

國立中山大學100學年度碩士班招生考試試題

科目：經濟學甲【企管系甲班碩士班甲組】

第一部份：單選題，共45分，答對每題3分，答錯不倒扣。

1. If a perfectly competitive firm produces an output level where price is greater than marginal costs, then the firm should
 - A) pay more to its variable factors of production.
 - B) contract output to earn greater profits or smaller losses.
 - C) expand output to earn greater profits or smaller losses.
 - D) leave its output decision unchanged.
2. Generally speaking, demand for a good will be more inelastic
 - A) if few substitutes exist.
 - B) when the good represents a large share of the consumer's budget.
 - C) in the long run.
 - D) when many substitutes exist.
3. The cross price elasticity for bread and potatoes is estimated to be 0.4; this implies bread and potatoes are
 - A) normal goods.
 - B) substitutes.
 - C) unrelated.
 - D) complements.
4. Assume country M and the members of OPEC produce crude oil. Realizing that it would be in their best interests to form an agreement on production goals, a meeting is arranged and an informal, verbal agreement is reached. If both country M and OPEC stick to the agreement OPEC will earn profits of \$20 million and country M will earn profits of \$10 million. If both country M and OPEC cheat then OPEC will earn \$17.5 million and country M will earn \$8 million. If only OPEC cheats, then OPEC earns \$18.5 million and country M \$6 million. If only country M cheats, then country M earns \$11 million and OPEC \$15 million. OPEC finds that it has
 - A) a dominant strategy of cheating.
 - B) a dominated strategy of cheating.
 - C) a dominant strategy of not cheating.
 - D) no dominant strategy.
5. Which of the following would increase the investment component of Taiwan GDP?
 - A) You purchase a new clothes washing machine produced in the Taiwan.
 - B) You purchase a new clothes washing machine produced in China.
 - C) A laundry in Kaohsiung purchases a new clothes-washing machine produced in the Taiwan.
 - D) A laundry in Hong Kong purchases a new clothes-washing machine produced in the Taiwan.
6. Frictional unemployment is:
 - A) the unemployment that results when people retire or leave the labor force.
 - B) the additional unemployment not captured in official statistics resulting from discouraged workers and the involuntary part-time workers.
 - C) the extra unemployment that occurs during periods of recession.
 - D) short-term unemployment that is associated with the process of matching workers with jobs.
7. Why doesn't the Fed have both a money supply target and an interest rate target?
 - A) Only the level of interest rates matters when we consider rates of growth in real GDP, employment, and rates of price inflation.
 - B) Short term interest rates do not respond to changes in the money supply, which the Fed can control.
 - C) The Fed does not control money demand.
 - D) The Fed cannot offset the impact of changes in cash management by the public or changes in lending policies of commercial banks on the money supply.

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8. Your economics professor has announced the following grading policy: For each exam, the highest score in the class will be entered as a 100%; all other scores will be entered as the percent of that top score. For example, if the highest test score is a 50 out of 100, it will be counted as a perfect paper, and exams with a score of 40 out of 100 will be entered as an 80%. The final grade for the course will be determined using these adjusted percentages, with 90% and above an A, 80% and above a B, 70% and above a C and below 70% not passing. The students all get together and decide not to study for the next exam because if nobody does extremely well, they will all do okay. This plan
- A) requires everyone to follow their dominant strategy.
 - B) will be stable because there are no incentives to deviate.
 - C) will be unstable because there is an incentive to break the agreement.
 - D) is a commitment device, and thus stable.
9. To close a recessionary gap, the Fed _____ interest rates which _____ planned aggregate spending and _____ short-run equilibrium output.
- A) lowers; increases; increases
 - B) raises; decreases; increases
 - C) raises; decreases; decreases
 - D) lowers; increases; decreases
10. Other Things being equal, a decrease in the rate of inflation _____ planned spending and _____ short-run equilibrium output.
- A) increases; increases
 - B) increases; decreases
 - C) decreases; decreases
 - D) decreases; increases
11. Government policymakers can respond to an overvalued currency in each of the following ways EXCEPT by:
- A) devaluing the currency.
 - B) restricting international transactions.
 - C) increasing the official value of the currency.
 - D) becoming a demander of the currency in the foreign exchange market.
12. Suppose that the Taiwan can produce 400 million donuts or 10 million cars in a year. China can produce 1600 million donuts or 8 million cars in a year. Both countries will gain from trade if Taiwan _____ cars and China _____ donuts.
- A) exports; exports
 - B) imports; exports
 - C) exports; imports
 - D) imports; imports
13. When aggregate expenditure is less than GDP, which of the following is true?
- A) There was unplanned inventory investment.
 - B) Firms spent more on capital goods than they anticipated.
 - C) All of the above must be true when aggregate expenditure is greater than GDP.
 - D) Households bought more new homes than they anticipated
14. If workers leave a country to seek out better opportunities in another country, then this will
- A) move the original economy down along a stationary short run aggregate supply curve.
 - B) move the original economy up along a stationary short run aggregate supply curve.
 - C) shift the short run aggregate supply curve of the original country to the left.
 - D) shift the short run aggregate supply curve of the original country to the right.

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15. According to the "Taylor rule", the Fed should set the target for the federal funds rate according to an equation that includes
- A) the inflation rate, the equilibrium real federal funds rate, the "inflation gap", and the "output gap".
 - B) the inflation rate, the expected inflation rate, and the rate of growth of real GDP over the last two quarters.
 - C) the unemployment rate, the inflation rate, expected aggregate expenditure, and firm investment.
 - D) the equilibrium level of real GDP, the expected inflation rate, the "credibility gap", and the unemployment rate.

第二部份：計算分析題，55分，請盡可能描述你的經濟邏輯或計算過程。

1. 請列舉完全競爭市場的特性，並說明各項特性的經濟意涵。(15分)
2. 小明經營一間飲料店，人氣商品是青茶。市場調查顯示，潛在顧客大概有 100 人，可分為 A、B 兩群，每群人數各半。其中 A 群顧客比較窮，對於一杯青茶的最高願付價格只有 20 元，B 群則對於一杯青茶的最高願付價格為 35 元。
 - (a) 小明無法辨別來客為 A 群或是 B 群顧客，假設每杯飲料的(平均及邊際)成本為 10 元，請問其青茶最適訂價為何？(5分)
 - (b) 假設小明發現 B 群顧客有一個個特性：喜歡在青茶中加入珍珠，可以額外為其帶來 20 單位(元)的效用；而 A 群顧客則對珍珠沒有特別感覺(只增加為 5 單位效用)，假設每杯的珍珠之成本為 2 元，請問小明該如何對「青茶」與「珍珠青茶」訂價？請說明你的理由。(10分)
3. In U.S., the federal budget exhibited a \$128.7 billion surplus in 2001 but decreased to a deficit of \$157.8 billion in 2002. Some economists argued the deficit was due to the Bush 2001 tax cuts. But others argued that the deficit was due to the recession suffered in 2001. Evaluate the validity of the two arguments. (15分)
4. A homogeneous products duopoly faces a market demand function given by $P = 500 - 10Q$. Both firms have a constant marginal cost of $MC = 200$. What is the Cournot equilibrium quantity per firm and price in this market? (10分)

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第一部份：單選題（佔總分 50%；每題答對得 1.25 分，答錯不扣分）

