

考試科目	企業管理個案	所別	科管所學士後乙組	考試時間	4月20日 星期六 上午第二節
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五、

When most people think of magnets, they think of pieces of metal that attract other pieces of metal. Such magnets retain their magnetism and are known as permanent magnets. Most permanent magnets consist of steel or mixtures of iron, nickel, cobalt, and other minerals. These materials, which can only be magnetized in strong magnetic fields, are known as magnetically hard materials. Hard magnetic substances can be used to make permanent magnets in several ways.

Steel or other materials can be magnetized by moving another permanent magnet in one direction across it. It can also be magnetized by an electric current flowing through a coil of wire, or by hammering or tapping it while it is in a magnetic field.

(10) Magnetic substances can be magnetized slightly by hammering them in the weak magnetic field of the earth.

When an object such as an iron nail is picked up by a permanent magnet, the nail becomes a temporary magnet. It can then pick up other bits of metal and will be attracted or repelled by the poles of other magnets. But the nail will only retain its magnetism as long as it is near a permanent magnet. Once the permanent magnet is removed, the nail ceases to act as a magnet. Materials such as iron in the nail which can be magnetized in weak magnetic fields are called magnetically soft.

(15)

Some magnets, known as ceramic magnets or ferrites, are made from certain metals that have been combined with the element oxygen. These magnets may be either hard or soft. Many common magnetic materials which are mixtures of hard and soft substances can be magnetized easily and keep some permanent magnetization.

(20)

When a current of electricity flows through it, a coil of wire acts just like a permanent magnet. One end of the coil is the north pole and the other end is the south pole of the electromagnet. But the poles will switch places if the flow of current changes direction. An electromagnet will remain magnetized only while an electric current is flowing through it.

(25)

- The best title for this passage would be
  - The principles of magnetism
  - How to make an electromagnet
  - How permanent magnets are made
  - How magnets are made
- In line 13 of the passage, the word "it" refers to
  - nail
  - object
  - permanent magnet
  - temporary magnet
- In line 22 of the passage, the word "it" refers to
  - a permanent magnet
  - an electromagnet
  - a coil of wire
  - an electric current
- A temporary magnet loses its magnetism
  - gradually over a period of time
  - as soon as the permanent magnet is removed
  - after prolonged contact with a permanent magnet
  - by passing an electric current through it
- Permanent magnets are generally made from
  - magnetically soft materials
  - magnetically hard materials
  - electromagnets
  - ceramic magnets
- From this passage, it can be inferred that
  - the words iron and steel are interchangeable
  - iron is magnetically harder than steel
  - steel is magnetically harder than iron
  - steel is a mixture of iron, nickel, cobalt, and other substances
- The poles of an electromagnet
  - fluctuate according to their spatial orientation
  - are determined by the strength of the electric current
  - change as the flow of the electric current changes
  - switch places when iron is used in the center of the coil
- In line 1 of the passage, the word "attract" could best be replaced by
  - induce
  - draw
  - lure
  - evoke
- In line 9 of the passage, the word "tapping" could best be replaced by
  - slapping
  - rapping
  - drumming
  - infringing
- In line 14 of the passage, the word "repelled" could best be replaced by
  - repulsed
  - rebuffed
  - reflected
  - impelled

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六

The term Renaissance, adopted from the French equivalent of the Italian word *rinascita*, meaning literally "rebirth," describes the radical and comprehensive changes that took place in European culture during the 15th and 16th centuries, bringing about the demise of the Middle Ages and embodying for the first time the values of the modern world. The consciousness of cultural rebirth was itself a characteristic of the Renaissance. Italian scholars and critics of this period proclaimed that their age had progressed beyond the barbarism of the past and had found its inspiration, and its closest parallel, in the civilizations of ancient Greece and Rome.

The "rebirth" of art in Italy was connected with the rediscovery of ancient philosophy, literature, and science and the evolution of empirical methods of study in these fields. Increased awareness of classical knowledge created a new resolve to learn by direct observation and study of the natural world. Consequently, secular themes became increasingly important to artists, and with the revived interest in antiquity came a new repertoire of subjects drawn from Greek and Roman history and mythology. The models provided by ancient buildings and works of art also inspired the development of new artistic techniques and the desire to re-create the forms and styles of classical art.

