科目：經濟學　　　　　　　系所：亞太工商管理學系　　　是否使用計算機：否
考試時間：100 分鐘　　　　本科原始成績：100 分

一、 單選題，每題 2 分，共 40 分

1. Opening trade between two nations would:
   a. shift their production possibilities curves outward.
   b. shift their production possibilities curves inward.
   c. leave the production possibilities unchanged and increase their consumption possibilities.
   d. leave the production possibilities unchanged and decreased their consumption possibilities.

2. Suppose the economy is on the classical range of the aggregate supply curve and has a problem with inflation. According to Keynesian theory, which of the following is an appropriate discretionary fiscal policy to use in this situation?
   a. A reduction in the money supply.
   b. Less government regulation.
   c. Increase federal spending.
   d. Higher taxes.

3. Assume the economy is in recession and real GDP is below full employment. The marginal propensity to consume (MPC) is 0.75, and the government follows Keynesian economics by using expansionary fiscal policy to increase aggregate demand (total spending). If an increase of $1,000 billion aggregate demand can restore full employment, the government should:
   a. increase spending by $250 billion.
   b. decrease spending by $750 billion.
   c. increase spending by $1,000 billion.
   d. increase spending by $750 billion.

4. One way the consumer price index (CPI) differs from the GDP chain price index is that the CPI:
   a. uses current year quantities of goods and services.
   b. includes separate market baskets of goods and services for both base and current years.
   c. includes only goods and services bought by typical urban consumers.
   d. is bias free.

5. Which one of the following persons would be considered unemployed?
   a. A person not working who has given up searching for a job.
   b. A part-time worker looking for a full-time job.
   c. A construction worker who was laid off due to cold weather.
   d. A full-time college student who is not a member of the labor force.

6. A perfectly competitive firm in the short-run maximizes its profit by producing the output where:
   a. marginal cost equals price.
   b. marginal cost equals marginal revenue.
   c. total revenue minus total cost is at a maximum.
   d. all of these.

7. The expenditure approach to GDP accounting includes:
   a. wages and salaries.
   b. net exports.
   c. net interest.
   d. corporate profit.
   e. proprietors' income.

8. The unemployment rate equals the number of persons:
   a. unemployed divided by the number employed.
   b. unemployed divided by the number in the labor force.
   c. unemployed divided by the population age 16 and over.
   d. not working divided by the population age 16 and over.

9. An individual who is employed part time, but is looking for a full-time job, is classified as:
   a. frictionally unemployed.　　　　c. structurally unemployed.
   b. cyclically unemployed.　　　　　d. employed.

10. A rational consumer should *not* consume more of a good when:
    a. total utility is decreasing.
    b. marginal utility is diminishing.
    c. both a and b.
    d. income is decreasing.
    e. the price is high.

11. The fact that a gallon of gasoline commands a higher market price than a gallon of water indicates that:
    a. gasoline is an economic good but water is not.
    b. the marginal utility of gasoline is greater than the marginal utility of a gallon of water.
    c. the average utility of a gallon of gasoline is greater than the average utility of a gallon of water.
    d. the total utility of gasoline exceeds the total utility of water.

科目：經濟學　　　　　系所：亞太工商管理學系　　　　是否使用計算機：否
考試時間：100 分鐘　　　本科原始成績：100 分

12. Which of the following statements *best* describes firms under monopolistic competition?
    a. Profits will be positive in the long run.
    b. Price always equals average variable cost.
    c. In the long run, positive economic profit will be eliminated.
    d. Marginal revenue equals minimum average total cost in the short run.

13. Comparative advantage indicates that:
    a. specialization and exchange will cause trading partners to reduce their joint output.
    b. a nation can gain from trade even when it is at an absolute disadvantage in producing all goods.
    c. trade with low-wage countries will pull down the wages of workers in high-wage countries.
    d. all of these.