1. 一個人具有_____，就會行事獨斷，與人保持情感上的距離，並相信為了達到目的，可以不擇手段。
a. 馬基維利性格 b. 自我監控 c. 內在歸因 d. 情緒商數
2. 根據雙因子理論(two-factor theory)，_____能夠確保員工免於不滿足，但卻不一定能促使員工努力工作。
a. 激勵因子 b. 保健因子 c. 幸福因子 d. 效率因子
3. _____是增加垂直方向的工作內容，讓員工對自己的工作有較大的自主權。
a. 工作擴大化 b. 工作責任化 c. 工作豐富化 d. 工作簡單化
4. 組織內部講求整合(integration)的時候，以下那一個管理觀念最重要？
a. 規劃 b. 協調 c. 分工 d. 授權
5. 那一種工作特性可以讓員工體會到工作責任感？
a. 工作自主性 b. 技術變化性 c. 工作重要性 d. 工作完整性
6. 經理人在訂定決策時，將員工的感受與需求列為首要考慮，稱為_____。
a. 生活品質理論 b. 管理人性化 c. 權變理論 d. 開放系統
7. _____是指企業內一套由管理者倡導與員工所認同的行為準則，用來處理企業與消費者、供應者、勞工...等關係。
a. 企業核心價值觀 b. 企業倫理 c. 企業社會責任 d. 企業使命感
8. _____認為，當人們決定某種行為時，是基於這樣的行為可以得到某種預期的成果，而且此成果是具有吸引力的。
a. 目標設定理論 b. 馬斯洛理論 c. 增強理論 d. 期望理論
9. _____是一個喚起以及指引目標行為的心理歷程。
a. 知覺 b. 態度 c. 激勵 d. 壓力
10. 於1970年代末期開始提倡標竿學習(benchmarking)的公司是_____。
a. 福特公司 b. 通用公司 c. 全錄公司 d. 豐田公司
11. 員工對其工作量、薪資、獎勵和其他同事比較起來，會產生一種是否公平的知覺，稱為_____。
a. 程序公正 b. 互動公正 c. 目標公正 d. 分配公正
12. 下列何者不是馬斯洛的需求層級理論裡的需求層次？
a. 生理需求 b. 安全需求 c. 社會責任需求 d. 自我實現需求
13. 管理者維持紀律須處罰員工時，要講求警告性、必懲性、即時性、公平性，所以，應遵循以下何一法則或規律？

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- a. 八十/二十法則 b. 燙爐法則 c. 莫非定律 d. 破窗定律
14. Herbert Simon 對決策者行為的研究，認為大多數管理者做決策時是 _____。
- a. 感性的 b. 主觀理性的 c. 有限度理性的 d. 最佳化的
15. 組織活動必然要發生分工的問題，企業在發展初期多以 _____ 作為一級單位的分工標準。
- a. 地區 b. 產品 c. 功能 d. 顧客
16. 下列何種性質的幕僚，常有學者認為應特別警惕，不可過份運用，有人甚至主張廢止。
- a. 助理性質 b. 副主管性質 c. 綜合性質 d. 專業性質
17. Hackman & Oldham 認為，管理者欲有效地激勵員工，在工作設計上就要注重 _____。
- a. 員工能力 b. 專業化 c. 工作績效的回饋 d. 目標明確化
18. 下列何者是對員工工作情況的一個評估與溝通的過程？
- a. 參與式管理 b. 工作評價 c. 組織分析 d. 績效考核
19. 霍桑研究(Hawthorne Studies)最重要的發現之一是 _____ 對產出的影響。
- a. 參與式決策 b. 照明設施 c. 人際關係 d. 員工工作滿意度
20. 男女薪資如果不能做到同工同酬，最有可能是那一項因素的影響？
- a. 職務權責 b. 風俗習慣 c. 技術與訓練 d. 工作危險程度
21. Henry Mintzberg 將管理者的十種角色分成人際、資訊、決策三大類，下列四種角色中，那一種角色與其他三種角色不屬同一類？
- a. 問題解決者 b. 資源分配者 c. 談判者 d. 頭臉人物
22. 下列何者是虛擬式組織(virtual organizations)最主要的優點？
- a. 組織彈性 b. 控制能力 c. 預測能力 d. 經濟成本
23. 下列何種預測方法須進行反覆的問卷調查？
- a. 德飛法 b. 行銷研究法 c. 時間序列分析 d. 因果預測法
24. _____ 是一種分析與選擇的過程。
- a. 規劃 b. 組織 c. 領導 d. 控制
25. Woodward 研究組織結構，按照“生產技術”將其樣本分成三類，下列何者不屬其中之一？
- a. 自動化生產 b. 單位與小批量生產 c. 大批量與大量生產 d. 程序生產
26. 根據 Burns & Stalker，組織結構可分為機械式與有機式，下列何者是機械式組織的特性之一？
- a. 直線與幕僚劃分清楚 b. 強調創新 c. 專業化程度低 d. 控制幅度寬

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27. 財務表現的衡量指標略分為下列四種 ratios, inventory turnover 屬於那一種?
a. Profit b. Liquidity c. Leverage d. Activity
28. 一般而言，一家公司最重要的財務報表有三種，下列何者不在其中?
a. 資產負債表 b. 營運分析表 c. 損益表 d. 現金流量表
29. 下列何者不是非正式組織 (informal organization) 的形成因素?
a. 組織設計 b. 個人性格 c. 年齡 d. 教育程度
30. Peter Drucker 提倡目標管理，以激勵個人發揮最大潛力，有若干管理的精義，但下列何者不屬於其中之一?
a. 重視參與感 b. 強調團體合作 c. 重視授權 d. 強調領導權威
31. McGregor 提出 Y 理論，對人性行為有些基本假設，下列何者屬其中之一?
a. 追求物質滿足 b. 工作上願意負責 c. 需求層級化 d. 工作合理化
32. 費堯的十四個管理原則中，那一個強調水平單位間的協調?
a. unity of command b. centralization
c. scalar chain d. stability of staff
33. 生產控制可應用不少的方法與控制工具，但下列何者不屬其中之一?
a. 工作命令單 b. 檢驗報告 c. 甘特圖 d. 平衡計分表
34. 根據李克特的管理四典型，他認為若主管只想壓榨部屬，謀取短期成果，採取 _____ 領導方式最為有效。
a. autocratic b. consultative participation
c. paternalistic d. democratic participation
35. 經營管理活動中，比較難以衡量的變數是 _____。
a. 年度銷售水準 b. 產品不良率 c. 員工工作滿意度 d. 顧客滿意度
36. 組織確定宗旨後，即可為員工設定工作目標，理想的目標須具有一些特性，但下列何者應該不屬其中之一?
a. 可以衡量的 b. 容易達成的 c. 有時程的規定 d. 清楚明確的
37. 產品生命週期中，產品價格開始降低的現象最可能發生在那一期?
a. 導入期 b. 成長期 c. 成熟期 d. 衰退期
38. 進行損益平衡分析時，需要一些資料以算出損益兩平點，下列何者最不需要?
a. 固定成本 b. 變動成本 c. 產品售價 d. 存貨週轉率
39. Weber 將權威 (authority) 區分為三種，下列何者不在其中?
a. 魅力型權威 b. 傳統權威 c. 理性法定權威 d. 交換型權威

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40. Barnard 強調合作，提出權威接受論，認為經理人的命令要能被部屬接受，須符合一些條件，但下列何者應該不屬其中之一？
- a. 命令內容與部屬利益完全一致
 - b. 命令內容能讓部屬瞭解
 - c. 命令與組織目標一致
 - d. 命令要求要符合部屬的能力

第二部份：問答題，每題 25 分，共 50 分。

請扼要切題的回答，切忌長篇大論不知所云。

1. 在管理理論的演進中，有所謂的行政管理(administrative management)學派，法國工程師費堯(Henri Fayol)是此學派的立論者之一，試闡述費堯(Henri Fayol)的立論內容及其貢獻。
2. 創造顧客價值是企業經營的重要目標，顧客價值(customer value)可被定義為顧客所獲得的利益(customer benefits)與所付出成本(costs)之間的差距(customer value = customer benefits - costs)，舉例說明企業如何應用行銷組合(marketing mix)構面來創造顧客價值。

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第一部份：單選題，共 30 分，答對每題3分，答錯不倒扣。