Central to the development of Renaissance art was the emergence of the artist as a creator, sought after and respected for his erudition and imagination. Art, too, became valued, not merely as a vehicle for religious and social didacticism, but even more as a mode of personal, aesthetic expression.

1. In line 4, the word "embodying" could best be replaced by
  - (A) installing
  - (B) inserting
  - (C) incorporating
  - (D) encompassing
2. In line 7, the word "barbarism" is closest in meaning to
  - (A) crudity
  - (B) criticism
  - (C) mechanism
  - (D) stagnation
3. Which of the following could best replace the word "empirical" in line 10?
  - (A) experimental
  - (B) deceptive
  - (C) reflective
  - (D) experiential
4. In line 8, the word "its" refers to
  - (A) barbarism
  - (B) inspiration
  - (C) age
  - (D) past
5. In line 12, the phrase "these fields" refers to
  - (A) empirical methods
  - (B) science and evolution
  - (C) philosophy, literature, science, and evolution
  - (D) philosophy, literature, and science
6. According to the passage, the Renaissance was characterized by
  - (A) a period of intense discovery and innovation in philosophy, science, and literature
  - (B) a period of rediscovery of ancient empirical methods
  - (C) the rediscovery of ancient science, philosophy, and literature
  - (D) the complete suppression of traditional concepts in philosophy, literature, and science
7. The author does NOT discuss
  - (A) the emergence of the artist as a creator
  - (B) the underlying factors contributing to the suppression of ancient philosophy, science, and literature which characterized the Middle Ages
  - (C) the influences of Greek and Roman history on Renaissance thinking
  - (D) the time frame associated with the Renaissance
8. Where does the author discuss the burgeoning importance of secular themes in art?
  - (A) lines 5-9
  - (B) lines 10-12
  - (C) lines 12-16
  - (D) lines 19-20
9. Renaissance scholars considered the civilizations of ancient Greece and Rome to be
  - (A) barbarous
  - (B) inspiring
  - (C) parallel
  - (D) didactic
10. From lines 20-22, it can be inferred that
  - (A) Medieval art was more limited in scope than Renaissance art
  - (B) Renaissance art was more didactic than Medieval art
  - (C) Medieval art took its inspiration from ancient Greece and Rome
  - (D) the theme of art during the middle ages was "art for art's sake"

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請閱讀個案一、二的內容，並回答後面的問題。(總計 4 頁，6 個問題)

國立政治大學圖書館

## 個案一、D 電子公司

### (一) 背景

D 公司的電源供應器領域，在 1998 年之前主要分為三大事業單位—依 Adapters, 直流轉換器以及桌上型電腦與伺服器用等，1999 年之後，整個組織進行改組，此部份重新整合為電力系統事業集團(PSBG)，底下依電源供應器與系統之應用領域—桌上型 PC、伺服器、筆記型電腦、電腦週邊、燈光、UPS(不斷電系統)、網路、通訊以及 Rack 等分為九個事業單位，其中又以後面的四項的技術層級較高。主要的生產基地集中於台灣、泰國、中國大陸與墨西哥，其中墨西哥的生產規模逐步在縮小中。全球的研發中心主要位於台灣、香港、中國大陸、泰國、英國以及美國等地，總計研發人員約有 450 位，其中在國外的部份約 150 位。