14. If nation A has a comparative advantage over nation B in the production of a product, this implies:
    a. it requires fewer resources in A to produce the good than in B.
    b. the cost of producing the good in terms of some other good's production that must be sacrificed is lower in A than in B.
    c. that nation B could not benefit by engaging in trade with A.
    d. that nation A should acquire this product by trading with B.
    e. that nation A could not benefit by engaging in trade with B.

15. Assume the economy is in short-run equilibrium at a real GDP above its potential real GDP. According to classical theory, which of the following policies should be followed?
    a. The Federal Reserve should use open market operations and buy U.S. government securities.
    b. The Federal Reserve should not follow a fixed rule.
    c. The federal government should cut taxes.
    d. Fiscal policy and monetary policy should *not* be activist.

16. The modern view of the Phillips curve suggests that:
    a. when inflation is reduced, unemployment will fall below the natural rate.
    b. the Phillips curve is an unstable relationship.
    c. systematic demand stimulus policies will be unable to affect prices in the long run.
    d. there will be a trade-off between inflation and unemployment in the long run.

17. If nation A has an absolute advantage over nation B in the production of a product, this implies that:
   a. it requires fewer resources in A to produce the good than in B.
   b. the cost of producing the good in terms of some other good's production that must be sacrificed is lower in A than in B.
   c. nation B could not benefit by engaging in trade with A.
   d. nation A should acquire this product by trading with B.
   e. nation A could not benefit by engaging in trade with B.

18. A major difference between a tariff and a quota is that a tariff:
   a. will reduce imports, but a quota generally will not.
   b. can easily be rescinded, but a quota cannot.
   c. will reduce the ability of foreigners to obtain the purchasing power to buy a nation's export goods, but a quota will not affect the foreign demand for the nation's exports.
   d. typically generates tax revenue, while a quota does not.

19. A nation's trade deficit will expand when its:
   a. currency appreciates.
   b. economy is shrinking.
   c. investment environment is less attractive to foreigners.
   d. all of these are true.

20. Economists look at which of the following to get a quick visual expression of income distribution?
   a. Gini coefficient.
   b. IRS records of how much income each household earned.
   c. supply and demand curves for resources.
   d. Lorenz curve.
   e. surveys of business estimates for MRPs.

科目：經濟學　　　　　系所：亞太工商管理學系
考試時間：100 分鐘　　本科原始成績：100 分　　是否使用計算機：否

二、　計算題，共 28 分

1. The DRAM chips industry is a duopoly. The two firms, Hynix (firm 1) and Micron (firm 2), compete through Cournot quantity-setting competition. The demand curve for the industry is **P=100-Q**, where *P* is price and *Q* is the total quantity produced by Hynix and Micron. Currently, each firm has marginal cost of $40 and no fixed costs.

(1) **(4 分)** Please write down the Cournot reaction functions.

(2) **(6 分)** Please calculate the *Cournot equilibrium*.

2. Consider a Solow growth model economy. Suppose the production function is given by

$$Y_t = 8 \cdot K_t^{3/4} \cdot L_t^{1/4},$$

where K_t is the capital stock in time t, and L_t is labor quantity in time t. Suppose the product market and factor markets are all complete competitive markets. For simplicity, we assume capital depreciation rate is zero, labor growth rate is 3%, and saving rate (s) is 60%. The investment function is

$$I_t = \Delta K_t$$

1. **(3 分)** What is the maximum profit for the representative producer?
2. **(6 分)** In the steady state, what are the capital per person and GDP per person?
3. **(6 分)** In the steady state, what is the growth rate of GDP per person ($\Delta Y / Y$)?
4. **(3 分)** Can we use saving rate as a policy tool to raise long run GDP growth rate?