1. Suppose a competitive firm and a monopolist are both charging \$5 for their respective outputs. One can infer that
 - A) marginal revenue is \$5 for both firms.
 - B) marginal revenue is \$5 for the competitive firm and less than \$5 for the monopolist.
 - C) marginal revenue is less than \$5 for both firms.
 - D) the competitive firm is charging too much and the monopolist too little.
2. One reason that variable factors of production tend to show diminishing returns in the short run is that
 - A) too much capital equipment is idle.
 - B) there are too many workers using a fixed amount of productive resources.
 - C) the firm has become too large to effectively manage workers.
 - D) the cost of hiring additional workers increases as firms seek to hire more.
3. You have noticed that there is a persistent shortage of teachers in an inner-city school district in your state. Based on this observation, you suspect that
 - A) The wage for teachers at those schools is higher than at other schools in the state.
 - B) The wage for teachers at those schools is lower than the equilibrium wage.
 - C) There is an excess supply of teachers.
 - D) The reservation price among teachers is lower than for other professions.
4. Assume that a profit maximizing monopolist is producing a quantity such that marginal revenue exceeds marginal cost. We can conclude that the
 - A) firm is maximizing profit.
 - B) firm's output is smaller than the profit maximizing quantity.
 - C) firm's output is larger than the profit maximizing quantity.
 - D) firm's output does not maximize profit, but we cannot conclude whether the output is too large or too small.
5. Use the following two statements to answer this question:
 - I. Increasing returns to scale cause economies of scale.
 - II. Economies of scale cause increasing returns to scale.
 - A) Both I and II are true.
 - B) I is true and II is false.
 - C) I is false and II is true.
 - D) Both I and II are false.
6. If a monopolist sets her output such that marginal revenue, marginal cost and average total cost are equal, economic profit must be:
 - A) negative.
 - B) positive.
 - C) zero.
 - D) indeterminate from the given information.
7. If economic profits are negative but accounting profits are positive, then
 - A) accounting profits are less than implicit costs.
 - B) total revenues are greater than the sum of explicit and implicit costs.
 - C) explicit costs exceed total revenues.
 - D) normal profits are zero.
8. In the short-run Keynesian model where the marginal propensity to consume is 0.5, to offset a recessionary gap resulting from a \$1 billion decrease in autonomous consumption, taxes must be:
 - A) increased by \$1 billion.
 - B) decreased by \$1 billion.
 - C) increased by \$2 billion.
 - D) decreased by \$2 billion.

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9. Suppose that the Taiwan can produce 400 million donuts or 10 million cars in a year. China can produce 1600 million donuts or 8 million cars in a year. Both countries will gain from trade if Taiwan _____ cars and China _____ donuts.
- A) exports; exports
 B) imports; exports
 C) exports; imports
 D) imports; imports
10. If the Central Bank pursues an expansionary monetary policy, investment in Taiwan will _____ and net exports will _____.
- A) increase; increase
 B) decrease; decrease
 C) increase; decrease
 D) decrease; increase

第二部份：計算題，請簡列計算過程。答對每題 5 分，答錯不倒扣，共 25 分。

- The CPI in 2000 was 82, and the CPI in 2010 was 202. If you earned a salary of \$300,000 in 2000, what would be a salary with equivalent purchasing power in 2010?
- A monopolist faces the following demand curve and total cost curve for its product: $Q = 200 - 2P$, $TC = 5Q$. Suppose that in addition to the tax, a business license is required to stay in business. The license costs \$1000. What is the profit maximizing level of output?
- Lead cut 3,000 heads of hair in the year 2009 and 3,100 in the year 2010. The price of a haircut was \$70 in 2009 and \$80 in 2010. If the year 2009 is the base year, what was Lead's contribution to real GDP in the year 2010?
- If the annual real rate on a 10-year inflation-protected bond equals 1.9 percent and the annual nominal rate of return on a 10-year bond without inflation protection is 4.4 percent, what average rate of inflation over the ten years would make holders of inflation-protected bonds and holders of bonds without inflation protection equally well off?
- In a country that operates according to Okun's law, real GDP is \$96 trillion, the actual rate of unemployment is 8 percent, and the natural unemployment rate is 6 percent. What is potential GDP in the country?

第三部份：計算分析題，45 分，請盡可能描述你的經濟邏輯或計算過程。

- Suppose a firm has the production function: $Q = 10K^2L^2$, If the wage rate is \$20 per unit of labor and the rental rate of capital is \$100 per unit, how much capital and labor should the firm employ in the long run to maximize output while spending exactly \$10,000? (15 分)
- If firms and workers have adaptive expectations, what impact will expansionary monetary policy have on inflation, unemployment, and the Phillips curve? (15 分)
- How does an increase in government purchases financed by an increase in the deficit affect exchange rates? Support your answer with graphs of the loanable funds market and the foreign exchange market. (15 分)

國立中山大學100學年度碩士班招生考試試題

科目：管理學乙【企管系甲班碩士班乙組】

第一部份：單選題（佔總分 50%；每題答對得 1.25 分，答錯不扣分）

1. 一個人具有_____，就會行事獨斷，與人保持情感上的距離，並相信為了達到目的，可以不擇手段。
a. 馬基維利性格 b. 自我監控 c. 內在歸因 d. 情緒商數
2. 根據雙因子理論(two-factor theory)，_____能夠確保員工免於不滿足，但卻不一定能促使員工努力工作。
a. 激勵因子 b. 保健因子 c. 幸福因子 d. 效率因子
3. _____是增加垂直方向的工作內容，讓員工對自己的工作有較大的自主權。
a. 工作擴大化 b. 工作責任化 c. 工作豐富化 d. 工作簡單化
4. 組織內部講求整合(integration)的時候，以下那一個管理觀念最重要？
a. 規劃 b. 協調 c. 分工 d. 授權
5. 那一種工作特性可以讓員工體會到工作責任感？
a. 工作自主性 b. 技術變化性 c. 工作重要性 d. 工作完整性
6. 經理人在訂定決策時，將員工的感受與需求列為首要考慮，稱為_____。
a. 生活品質理論 b. 管理人性化 c. 權變理論 d. 開放系統
7. _____是指企業內一套由管理者倡導與員工所認同的行為準則，用來處理企業與消費者、供應者、勞工...等關係。
a. 企業核心價值觀 b. 企業倫理 c. 企業社會責任 d. 企業使命感
8. _____認為，當人們決定某種行為時，是基於這樣的行為可以得到某種預期的成果，而且此成果是具有吸引力的。
a. 目標設定理論 b. 馬斯洛理論 c. 增強理論 d. 期望理論
9. _____是一個喚起以及指引目標行為的心理歷程。
a. 知覺 b. 態度 c. 激勵 d. 壓力
10. 於 1970 年代末期開始提倡標竿學習(benchmarking)的公司是_____。
a. 福特公司 b. 通用公司 c. 全錄公司 d. 豐田公司
11. 員工對其工作量、薪資、獎勵和其他同事比較起來，會產生一種是否公平的知覺，稱為_____。
a. 程序公正 b. 互動公正 c. 目標公正 d. 分配公正
12. 下列何者不是馬斯洛的需求層級理論裡的需求層次？
a. 生理需求 b. 安全需求 c. 社會責任需求 d. 自我實現需求
13. 管理者維持紀律須處罰員工時，要講求警告性、必懲性、即時性、公平性，所以，應遵循以下何一法則或規律？

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科目：管理學乙【企管系甲班碩士班乙組】

- a. 八十/二十法則 b. 燙爐法則 c. 莫非定律 d. 破窗定律
14. Herbert Simon 對決策者行為的研究，認為大多數管理者做決策時是 _____。
- a. 感性的 b. 主觀理性的 c. 有限度理性的 d. 最佳化的
15. 組織活動必然要發生分工的問題，企業在發展初期多以 _____ 作為一級單位的分工標準。
- a. 地區 b. 產品 c. 功能 d. 顧客
16. 下列何種性質的幕僚，常有學者認為應特別警惕，不可過份運用，有人甚至主張廢止。
- a. 助理性質 b. 副主管性質 c. 綜合性質 d. 專業性質
17. Hackman & Oldham 認為，管理者欲有效地激勵員工，在工作設計上就要注重 _____。
- a. 員工能力 b. 專業化 c. 工作績效的回饋 d. 目標明確化
18. 下列何者是對員工工作情況的一個評估與溝通的過程？
- a. 參與式管理 b. 工作評價 c. 組織分析 d. 績效考核
19. 霍桑研究(Hawthorne Studies)最重要的發現之一是 _____ 對產出的影響。
- a. 參與式決策 b. 照明設施 c. 人際關係 d. 員工工作滿意度
20. 男女薪資如果不能做到同工同酬，最有可能是那一項因素的影響？
- a. 職務權責 b. 風俗習慣 c. 技術與訓練 d. 工作危險程度
21. Henry Mintzberg 將管理者的十種角色分成人際、資訊、決策三大類，下列四種角色中，那一種角色與其他三種角色不屬同一類？
- a. 問題解決者 b. 資源分配者 c. 談判者 d. 頭臉人物
22. 下列何者是虛擬式組織(virtual organizations)最主要的優點？
- a. 組織彈性 b. 控制能力 c. 預測能力 d. 經濟成本
23. 下列何種預測方法須進行反覆的問卷調查？
- a. 德飛法 b. 行銷研究法 c. 時間序列分析 d. 因果預測法
24. _____ 是一種分析與選擇的過程。
- a. 規劃 b. 組織 c. 領導 d. 控制
25. Woodward 研究組織結構，按照“生產技術”將其樣本分成三類，下列何者不屬其中之一？
- a. 自動化生產 b. 單位與小批量生產 c. 大批量與大量生產 d. 程序生產
26. 根據 Burns & Stalker，組織結構可分為機械式與有機式，下列何者是機械式組織的特性之一？
- a. 直線與幕僚劃分清楚 b. 強調創新 c. 專業化程度低 d. 控制幅度寬

