。假設公司 A 與公司 B 於固定利率市場融資利率分別是 7.5%、6%，公司 A 與公司 B 於浮動利率市場融資利率分別是 LIBOR ＋ 1%、LIBOR−1%，試問兩家公司融資成本各是多少？(6%)