三、　問答題，共 32 分

1. **(16 分)**試以經濟理論分析「一例一休」對台灣經濟短期及長期的影響。

2. **(16 分)**試以經濟理論分析「新南向政策」將如何提昇台灣的競爭力。

科目：管理學　　　　　系所：亞太工商管理學系
考試時間：100 分鐘　　本科原始成績：100 分　　是否使用計算機：否

申論題，共計 1 題(100 分)

<u>請以管理學相關理論或方法為依據，試針對以下個案人物於求職工作過程中遇到的情況或問題，找出跟管理學有所呼應之處，並試從不同角度觀點分析解釋為何會產生這些情況問題，甚至提出如何避免或解決這些情況的看法。</u>

「阿嘉原本是讀於國外商學碩士班學生，畢業之前他開始尋找工作，除了透過人力資源網站投履歷給公司，他也透過在台灣的朋友幫忙介紹工作機會，最後他從朋友那得知他們的公司正在尋找一位資料庫計劃主持人，負責某個資料庫的建置與運轉。阿嘉覺得這個工作很有挑戰性，於是跟該公司主管約定時間前往應徵。因為不是透過一般公開管道徵求新進人員，而是經由公司內部人員介紹的求才方式應徵，因此當天只有阿嘉一位應徵者。應徵過程沒有一般的筆試考試，而是透談中英文面談來進行，最後阿嘉順利被這家公司錄取。進入公司之後，他跟其他新進員工開始為期一個月的訓練，其中包括團體的上課講習，還有個人的計畫撰寫。在這個過程當中，他慢慢了解到該公司的文化，知道公司重視的是什麼，也慢慢地跟組內同事還有組外的同仁建立關係。他的工作內容是擔任某一資料庫計劃主持人，這不是一個永久性的計畫，而是一個為期一年計劃，計畫的成員來自公司內其他組別部門以及外部合作廠商公司人員，計劃完成之後這個團隊就會解散。由於大家都不熟悉彼此，所以花了不少時間在了解其他人的個性或決策風格，也花了不少時間在解決衝突，特別是他們手上也都還有各自公司部門的工作，也因此無法總是把計劃的事情放在第一順位。阿嘉自己也面臨這種情況，他除了要負責這個資料庫，也要同時參與組內其他的工作事務，他的同組同事一共有 6 個人，同時由一位經理人管理，同事們之間的關係時常是又競爭又合作的，因為他們各自有負責的計劃，都想要把自己的計劃作得比別人好，獲得上司的肯定，不過因為每個組員不是全能，所以有時候也需要其他組員們的幫忙來完成計劃工作。工作一陣子之後，阿嘉對於自己所屬的部門組別有幾點看法，第一，跟公司內其他組相較起來，他們這一組的組成成員很不同，特別是在男女比例上，這組只有阿嘉還有他的經理上司是男性，其他成員都是女生；第二，雖然組織架構上，他們組和其他組是平行單位，不過阿嘉觀察到，他的上司經理在公司的地位似乎因為某些原因，所以比其他組部門的經理來得高；第三，阿嘉漸漸意識到，自己的行事風格似乎與他上司的領導風格不符合，因此有時候會產生一些意見不合的衝突。也因為這一點阿嘉產生了離職的念頭，雖然阿嘉認為這個工作的薪水不錯，但是由於跟上司關係不是很好，還有資料庫計劃工作中進行的不順利，導致他覺得在工作上沒有什麼成就感，因此阿嘉開始思考換工作的事。」

科目：統計學　　　　　　系所：亞太工商管理學系　　　是否使用計算機：否
考試時間：100 分鐘　　　本科原始成績：100 分

1. X 為一連續型的隨機變數，其機率密度函數(probability density function)為 $f(x)$，若

$$\int_{-\infty}^{\infty} xf(x)dx = 0.4 ; \qquad \int_{-\infty}^{\infty} x^2 f(x)dx = 1.6$$

試根據才比雪夫定理 (Tchebysheff's Theorem)求 a, b 之值，使得 $P(a < X < b) \geq 0.84$。(15 分)
(注意：本題答案 取到小數點後第 2 位)