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科目：管理學乙【企管系甲班碩士班乙組】

27. 財務表現的衡量指標略分為下列四種 ratios，inventory turnover 屬於那一種？
a. Profit b. Liquidity c. Leverage d. Activity
28. 一般而言，一家公司最重要的財務報表有三種，下列何者不在其中？
a. 資產負債表 b. 營運分析表 c. 損益表 d. 現金流量表
29. 下列何者不是非正式組織 (informal organization) 的形成因素？
a. 組織設計 b. 個人性格 c. 年齡 d. 教育程度
30. Peter Drucker 提倡目標管理，以激勵個人發揮最大潛力，有若干管理的精義，但下列何者不屬於其中之一？
a. 重視參與感 b. 強調團體合作 c. 重視授權 d. 強調領導權威
31. McGregor 提出 Y 理論，對人性行為有些基本假設，下列何者屬其中之一？
a. 追求物質滿足 b. 工作上願意負責 c. 需求層級化 d. 工作合理化
32. 費堯的十四個管理原則中，那一個強調水平單位間的協調？
a. unity of command b. centralization
c. scalar chain d. stability of staff
33. 生產控制可應用不少的方法與控制工具，但下列何者不屬其中之一？
a. 工作命令單 b. 檢驗報告 c. 甘特圖 d. 平衡計分表
34. 根據李克特的管理四典型，他認為若主管只想壓榨部屬，謀取短期成果，採取 _____ 領導方式最為有效。
a. autocratic b. consultative participation
c. paternalistic d. democratic participation
35. 經營管理活動中，比較難以衡量的變數是 _____。
a. 年度銷售水準 b. 產品不良率 c. 員工工作滿意度 d. 顧客滿意度
36. 組織確定宗旨後，即可為員工設定工作目標，理想的目標須具有一些特性，但下列何者應該不屬其中之一？
a. 可以衡量的 b. 容易達成的 c. 有時程的規定 d. 清楚明確的
37. 產品生命週期中，產品價格開始降低的現象最可能發生在那一期？
a. 導入期 b. 成長期 c. 成熟期 d. 衰退期
38. 進行損益平衡分析時，需要一些資料以算出損益兩平點，下列何者最不需要？
a. 固定成本 b. 變動成本 c. 產品售價 d. 存貨週轉率
39. Weber 將權威 (authority) 區分為三種，下列何者不在其中？
a. 魅力型權威 b. 傳統權威 c. 理性法定權威 d. 交換型權威

國立中山大學100學年度碩士班招生考試試題

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40. Barnard 強調合作，提出權威接受論，認為經理人的命令要能被部屬接受，須符合一些條件，但下列何者應該不屬其中之一？
- a. 命令內容與部屬利益完全一致
 - b. 命令內容能讓部屬瞭解
 - c. 命令與組織目標一致
 - d. 命令要求要符合部屬的能力

第二部份：申論題，佔總分 25%。

在管理理論的演進中，有所謂的行政管理(administrative management)學派，法國工程師費堯(Henri Fayol)是此學派的立論者之一，試闡述費堯(Henri Fayol)的立論內容及其貢獻。

第三部份：申論題，佔總分 25%。

顧客價值(customer value)可被定義為顧客所獲得的利益(customer benefits)與所付出成本(costs)之間的差距(customer value = customer benefits - costs)，舉例說明企業如何應用行銷組合(marketing mix)構面來創造顧客價值。

國立中山大學100學年度碩士班招生考試試題

科目：經濟學丙【企管系甲班碩士班丙組】

第一部份：單選題，共45分，答對每題3分，答錯不倒扣。

1. It costs each lakeside firm \$300 per period to use filters that avoid polluting the lake. However, each firm must use the lake's water in production, so it is also costly to have a polluted lake. The cost to each firm of dealing with water from a polluted lake is \$200 times the number of polluting firms. If the game just be played only once, the equilibrium of this game will be
 - A) both firms pollute.
 - B) only Lago pollutes.
 - C) only Nessie pollutes.
 - D) neither firm pollutes.
2. In a short-run production process, the marginal cost is rising and the average total cost is falling as output is increased. Thus, marginal cost is
 - A) below average total cost.
 - B) above average total cost.
 - C) between the average variable and average total cost curves.
 - D) below average fixed cost.
3. Suppose a competitive firm and a monopolist are both charging \$10 for their respective outputs. One can infer that
 - A) marginal revenue is \$10 for both firms.
 - B) marginal revenue is \$10 for the competitive firm and less than \$10 for the monopolist.
 - C) marginal revenue is less than \$10 for both firms.
 - D) the competitive firm is charging too much and the monopolist too little.
4. One reason that variable factors of production tend to show diminishing returns in the short run is that
 - A) too much capital equipment is idle.
 - B) there are too many workers using a fixed amount of productive resources.
 - C) the firm has become too large to effectively manage workers.
 - D) the cost of hiring additional workers increases as firms seek to hire more.
5. Suppose the demand function is: $Q=a-b*P$, where b is positive and the price P_1 gives us a price elasticity of demand equal to 1. Any price lower than P_1 will move us to the _____ part of the demand curve.
 - A) elastic
 - B) unitary elastic
 - C) inelastic
 - D) perfectly inelastic
6. Assume that a profit maximizing monopolist is producing a quantity such that marginal revenue exceeds marginal cost. We can conclude that the
 - A) firm is maximizing profit.
 - B) firm's output is smaller than the profit maximizing quantity.
 - C) firm's output is larger than the profit maximizing quantity.
 - D) firm's output does not maximize profit, but we cannot conclude whether the output is too large or too small.
7. If demand increases while supply decreases simultaneously, the new equilibrium price is _____ and the new equilibrium quantity is _____.
 - A) lower; lower
 - B) lower; indeterminate
 - C) indeterminate; higher
 - D) higher; indeterminate