### (二) 技術研發國際化之動機與組織方式

關於電源供應器之研發，D 公司初期是以台灣為最主要的研發中心。然而隨著各種需求的增加，使得該公司必須建立國外的研發、設計與工程單位來因應。以泰國廠為例，該子公司早於 1989 年即設立，五、六年之後，發現有建立研發設計中心的必要，不過，剛開始的運作，在工程技術人員方面仍以從台灣派過去為主，不久又發現這樣的「移轉」成本似乎太高，因此乃開始大量進用泰國當地的研發人員，隨後發現語言的溝通是個很困擾的問題，所以最後引進了一些來自中國大陸的研發人員，並付予更多的高層次研發設計之責任以激勵之。到目前為止，整個研發團隊的人數大約有五十位。D 公司也在英國北部的蘇格蘭建立技術研發中心，主要是因為歐洲的顧客常常抱怨沒有地區性的工程技術人員來就近加以支援與配合。美國地區的研發設計中心則比較分散，設於奧瑞岡州與德州休士頓及奧斯汀的單位分別是為就近支援 Intel、Compaq 及 Dell 公司。另外，在波士頓及加州地區亦分別有支援地區性的研發中心。為了進行電源有關之前瞻性研究，該公司在北卡羅萊納州的 Raleigh 設置有一較大規模的研究中心，以便與電力技術的重鎮—維吉尼亞理工大學(VPI)，有更好的互動。最近，D 公司也在上海建立了一個大約有三十位研發人員的研究中心，當中大多是具有博、碩士級的高級研究人員，因此，可以看出 D 公司在上海地區的設立，主要的考量包括了人才可得性以及具有優勢的人力成本結構。

### (三) 研發國際化之技術策略考量

企業在進行研發國際化時，就如在本國之研發的進行一樣，很自然也會碰到是否技術研發創新都要在自己內部的研究單位進行之抉選，另外，也會考慮到所要建立技術能耐的層次。以 D 公司而言，該公司經過多年的努力之後，已成為全球最大的交換式電源供應器製造公司，因而在研發技術的層次上也要能夠走在其他競爭者的前面，同時積極地積極運用全球各地可用資源。D 公司董事長因為認識維吉尼亞理工大學(VPI)的

備 考 試 題 隨 卷 繳 交

命 題 委 員：

( 簽 章 ) 91 年 4 月 8 日

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Jovanovic 教授的關係，乃於 1989 年延攬他來籌組位於該大學附近的研究中心，進行更高層次以及高效率、高功率密度之電源供應器的研究開發，同時運用該大學在電力領域的專長，D 公司可以與其進行各種合作研究以及研發人員的教育訓練等。另外，位在香港的研發工程中心，起初是因為受訪者之一的朋友在香港創立了一家 Newton 電力工程公司，後來 D 公司因勢利導，以很合理的價位將其購併，短時間內即擁有了約四十人左右的研發設計工程人員，更有效地支援了該公司在桌上型電腦、伺服器等領域的電源供應器之研發。

#### (四) 技術創新國際化之管理

有關跨國研發的作法與管理方面，主要可以從研發專案及研發單位兩層次來看，就前者而言，較研究導向的海外單位（如北卡/VPI、或中國大陸）不定時的會把研究結果簡報給本國的研發人員，本國的人員也會提出需求來委請海外研究中心幫忙研發，在產品的開發上，本國的經理會指定較直接有關的國外研發單位來協助，譬如桌上型電腦及伺服器用的電源供應器可能會由香港地區來負責。另外，層次較高或較複雜的產品（如 UPS、Rack 等），則委由美國北卡研究中心來做，反之，較簡單的，就可以由泰國的研發設計單位來進行。此外，有些較有地緣性的，如偏向歐州市場，則可以委由英國的單位來負責。關於全球研發的分工，受訪的經理也舉了另外一個例子：

「台灣這兒經由市場調查得到了某項新產品的觀念，之後，需要進行專利上的搜尋，因為北卡的成員在發表論文及申請專利上較有專長，那麼就可請該單位來幫忙搜尋，另外，如果發現當中最重要專利為歐洲某一廠商所有，就可以委請英國的單位去協助洽談授權之事。」

就研發單位的管理而言，原則上因為不同的中心有不一樣的目標，因此，就可能需要相異的管理方式。例如在北卡 Raleigh 的研究中心，基本上所進行的研究，其創新層次比較高，也因而需要更多的創意，其所僱用的研究人員也比較多元，因此其管理方式就比較強調彈性，而且其研究的服務對象包括全球各地，本身需要不斷的進行交流溝通，因此研發人員採用自我管理的方式。