2. K 先生是一位在夜市擺彈珠攤的商人，想打彈珠的顧客每一局可將三顆彈珠依序彈出，
   每一顆被彈出之彈珠將落入槽洞 H-1、槽洞 H-2、槽洞 H-3 等三個槽洞的機率分別為 p_1、
   p_2、p_3。每一局結束後，視有彈珠落入之槽洞個數有幾個，來核發該局獎品。假設 $p_1 = 1/4$、
   $p_2 = 1/2$、$p_3 = 1/4$。
   (a) 今隨機觀察一局即將進行的彈珠遊戲，設 N 為該局有彈珠落入之槽洞個數，試求：
       $P(N = n)$, for $n = 1, 2, 3$。 (20 分) (注意：本題答案以最簡分數表示)
   (b) 如果顧客每一局須付給 K 先生\$10，而每一局結束後，有彈珠落入之槽洞個數 N 恰為一
       個、恰為二個、恰為三個，其核發獎品之成本分別為\$20、\$2、\$15。試求：K 先生每
       一局 獲得利潤(net profit)的期望值。 (5 分) (注意：本題答案以最簡分數表示)

3. 每一本「灌籃高手」的重量符合常態分配，均數為 30 公克，標準差為 2 公克。發行「灌
   籃高手」的出版社在出貨時以 25 本「灌籃高手」打包成一綑作為出貨單位，然而為了檢
   核每一綑是否正好為 25 本，該出版社根據 3 個標準差原則換算出 25 本「灌籃高手」的
   合理重量應該要落在 a 公克與 b 公克之間。因此，如果一綑即將出貨的「灌籃高手」經
   過磅後顯示之重量不足 a 公克或者重量超過 b 公克，則該綑將被認定冊數不正確，必須
   以人工作業重數來確認冊數之後，才予以放行出貨；否則，該捆(不管實際上是否為 25
   本)將被認定冊數正確，即可直接放行出貨。假設每一本「灌籃高手」的重量互為獨立。
   (a) 試求：a, b 之值。 (10 分) (注意：本題答案 取到小數點後第 2 位)
   (b) 假設 (a)小題的 a 值被誤算為 476 公克，b 值被誤算為 500 公克，其他條件不變，今有
       一綑實際上只有 16 本的「灌籃高手」，試求：該捆會被直接放行出貨的機率。 (10 分)
       (注意：本題答案以標準常態分配(standard normal distribution)其累積機率函數的表示式
       來呈現，例如：以 $F(z)$ 表示標準常態分配之隨機變數小於等於 z 的機率，其中 z 為常
       數)

科目：統計學　　　　　　系所：亞太工商管理學系　　是否使用計算機：否
考試時間：100 分鐘　　　本科原始成績：100 分

4. 一隨機變數 X，其動差生成函數(moment-generating function) $m_X(t)$ 為

$$E(e^{tX}) = \frac{e^{-t}}{3} + \frac{2e^{2t}}{3}$$，試求：X 的期望值 $E(X)$、X 的變異數 $Var(X)$。 (15 分)

5. 每 30 分鐘，顧客到達結帳櫃台的人數，符合均數為 1 人的卜氏分配(Poisson distribution)。
   (a) 試求：若已知在 0 分鐘到 30 分鐘(含)之間恰有 3 位顧客到達該結帳櫃台，則在 0 分鐘到 10 分鐘(含)之間恰有 1 位顧客到達該結帳櫃台之條件機率。 (15 分) (注意：本題答案以最簡分數表示)
   (b) 試求：在 0 分鐘到 20 分鐘(含)之間恰有 1 位顧客到達該結帳櫃台 且 在 10 分鐘(含)到 30 分鐘(含)之間恰有 2 位顧客到達該結帳櫃台之機率。 (10 分) (注意：本題答案以 e (= 2.71828...)的表示式來呈現)