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科目：經濟學丙【企管系甲班碩士班丙組】

8. Suppose Job is going to buy a car and a cell phone. Assuming the marginal cost of searching for both is the same, one can predict that Job will
 - A) spend more time searching for the car than the cell phone.
 - B) spend more time searching for the cell phone than the car.
 - C) spend equal amounts of time searching for the cell phone and the car.
 - D) trust the information from her car agent but not from the cell phone salesperson.
9. The bandwagon effect corresponds best to which of the following?
 - A) snob effect.
 - B) external economy.
 - C) negative network externality.
 - D) positive network externality.
10. If a monopolist sets her output such that marginal revenue, marginal cost and average total cost are equal, economic profit must be:
 - A) negative. B) positive.
 - C) zero. D) indeterminate from the given information.
11. The cost-output elasticity equals 1.8; this implies that:
 - A) there are neither economies nor diseconomies of scale.
 - B) there are economies of scale.
 - C) there are diseconomies of scale.
 - D) marginal cost is less than average cost.
12. For a given level of inflation, if bright prospects for the future of the economy cause businesses to increase their spending on new capital, then the _____ shifts _____.
 - A) aggregate demand curve; right
 - B) aggregate demand curve; left
 - C) short-run aggregate supply line; upward
 - D) short-run aggregate supply line; downward
13. To accommodate an adverse inflation shock the Fed must _____, while to offset the effect of an increase in aggregate demand the Fed must _____.
 - A) lower the inflation rate target; adjust the real interest rate target to the level at which saving equals investment in the long run.
 - B) raise the inflation rate target; adjust the real interest rate target to the level at which saving equals investment in the long run.
 - C) maintain the inflation rate target; maintain the real interest rate target
 - D) adjust the real interest rate target to the level at which saving equals investment in the long run; lower the inflation rate target.
14. An increase in the demand for loanable funds will occur if there is
 - A) an increase in expected profits from firm investment projects.
 - B) an increase in the real interest rate.
 - C) an increase in the nominal interest rate accompanied by an equal increase in inflation.
 - D) a decrease in the real interest rate.
15. If workers leave a country to seek out better opportunities in another country, then this will
 - A) move the original economy down along a stationary short run aggregate supply curve.
 - B) move the original economy up along a stationary short run aggregate supply curve.
 - C) shift the short run aggregate supply curve of the original country to the left.
 - D) shift the short run aggregate supply curve of the original country to the right.

國立中山大學100學年度碩士班招生考試試題

科目：經濟學丙【企管系甲班碩士班丙組】

第二部份：計算題，請簡列計算過程。答對每題 5 分，答錯不倒扣，共15分。

1. Assume the money supply in Wonderland is 10,000, and currency held by the public equals bank reserves. The desired reserve/deposit ratio is 0.25. What is the value of Bank reserves?
2. If the annual real rate on a 10-year inflation-protected bond equals 1.9 percent and the annual nominal rate of return on a 10-year bond without inflation protection is 4.4 percent, what average rate of inflation over the ten years would make holders of inflation-protected bonds and holders of bonds without inflation protection equally well off?
3. What is the purchase price of a Treasury bill that pays \$10,000 in one year and has an interest rate of 3 percent?

第三部份：計算分析題，40分，請盡可能描述你的經濟邏輯或計算過程。

An economy is described by the following equations and assumptions.

- ◆ Consumption function $C = 300 + 0.6(Y - T) - 1,000r$, r is real interest rate, expressed as a decimal.
- ◆ Planned investment function: $I^p = 200 - 500r$
- ◆ Government purchase(G) $G = 160$
- ◆ Export(EX) $EX = 50$
- ◆ Import(IM) $IM = 20$
- ◆ Tax $T = 300$
- ◆ Current inflation rate $\pi = 0.06$
- ◆ Desired reserve-deposit ratio = 0.3
- ◆ Money demand function $M^d = 300 - 1,000i$, i is nominal interest rate, expressed as a decimal.
- ◆ People hold money in the form of deposit.
- ◆ Current bank reserves = 54
- ◆ Potential output $Y^* = 900$

According to the above data, please answer the following questions. (40 分，各小題 5 分)

1. Use a graph to show the equilibrium of the money market. Explain why the equilibrium is an "equilibrium."
2. Find the short-run equilibrium output; show it in a Keynesian cross diagram. Does there exist any recessionary gap or expansionary gap? How much is the gap?
3. How can the government adjust (i) G and (ii) T (fiscal policy) to eliminate the output gap? If the government wants to (iii) balance its budget while eliminating the output gap, how can it do?
4. If the nation's central bank wants to eliminate the output gap, it can adjust desired reserve-deposit ratio, how can it do to eliminate the output gap.
5. The central bank's Monetary Policy Reaction Function (MPRF) is $r = r^* + g(\pi - \pi^*)$, what is the meaning of MPRF, and the value of g ?
6. If the central bank sets $r^* = 0.04$, $\pi^* = 0.05$ and $g = 0.8$, derive the AD curve and show it on a AD-AS diagram.
7. Find the short-run and long-run equilibrium output and inflation rate.
8. Suppose initially the economy is in long run equilibrium. An adverse inflation shock (ex, oil price increase) happen and push the inflation rate by 4%, use an AD-AD diagram to show short run and long run equilibrium, and how can the FED do to eliminate the recessionary gap?

國立中山大學100學年度碩士班招生考試試題

科目：商用統計學丙【企管系甲班碩士班丙組選考】

(一) 單選題 (共 25 題, 每題 2 分, 合計 50 分)

1. Quantitative data refers to data obtained with a(n)
 - a. ordinal scale
 - b. nominal scale
 - c. either interval or ratio scale
 - d. only interval scale
2. Statistical inference
 - a. refers to the process of drawing inferences about the sample based on the characteristics of the population
 - b. is the same as descriptive statistics
 - c. is the process of drawing inferences about the population based on the information taken from the sample
 - d. is the same as a census
3. A statistics professor asked students in a class their ages. On the basis of this information, the professor states that the average age of all the students in the university is 24 years. This is an example of
 - a. a census
 - b. descriptive statistics
 - c. an experiment
 - d. statistical inference
4. A tabular method that can be used to summarize the data on two variables simultaneously is called
 - a. simultaneous equations
 - b. crosstabulation
 - c. a histogram
 - d. an ogive
5. In a scatter diagram, a line that provides an approximation of the relationship between the variables is known as
 - a. approximation line
 - b. trend line
 - c. line of zero intercept
 - d. line of zero slope
6. In a cumulative percent frequency distribution, the last class will have a cumulative percent frequency equal to
 - a. one
 - b. 100
 - c. the total number of elements in the data set
 - d. none of the above
7. Since population size is always larger than sample size, then the sample statistic
 - a. can never be larger than the population parameter
 - b. can never be equal to the population parameter
 - c. can be smaller, larger, or equal to the population parameter
 - d. can never be smaller than the population parameter
8. The weights (in pounds) of a sample of 36 individuals were recorded and the following statistics were calculated.
mean = 160 range = 60

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科目：商用統計學丙【企管系甲班碩士班丙組選考】

mode = 165 variance = 324

median = 170

The coefficient of variation equals

- a. 0.1125%
 - b. 11.25%
 - c. 203.12%
 - d. 0.20312%
9. If a six sided die is tossed two times and "3" shows up both times, the probability of "3" on the third trial is
- a. much larger than any other outcome
 - b. much smaller than any other outcome
 - c. 1/6
 - d. 1/216
10. If A and B are independent events with $P(A) = 0.4$ and $P(B) = 0.6$, then $P(A \cap B) =$
- a. 0.76
 - b. 1.00
 - c. 0.24
 - d. 0.20
11. Which of the following is a required condition for a discrete probability function?
- a. $\sum f(x) = 0$
 - b. $f(x) \geq 1$ for all values of x
 - c. $f(x) < 0$
 - d. $\sum f(x) = 1$
12. A continuous random variable may assume
- a. any value in an interval or collection of intervals
 - b. only integer values in an interval or collection of intervals
 - c. only fractional values in an interval or collection of intervals
 - d. only the positive integer values in an interval
13. For any continuous random variable, the probability that the random variable takes on exactly a specific value is
- a. 1.00
 - b. 0.50
 - c. any value between 0 to 1
 - d. almost zero
14. Which of the following is not a characteristic of the normal probability distribution?
- a. The mean, median, and the mode are equal
 - b. The mean of the distribution can be negative, zero, or positive
 - c. The distribution is symmetrical
 - d. The standard deviation must be 1
15. Consider a binomial probability experiment with $n = 3$ and $p = 0.1$. Then, the probability of $x = 0$ is
- a. 0.0000
 - b. 0.0001