#### (五) 跨國研發之溝通與工具

文化差異、語言障礙、及溝通三方面一直是跨國研發中非常關鍵的問題，對 D 公司而言，亦不例外。譬如說，台灣的研發團隊發展出某種產品的原型，準備要到英國蘇格蘭進行本土性的修飾，以便進行量產，卻遭受到當地研發人員的排斥，他們寧願自行來開發，而不願接受台灣研發人員的研究成果，此種現象即為一般所謂的 NIH (not-invented-here) 情結。另外為了要減少各地之技術創新與產品研發過程的差異，D 公司從 1994 起創造出一個「Program Manager (PrM)」的職位來負責全球產品創新程序的協調，同時也開始建立一套全球「產品開發流程(PDC)」的文件，清楚地說明全球產品開發的程序以及 PrM 的職銜、工作內容、薪資等級、生涯規劃、角色與責任。

在溝通工具的使用上，除了一般已在內部廣泛使用的 email 系統之外，偶而各地的研發人員需要用 Lotus cc:mail、視訊會議等來進行團體的討論。D 公司並委請外面的軟

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國立政治大學圖書館

體公司幫忙設計一套 Intranet 系統，在基本架構的運作上使用統一的語言—英語，但在使用者界面上則可以呈現各地區當地的語言。另外，各地的研發設計以及工程人員之溝通，主要是透過 D 公司內部的資料管理系統(DMS)來處理，以增加資訊的傳輸性及安全性。

(本個案摘錄至 2000 科技管理論文研討會—「我國企業創新國際化之實證研究」)

- 問題 1、個案中點到：「不同目標的創新，可能需要相異的管理方式」，請分別從策略規劃、組織 (Organizing)、市場考量、與管理方式等幾個方面來比較突破性創新與漸進式創新的差異。(20 分)
- 問題 2、現在一片中國大陸熱，很多人提到：「研發根留台灣，生產製造外移大陸」的經營概念，(1) 請指出此概念的盲點，並提出你自己的看法。(2) 請說明你對「8 吋晶圓廠西進大陸」的看法與建議。(20 分)
- 問題 3、本個案主要是牽涉到跨國創新管理，請分析跨國科技創新管理與本國(單一國家內或本公司內部)科技創新管理的異同(組織考量、介面管理、新產品創新、專案管理、科技人力資源管理等)。(20 分)
- 問題 4、請以「知識創新之泉」中的主要架構，來解析本個案公司的跨國創新管理；並分析企業在跨國創新管理上所可能採取的階段作法、模式、與需要留意之處。(20 分)

### 個案二、王安電腦 vs. 惠普科技

With more than \$3billion in annual sales, Wang Laboratories ranked number 146 on the Fortune 500 list of major corporations in 1989. The pioneer in word processing computers, Wang employed 27,000 people worldwide. Three years later, the company had filed for Chapter 11 bankruptcy, sales were down to \$1.9 billion, its work force was around 8,000, and the company was reeling from a string of devastating losses. Wang lost \$716million in 1990, \$386 million in 1990, and \$357million in 1992. The company's stock market value, once\$5.6 billion, gad shrunk to \$70million.

Now take a look at Hewlett-Packard (H-P). In 1989, the computer and electronics firm was facing slowing sales and experiencing its first earnings decline in years. But instead of entering a period of massive decline like Wang, H-P has staged an impressive comeback. Sales are up, although its work force has been trimmed from 92,000 to 89,000 (without any forced layoffs). First and second quarter earnings for 1992 were up 49 percent and 40 percent, respectively, and the market value of the company has surged past \$19 billion. What did H-P do that led to such very different results from Wang?

考試科目

管理個案

所別

科管所(碩士後組)

考試時間

4月20日上午  
星期六

第 4

Since the late 1980s, the computer business has been the standard example of an industry facing tremendous change. It has adversely affected such major players as IBM, Digital Equipment, and Unisys. Customer needs have changed from large mainframe computers to smaller and more versatile personal computers (PCs). Much of the hardware has become a commoditylike product, with market share growth going to firms that can either offer low price, outstanding service, or consistent innovation. During this time, Wang's management acted as if they operated in a stable environment. An Wang, the company's founder, was resistant to change. He envisioned himself as having revolutionized the office by freeing secretaries from their typewriters. Dr. Wang and his entire management staff failed to see how rapidly PCs would supersede Wang's one-function word processors and expensive minicomputers.

It was a different story at Hewlett-Packard. Management saw what was happening and made a commitment to embrace change. They empowered their people, streamlined decision making, and vigorously cut costs. While H-P would continue to be big, management was determined that it would not be slow moving. Senior executives traveled the country, visiting H-P facilities and soliciting the opinions and ideas of employees on the front lines of manufacturing and sales. What they heard were consistent complaints about H-P's bureaucracy and how difficult it was to get approvals for new projects. So management reorganized. They streamlined the decision making process by eliminating two senior management committees and put in place a team structure that cut across functional and organizational boundaries. The teams were given unprecedented freedom to design and deliver new products. And top management spent considerable time explaining to employees that they needed to accept a higher sense of urgency and to take risks. Further, recognizing that good products weren't enough when competitors were pushing down prices, management encouraged employees to seek out innovative ways to keep costs down in every area from research and development to administration and sales. The research has been that, in spite of low gross margins on many of its products, H-P has able to achieve high profitability.

[ 本個案摘錄至 S. Robbins & D. DeCenzo (1995) Fundamentals of Management ]

### Questions

1. Contrast Wang's and H-P's culture. How did they influence management's response to a changing environment? (10分)
2. Could the same managerial actions taken at H-P in the late 1980s have worked at Wang? Support your position. (10分)

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## 每題 5 分

- 假設王小姐每個月固定花伍仟元購買衣服，則其對衣服的需求價格彈性 (price elasticity) 為
  - 完全彈性 (perfectly elastic)
  - 有彈性 (elastic)
  - 單一彈性 (unit elastic)
  - 無彈性 (inelastic)
  - 完全無彈性 (perfectly inelastic)
  - 以上皆非
- 假設完全競爭市場有 100 家廠商，每一家廠商的成本結構都完全相同，其短期總成本為  $STC = 10 - 4q + q^2$ ，其中  $q$  為個別廠商的產量；而市場需求函數為  $Q = 560 - 10P$ ，其中  $Q$  為數量， $P$  為價格，則市場均衡價格為
  - 3
  - 6
  - 9
  - 12
  - 15
  - 以上皆非
- 假設只有兩種財貨  $X$  與  $Y$ ，且消費者 A 的效用函數為  $U_A(X, Y) = X^{0.5}Y^{0.5}$ ，消費者 B 的效用函數為  $U_B = \sqrt{10 + U_A}$ ，則下列敘述何者正確？
  - 兩人的邊際替代率 (Marginal Rate of Substitution, MRS) 完全相同
  - 兩人最適的消費組合完全相同
  - 以上皆是
  - 以上皆非
- 假設某獨占廠商在利潤最大時的需求價格彈性為 3，且邊際成本為 \$100，試問其利潤最大的定價為多少？
  - \$100
  - \$150
  - \$200
  - \$250
  - \$300
  - 以上皆非
- 下列敘述何者正確？
  - 獨占廠商的短期供給線為平均變動成本線 (AVC) 最低點以上的短期邊際成本線
  - 獨占廠商有可能在長期平均成本最低點生產
  - 獨占廠商一定在需求彈性大於 1 的階段生產
  - B, C 都是正確的
  - A, C 都是正確的
  - 以上皆非