國立中山大學100學年度碩士班招生考試試題

科目：商用統計學丙【企管系甲班碩士班丙組選考】

- c. 0.001
d. 0.729
16. A population consists of 500 elements. We want to draw a simple random sample of 50 elements from this population. On the first selection, the probability of an element being selected is
- a. 0.100
b. 0.010
c. 0.001
d. 0.002
17. As the sample size increases, the
- a. standard deviation of the population decreases
b. population mean increases
c. standard error of the mean decreases
d. standard error of the mean increases
18. From a population with a variance of 900, a sample of 225 items is selected. At 95% confidence, the margin of error is
- a. 15
b. 2
c. 3.92
d. 4
19. An estimate of a population parameter that provides an interval of values believed to contain the value of the parameter is known as the
- a. confidence level
b. interval estimate
c. parameter value
d. population estimate
20. The level of significance is the
- a. maximum allowable probability of Type II error
b. maximum allowable probability of Type I error
c. same as the confidence coefficient
d. same as the p -value
21. Your investment executive claims that the average yearly rate of return on the stocks she recommends is more than 10.0%. You plan on taking a sample to test her claim. The correct set of hypotheses is
- a. $H_0: \mu < 10.0\%$ $H_a: \mu \geq 10.0\%$
b. $H_0: \mu \leq 10.0\%$ $H_a: \mu > 10.0\%$
c. $H_0: \mu > 10.0\%$ $H_a: \mu \leq 10.0\%$
d. $H_0: \mu \geq 10.0\%$ $H_a: \mu < 10.0\%$
22. For a two-tailed test at 86.12% confidence, $Z =$
- a. 1.96
b. 1.48
c. 1.09
d. 0.86
23. When developing an interval estimate for the difference between two sample means, with sample sizes of n_1 and n_2 ,
- a. n_1 must be equal to n_2

國立中山大學100學年度碩士班招生考試試題

科目：商用統計學丙【企管系甲班碩士班丙組選考】

- b. n_1 must be smaller than n_2
 c. n_1 must be larger than n_2
 d. n_1 and n_2 can be of different sizes,
24. Independent simple random samples are taken to test the difference between the means of two populations whose standard deviations are not known. The sample sizes are $n_1 = 25$ and $n_2 = 35$. The correct distribution to use is the
- a. Poisson distribution
 b. t distribution with 60 degrees of freedom
 c. t distribution with 59 degrees of freedom
 d. t distribution with 58 degrees of freedom
25. The sampling distribution of $\bar{p}_1 - \bar{p}_2$ is approximated by a
- a. normal distribution
 b. t-distribution with $n_1 + n_2$ degrees of freedom
 c. t-distribution with $n_1 + n_2 - 1$ degrees of freedom
 d. t-distribution with $n_1 + n_2 + 2$ degrees of freedom

(二) 問答題 (共 3 道題, 合計 50 分)

- (1) Consider the following data for two variables
- x
- and
- y
- .

x	y
1	1
4	6
7	9
8	7
9	4
10	3

- a. An estimated regression equation of the form $\hat{y} = b_0 + b_1x$ was developed for the above data and the results are shown below. Comment on the adequacy of this equation for predicting y . Let $\alpha = 0.05$. (10分)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.3052
R Square	0.0932
Adjusted R Square	-0.1335
Standard Error	3.0857
Observations	6

ANOVA

	df	SS	MS	F	Significance F
Regression					
n	1	3.9130	3.9130	0.4110	0.5564
Residual	4	38.0870	9.5217		
Total	5	42			

	Coefficients	Standard Error	t Stat	P-value
Intercept	3.3043	2.9297	1.1279	0.3224
X	0.2609	0.4069	0.6411	0.5564

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- b. Now, another regression equation of the form $\hat{y} = b_0 + b_1x + b_2x^2$ was developed for the above data and results are shown below. Comment on the adequacy of this equation for predicting y . Let $\alpha = 0.05$ (10分)

SUMMARY
OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.9508
R Square	0.9041
Adjusted R Square	0.8401
Standard Error	1.1588
Observations	6

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	37.9713	18.9856	14.1376	0.0297
Residual	3	4.0287	1.343		
Total	5	42			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-2.6808	1.6196	-1.655	0.1964
x	3.6803	0.6960	5.2879	0.0132
x-squared	-0.3133	0.0622	-5.036	0.0151

- (2) Brakes Shop, Inc., is a franchise that specializes in repairing brake systems of automobiles. The company purchases brake shoes from a national supplier. Currently, lots of 1,000 brake shoes are purchased, and each shoe is inspected before being installed on an automobile. The company has decided instead of 100% inspection to adopt an acceptance sampling plan.
- Explain what is meant by the acceptance sampling plan. If the company decides to adopt an acceptance sampling plan, what kinds of risks are there? (10分)
 - The quality control department of the company has decided to select a sample of 10 shoes and inspect them for defects. Furthermore, it has been decided that if the sample contains no defective parts, the entire lot will be accepted. If there are 50 defective shoes in a shipment, what is the probability that the entire lot will be accepted? (5分)

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科目：商用統計學丙【企管系甲班碩士班丙組選考】

- (3) It is believed that sales of books at a local bookstore follow a Poisson distribution. Below you are given information on the number of books sold during a sample of 15-minute intervals.

Number of Books	Frequency
0	2
1	3
2	12
3	16
4	19
5	20
6	18
7	16
8	9
9	<u>5</u>
	120

- a. State the null and alternative hypotheses. (5分)
- b. Compute the test statistic and draw conclusion of the test with $\alpha = 0.05$, given that $\chi^2_{7;0.05} = 14.067$ (10分)

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科目：微積分丙【企管系甲班碩士班丙組選考】

答案請按題號順序寫在答案卷上，違者扣分。

Are the following statements (1~10) true or false? Give an explanation for your answer or a counterexample if the answer is false.

1. There is a function which is continuous on $[0,4]$ but not differentiable at $x=3$. (5%)
2. If a function is continuous, then it is differentiable. (5%)
3. If $f(a) \neq g(b)$, then $f'(a) \neq g'(b)$. (5%)
4. The derivative of a polynomial is always a polynomial. (5%)
5. Suppose f'' and g'' exist and f and g are concave up for all x . Then $f(x)g(x)$ is concave up. (5%)
6. If $f'(x) = g'(x)$, then $f(x) = g(x)$. (5%)
7. If $f''(x) > 0$, then $f'(x)$ is increasing. (5%)
8. A critical point of f must be a local maximum or minimum of f . (5%)
9. Since $f(x) = 1/x$ is continuous for all $x > 0$, and the interval $(0,1)$ is bounded, f has a maximum on the interval $(0,1)$. (5%)
10. If $g'(a) \neq 0$, then $\lim_{x \rightarrow a} f(x)/g(x) = f'(x)/g'(x)$. (5%)

Calculate the following (11~18) (5% each)

$$11. \int (3e^x + 2 \sin x) dx$$

$$12. \int \frac{5}{\sqrt{x}} dx$$

$$13. \int \left(\frac{x+1}{x} \right) dx$$

$$14. \int (x^4 e^{3x}) dx$$

$$15. \int (x^2 e^{x^3+1}) dx$$

$$16. \frac{d}{dx} \int_2^{x^3} \sin t^2 dt$$

$$17. \int_0^1 \int_y^1 e^{x^2} dx dy$$

$$18. \text{Approximate } \int_0^1 \sqrt{4-x^2} dx$$

(hint: using Taylor series)

19. You run a small furniture business. You sign a deal with a customer to deliver up to 400 tables, the exact number to be determined by the customer later. The price will be \$900 per table up to 300 tables, and above 300, the price will be reduced by \$2.5 per table (on the whole order) for every additional chair over 300 ordered. What are the largest and smallest revenues your company can make under this deal? (10%)

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科目：經濟學丁【企管系甲班碩士班丁組】

第一部份：單選題，共45分，答對每題3分，答錯不倒扣。

1. The introduction of refrigerators into home market:
 - A) decreased the short run own price elasticity of demand for raw meat.
 - B) did not affect the short run own price elasticity of demand for raw meat.
 - C) increased the short run own price elasticity of demand for raw meat.
 - D) decreased the short run own price elasticity of demand for smoked meats.
2. Holiday Burgers has discovered there are economies of scope available to the restaurant. Which is most likely to be a response to this discovery?
 - A) Holiday adds more varied inputs to burger production.
 - B) Holiday expands burger production, focusing on that one good.
 - C) Holiday contracts burger production.
 - D) Holiday adds grilled chicken sandwiches to the menu.
3. Season ticket holders for the baseball team *7-11 Lions* received a surprise when they received their applications to renew their season tickets. In order to get your season ticket to the *7-11 Lions*' home games, you had to buy tickets to the preseason games. Many season ticket holders grumbled about this practice as an underhanded way for the *7-11 Lions* to get more money from its season ticket holders. This practice is an example of:
 - A) peak-load pricing.
 - B) intertemporal price discrimination.
 - C) two-part tariff.
 - D) bundling.
4. Generally speaking, demand for a good will be more inelastic
 - A) if few substitutes exist.
 - B) when the good represents a large share of the consumer's budget.
 - C) in the long run.
 - D) when many substitutes exist.
5. The cost-output elasticity equals 1.6; this implies that:
 - A) there are neither economies nor diseconomies of scale.
 - B) there are economies of scale.
 - C) there are diseconomies of scale.
 - D) marginal cost is less than average cost.
6. If it is impossible or highly costly to prevent consumers from consuming a good when they have not paid for it, the good is a(n) _____ good.
 - A) nonexcludable
 - B) pure public
 - C) private
 - D) nonrival
7. Which of the following statements is true regarding the differences between economic and accounting costs?
 - A) Accounting costs include all implicit and explicit costs.
 - B) Economic costs include implied costs only.
 - C) Accountants consider only implicit costs when calculating costs.
 - D) Accounting costs include only explicit costs.

國立中山大學100學年度碩士班招生考試試題

科目：經濟學丁【企管系甲班碩士班丁組】

8. When the production process extends over more than one year, the value of the final product is:
- A) included in GDP for the year in which production began.
 - B) included in GDP for the year in which production was completed.
 - C) allocated to GDP in each year according to the value added in that year.
 - D) allocated equally to GDP in each year.
9. Real GDP per person in country R is \$2,000, while real GDP per person in country P is \$1,000. However, country R's real GDP per person is growing at 1% per year and country P's is growing at 2% per year. After 50 years, real GDP per person in country R minus real GDP in country P is
- A) greater than \$10,000
 - B) positive, but less than \$10,000
 - C) zero
 - D) negative
10. Other things being equal, if terrorist attacks increase the desire for precautionary saving, then the real interest rate will _____ and the equilibrium quantity of saving and investment will _____.
- A) increase; increase
 - B) decrease; decrease
 - C) increase; decrease
 - D) decrease; increase
11. Other things being equal, a decrease in the rate of inflation _____ planned spending and _____ short-run equilibrium output.
- A) increases; increases
 - B) increases; decreases
 - C) decreases; decreases
 - D) decreases; increases
12. If the market equilibrium value of the nominal exchange rate equals 0.11 U.S. dollars per yen, but the yen is officially fixed at 0.12 U.S. dollars per yen, then the yen exchange rate is _____ and to maintain this exchange rate there will be _____ in the government's stock of international reserves.
- A) undervalued; a net decline
 - B) undervalued; a net increase
 - C) overvalued; a net increase
 - D) overvalued; a net decline
13. If a Japan firm produces cars in the United States, that production should count towards
- A) both U.S. GNP and Japan GDP.
 - B) U.S. GDP.
 - C) Japan GDP.
 - D) U.S. GNP
14. An increase in public savings has what impact on the market for loanable funds?
- A) The supply of loanable funds increases.
 - B) The demand for loanable funds decreases.
 - C) The supply of loanable funds decreases.
 - D) The demand for loanable funds increases.
15. Expansionary fiscal policy _____ the price level and _____ equilibrium real GDP.
- A) decreases; increases
 - B) increases; increases
 - C) increases; decreases
 - D) decreases; decreases

國立中山大學100學年度碩士班招生考試試題

科目：經濟學丁【企管系甲班碩士班丁組】

第二部份：計算分析題，共 55 分，請盡可能描述你的經濟邏輯或計算過程。

- 當某一商品的價格上漲或是下降時，會產生兩種效果：替代效果(Substitution effect)與所得效果(Income effect)，請回答下列問題：(15 分，各小題 5 分)
 - 請解釋這兩種效果，並利用這兩種效果來說明需求法則。
 - 何謂劣等財(Inferior good)? 何謂季芬財(Giffen goods)?
 - 你覺得「季芬財一定是劣等財」，還是「劣等財一定是季芬財」？為什麼？
- 假設你很不喜歡聞到菸味，但你租屋在外，剛好有一位室友非常喜歡在租屋處抽菸，他每天的抽菸成本與效用、以及二手菸對於你的傷害(量化為金錢後)如下表。

菸量(根)/ 天	對你室友		對你
	總成 本	總效 用	總傷 害
1	6	21	5
2	12	39	12
3	18	54	21
4	24	66	32
5	30	75	45
6	36	81	60
7	42	84	77
8	48	84	96

請利用上表回答下列問題：

- 請問對你室友而言，每天最適的抽菸量 Q_p 為何？對於整個房子而言，最適的抽菸量 Q_t 又為何？請繪圖並計算 Q_p 與 Q_t 。(10 分)
 - 如果目前你室友的抽菸量為 Q_p ，請問 Coase Theorem 告訴你要如何談判才能邁向 Q_t ？(5 分)
- Explain why increasing the government budget deficit can decrease investment spending. (10 分)
 - In a particular U.S. market, quantity demanded is given by $Q^d = 500 - 20P$ and quantity supplied is given by $Q^s = 50 + 30P$. The world price for this product is \$6, and an unlimited amount can be purchased at this price. (15 分，各小題 5 分)
 - With imports prohibited by the U.S., what is the domestic equilibrium price and quantity?
 - Now suppose the government opens up the U.S. economy to free trade. How will this affect the equilibrium market price, the quantity supplied by domestic suppliers, the quantity purchased by domestic consumers, and the level of imports?
 - Finally, suppose the government sets a tariff of \$2 per unit. How will this affect the equilibrium market price, the quantity supplied by domestic suppliers, the quantity purchased by domestic consumers, and the level of imports?

(一) 單選題 (共 25 題, 每題 2 分, 合計 50 分)

1. The nominal scale of measurement has the properties of the
 - a. ordinal scale
 - b. only interval scale
 - c. ratio scale
 - d. None of these alternatives is correct.
2. Statistical inference
 - a. refers to the process of drawing inferences about the sample based on the characteristics of the population
 - b. is the same as descriptive statistics
 - c. is the process of drawing inferences about the population based on the information taken from the sample
 - d. is the same as a census
3. A statistics professor asked students in a class their ages. On the basis of this information, the professor states that the average age of all the students in the university is 24 years. This is an example of
 - a. a census
 - b. descriptive statistics
 - c. an experiment
 - d. statistical inference
4. A tabular method that can be used to summarize the data on two variables simultaneously is called
 - a. simultaneous equations
 - b. crosstabulation
 - c. a histogram
 - d. an ogive
5. In a scatter diagram, a line that provides an approximation of the relationship between the variables is known as
 - a. approximation line
 - b. trend line
 - c. line of zero intercept
 - d. line of zero slope
6. In a cumulative percent frequency distribution, the last class will have a cumulative percent frequency equal to
 - a. one
 - b. 100
 - c. the total number of elements in the data set
 - d. none of the above
7. Since the population size is always larger than the sample size, then the sample statistic
 - a. can never be larger than the population parameter
 - b. can never be equal to the population parameter
 - c. can be smaller, larger, or equal to the population parameter
 - d. can never be smaller than the population parameter
8. The variance of a sample of 169 observations equals 576. The standard deviation of the sample equals