考試科目	經濟學	所別	科學的甲組	考試時間	4月20日 上午第一節 星期六 (F)
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6. 以下是三個關於總產量( $TP$ )、邊際產量( $MP$ )與平均產量( $AP$ )的敘述：
- I. 當  $TP$  達到最大時， $MP = 0$
  - II. 當  $AP > MP$  時， $AP$  隨著產量增加而遞增
  - III. 當  $MP$  達到最大時， $AP = MP$
- 何者是正確的？
- (A) I
  - (B) II
  - (C) III
  - (D) I, II
  - (E) I, III
  - (F) 以上皆非
7. 以下關於長期平均成本 ( $LAC$ ) 曲線的敘述，何者正確？
- (A) 邊際報酬遞減法則是造成  $LAC$  曲線呈 U 字形的原因之一
  - (B) 要素價格下跌是造成  $LAC$  曲線呈 U 字形的原因之一
  - (C)  $LAC$  曲線表示每一產量下，所有可能成本中最低的一點
  - (D) A, C 都是正確的
  - (E) B, C 都是正確的
  - (F) 以上皆非
8. 下列敘述何者“不正確”？
- (A) 平均成本線最低點位於平均變動成本線最低點的右方
  - (B) 長期平均成本線會高於短期平均成本線
  - (C) 當邊際成本線低於平均成本，平均成本線處於下降階段
  - (D) 邊際成本線會通過平均成本線的最低點
  - (E) 以上皆非
9. 假設讀大學的學費與其它因為讀大學而必需的花費，每年約為 30 萬元，如果放棄唸大學，而出去工作一年薪水為 36 萬，則唸一年大學的機會成本為
- (A) 30 萬元
  - (B) 36 萬元
  - (C) 66 萬元
  - (D) 60 萬元
  - (E) 以上皆非
10. 假設某雞排店為一完全競爭廠商，若短期該店是處在有虧損但仍繼續生產的狀態，則表示
- (A) 總收益能抵消其總固定成本
  - (B) 總收益能抵消其總變動成本
  - (C) 價格高於邊際成本
  - (D) 價格低於平均變動成本
  - (E) 以上皆非

備	考	試題隨卷繳交
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考試科目	經濟學	所別	科管竹甲組	考試時間	4月20日 星期六 上午第一節
<p>11. 假設資本財的價格上升，使得廠商的邊際成本提高，則當產量提高時，該廠商對資本財的雇用量將</p> <p>(A) 增加 (B) 不變 (C) 減少 (D) 無法判斷 (E) 以上皆非</p> <p>12. 假設某國家的生產函數為 <math>Y = K^{0.5}L^{0.5}</math>，其中 <math>Y</math> 為產出水準、<math>K</math> 為資本投入量、<math>L</math> 為勞動投入量，儲蓄率為 0.2，資本的折舊率為 0.1，則在穩定狀態 (steady-state) 之下每人產出 (<math>y = Y/L</math>) 為多少？</p> <p>(A) 1 (B) 2 (C) 3 (D) 4 (E) 以上皆非</p> <p>13. 某外籍女傭與老闆結婚後成為家庭主婦，下列敘述何者正確？</p> <p>(A) GNP 增加，GDP 減少 (B) GNP 減少，GDP 增加 (C) GNP 不變，GDP 減少 (D) GNP 減少，GDP 不變 (E) GNP 減少，GDP 減少 (F) 以上皆非</p> <p>14. 假設民國 90 年的 GDP 平減指數為 125，實質 GDP 為 1000，則名目 GDP 為</p> <p>(A) 800 (B) 8 (C) 125000 (D) 1250 (E) 1125 (F) 以上皆非</p> <p>15. 假設日圓的匯率由 140 升值為 132，且日本的通貨膨脹率為 2%，根據購買力平價說 (purchasing power parity)，美國的通貨膨脹率應為</p> <p>(A) -3.71% (B) 6.00% (C) 10.00% (D) 2.11% (E) 7.71% (F) 以上皆非</p>					
備 考	試 題 隨 卷 繳 交				