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科目：商用統計學丁【企管系甲班碩士班丁組選考】

- a. 13
 - b. 24
 - c. 576
 - d. 28,461
9. If a six sided die is tossed two times and "3" shows up both times, the probability of "3" on the third trial is
- a. much larger than any other outcome
 - b. much smaller than any other outcome
 - c. $1/6$
 - d. $1/216$
10. If A and B are independent events with $P(A) = 0.4$ and $P(B) = 0.6$, then $P(A \cap B) =$
- a. 0.76
 - b. 1.00
 - c. 0.24
 - d. 0.20
11. Which of the following is a required condition for a discrete probability function?
- a. $\sum f(x) = 0$
 - b. $f(x) \geq 1$ for all values of x
 - c. $f(x) < 0$
 - d. $\sum f(x) = 1$
12. A continuous random variable may assume
- a. any value in an interval or collection of intervals
 - b. only integer values in an interval or collection of intervals
 - c. only fractional values in an interval or collection of intervals
 - d. only the positive integer values in an interval
13. A probability distribution showing the probability of x successes in n trials, where the probability of success does not change from trial to trial, is termed a
- a. uniform probability distribution
 - b. binomial probability distribution
 - c. hypergeometric probability distribution
 - d. normal probability distribution
14. Which of the following is not a characteristic of the normal probability distribution?
- a. The mean, median, and the mode are equal
 - b. The mean of the distribution can be negative, zero, or positive
 - c. The distribution is symmetrical
 - d. The standard deviation must be 1
15. Consider a binomial probability experiment with $n = 3$ and $p = 0.1$. Then, the probability of $x = 0$ is
- a. 0.0000
 - b. 0.0001
 - c. 0.001
 - d. 0.729
16. A population consists of 500 elements. We want to draw a simple random

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- sample of 50 elements from this population. On the first selection, the probability of an element being selected is
- 0.100
 - 0.010
 - 0.001
 - 0.002
17. As the sample size increases, the
- standard deviation of the population decreases
 - population mean increases
 - standard error of the mean decreases
 - standard error of the mean increases
18. A population has a mean of 75 and a standard deviation of 8. A random sample of 800 is selected. The expected value of \bar{x} is
- 8
 - 75
 - 800
 - None of these alternatives is correct.
19. An estimate of a population parameter that provides an interval of values believed to contain the value of the parameter is known as the
- confidence level
 - interval estimate
 - parameter value
 - population estimate
20. The level of significance is the
- maximum allowable probability of Type II error
 - maximum allowable probability of Type I error
 - same as the confidence coefficient
 - same as the p -value
21. Your investment executive claims that the average yearly rate of return on the stocks she recommends is more than 10.0%. You plan on taking a sample to test her claim. The correct set of hypotheses is
- $H_0: \mu < 10.0\%$ $H_a: \mu \geq 10.0\%$
 - $H_0: \mu \leq 10.0\%$ $H_a: \mu > 10.0\%$
 - $H_0: \mu > 10.0\%$ $H_a: \mu \leq 10.0\%$
 - $H_0: \mu \geq 10.0\%$ $H_a: \mu < 10.0\%$
22. For a two-tailed test at 86.12% confidence, $Z =$
- 1.96
 - 1.48
 - 1.09
 - 0.86
23. When developing an interval estimate for the difference between two sample means, with sample sizes of n_1 and n_2 ,
- n_1 must be equal to n_2
 - n_1 must be smaller than n_2
 - n_1 must be larger than n_2
 - n_1 and n_2 can be of different sizes,

國立中山大學100學年度碩士班招生考試試題

科目：商用統計學丁【企管系甲班碩士班丁組選考】

24. Independent simple random samples are taken to test the difference between the means of two populations whose standard deviations are not known. The sample sizes are $n_1 = 25$ and $n_2 = 35$. The correct distribution to use is the
- Poisson distribution
 - t distribution with 60 degrees of freedom
 - t distribution with 59 degrees of freedom
 - t distribution with 58 degrees of freedom
25. The sampling distribution of $p_1 - p_2$ is approximated by a
- normal distribution
 - t-distribution with $n_1 + n_2$ degrees of freedom
 - t-distribution with $n_1 + n_2 - 1$ degrees of freedom
 - t-distribution with $n_1 + n_2 + 2$ degrees of freedom

(二) 問答題 (共 3 道題, 合計 50 分)

- (1). A professor believes that the final examination scores in statistics are normally distributed. A sample of 40 final scores has been taken. You are given the sample below. The mean of the scores is 83.1, and the standard deviation is 10.43.

56	63	65	68	72	72	73	75	77	78
78	79	80	80	80	80	80	80	81	81
82	84	84	86	86	87	88	90	90	92
92	93	93	94	95	96	97	98	100	100

- State the null and alternative hypotheses. (5分)
- Compute the test statistic and draw conclusion of the test with $\alpha = 0.01$, given that $\chi_{5,0.01}^2 = 15.086$. (10分)

- (2) Consider the following data for two variables x and y.

X	y
1	1
4	6
7	9
8	7
9	4
10	3

- An estimated regression equation of the form $\hat{y} = b_0 + b_1x$ was developed for the above data and the results are shown below. Comment on the adequacy of this equation for predicting y. Let $\alpha = 0.05$. (10分)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.3052
R Square	0.0932
Adjusted R Square	-0.1335
Standard Error	3.0857
Observations	6

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科目：商用統計學丁【企管系甲班碩士班丁組選考】

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression					
n	1	3.9130	3.9130	0.4110	0.5564
Residual	4	38.0870	9.5217		
Total	5	42			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	3.3043	2.9297	1.1279	0.3224
X	0.2609	0.4069	0.6411	0.5564

b. Now, another regression equation of the form $\hat{y} = b_0 + b_1x + b_2x^2$ was developed for the above data and results are shown below. Comment on the adequacy of this equation for predicting y . Let $\alpha = 0.05$ (10分)

SUMMARY
OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.9508
R Square	0.9041
Adjusted R Square	0.8401
Standard Error	1.1588
Observations	6

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	37.9713	18.9856	14.1376	0.0297
Residual	3	4.0287	1.343		
Total	5	42			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-2.6808	1.6196	-1.655	0.1964
x	3.6803	0.6960	5.2879	0.0132
x-squared	-0.3133	0.0622	-5.036	0.0151

(3) Information regarding random samples of annual salaries (in thousands of dollars) of doctors in three different specialties is shown below.

	Pediatrics	Radiology	Pathology
Sample size	12	10	11
Average salary	120	186	240
Sample variance	16	18	20

- a. State the null and alternative hypotheses to be tested. (5分)
 b. Show the ANOVA table and conduct the test with $F_{0.05} = 3.32$. (10分)

國立中山大學100學年度碩士班招生考試試題

科目：微積分丁【企管系甲班碩士班丁組選考】

答案請按題號順序寫在答案卷上，違者扣分。

Are the following statements (1~10) true or false? Give an explanation for your answer or a counterexample if the answer is false.

1. There is a function which is continuous on $[0,4]$ but not differentiable at $x=3$. (5%)
 2. If a function is continuous, then it is differentiable. (5%)
 3. If $f(a) \neq g(b)$, then $f'(a) \neq g'(b)$. (5%)
 4. A critical point of f must be a local maximum or minimum of f . (5%)
 5. Since $f(x)=1/x$ is continuous for all $x>0$, and the interval $(0,1)$ is bounded, f has a maximum on the interval $(0,1)$. (5%)
 6. If $g'(a) \neq 0$, then $\lim_{x \rightarrow a} f(x)/g(x) = f'(x)/g'(x)$. (5%)
 7. The derivative of a polynomial is always a polynomial. (5%)
 8. Suppose f'' and g'' exist and f and g are concave up for all x . Then $f(g(x))$ is concave up for all x . (5%)
 9. If $f'(x) \leq g'(x)$, then $f(x) \leq g(x)$. (5%)
 10. If $f''(x) > 0$, then $f'(x)$ is increasing. (5%)
- Calculate the following (11~18) (5% each.)

$$11. \int \frac{5}{\sqrt{x}} dx$$

$$12. \int \frac{x+1}{x} dx$$

$$13. \int (x^4 e^{3x}) dx$$

$$14. \int (3e^x + 2\sin x) dx$$

$$15. \int (x^2 e^{x^3+1}) dx$$

$$16. \int_0^1 \int_y^1 e^{x^2} dx dy$$

$$17. \frac{d}{dx} \int_2^{x^2} \sin(t^2) dt$$

18. A function f has $f(3)=1$, $f'(3)=7$ and $f''(3)=-10$

Find the best estimate you can for $f(3.1)$

19. You run a small furniture business. You sign a deal with a customer to deliver up to 400 tables, the exact number to be determined by the customer later. The price will be \$900 per table up to 300 tables, and above 300, the price will be reduced by \$2.5 per table (on the whole order) for every additional chair over 300 ordered. What are the largest and smallest revenues your company can make under this deal? (10%)