考試科目	經濟學	所別	科管的甲組	考試時間	4月20日 上午第一節 星期六
<p>16. 根據 Baumol 的貨幣需求模型，如果利率上升，則貨幣的流通速度 (velocity of money)</p> <p>(A) 不受影響 (B) 上升 (C) 下降 (D) 無法判斷 (E) 以上皆非</p> <p>17. <math>\dot{Y}^e = 6\%</math>，<math>\dot{P}^e = 2\%</math> 且估計的貨幣需求函數如下：</p> $\ln M^d = 3.1 + 1.0 \ln Y - 0.5i$ <p>央行的信任區間為 2%，則貨幣目標區的範圍何在？</p> <p>(A) 4%~8% (B) 6%~10% (C) 8%~12% (D) 2%~6% (E) 以上皆非</p> <p>18. 在簡單凱因斯模型裡，消費函數為 <math>C = 100 + 0.6(Y - T)</math>，其中 <math>Y</math> 為所得水準，假設預擬投資為 100，且政府支出與租稅 (<math>T</math>) 都是 100，則均衡所得水準為</p> <p>(A) 350 (B) 500 (C) 600 (D) 800 (E) 以上皆非</p> <p>19. 假定社會上只有一家銀行，在人民不持有通貨與銀行不保留超額準備的前提下，某人將 5000 元存入該銀行，又法定存款準備率為 10%，則經濟體系增加多少存款貨幣？</p> <p>(A) 50000 元 (B) 5000 元 (C) 500 元 (D) 500000 元 (E) 以上皆非</p> <p>20. 下列關於乘數的敘述何者有誤？</p> <p>(A) 開放經濟體系下自發性消費的乘數會比封閉體系下的自發性消費乘數來的大 (B) 在封閉體系下政府財政政策會比開放體系下的財政政策來的有效 (C) 所得稅的邊際稅率越高，自發性支出乘數越低 (D) 在沒有政府部門的封閉體系下，邊際消費傾向愈大，自發性支出乘數愈大 (E) 以上皆非</p>					
備 考	試 題 隨 卷 繳 交				

考試科目	微積分	所別	科學所 (甲)	考試時間	4月20日 上午 星期六 下午	節
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(1) 請解： $\frac{\partial z}{\partial x}$  where  $z = x^2y + 2x^3y$  (10分)

(2) 請解： $\frac{\partial z}{\partial x}$  where  $z = \frac{1}{2x^2ay} + \frac{3x^5abc}{y}$  (10分)

(3) 對於  $u(x, y) = \frac{1}{2\sqrt{\pi y}} \text{Exp}\left(-x^2/4y\right)$  for  $y > 0$

請確認  $u_y = u_{xx}$  (20分)

(4) 請解： $\text{Max } ax^2 + y^2$  (10分)

(5) 請解： $\text{Min } ax^2 + y^2$  (10分)

(6) 請解： $\begin{cases} \text{Min } ax^2 + y^2 \\ \text{s.t. } bx + dy \geq c \end{cases}$  (10分)

(7) 對於問題(6)所新增的限制式，請問這個限制式我們怎麼知道它有沒有發揮限制的作用？又在何種條件之下才會發生限制的作用？(15分)

(8) 對於問題(6)所新增的限制式，請問當這個限制式發生限制作用時，每調整一個單位的常數項c值，將會如何影響所求出來的極值？這樣的問題如何作分析？請詳細說明之。(15分)

備 考 試 題 隨 卷 繳 交

命 題 委 員：

(簽章) 九十一年 四 月 九 日

考試科目	經濟學	所別	研究所(2512)	考試時間	4月20日 星期六	上午第一節
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## 經濟學(乙) 91

- 請儘量輔以圖表或方程式來說明需求函數與供給函數是如何導出來的。(20)
- 河流的上游有一養豬場，下游有一遊樂場。Q 是養豬的頭數，養豬的邊際成本是  $MC = 2Q$ ，邊際效益  $MB = 60 - Q$ 。遊樂場因著豬場排出的污水所要負擔的邊際處理成本是  $SMC = Q$ 。請問：(30)
  - 如果養豬場只考慮自己的利益，他會養幾頭豬？
  - 如果同時考慮遊樂場所受到的影響，應該要養幾頭豬？
  - 如果將河流的水權判給養豬場，依據寇斯定理(Coase Theorem)，在交易成本可忽略的情況下，養豬場會養幾頭豬？為什麼？
  - 同理，如果將河流的水權判給遊樂場，養豬場會養幾頭豬？為什麼？
- 在一天中，阿強跟阿呆分別可以去割草或去外面賺錢，阿強一天中可以割 5 片草坪或去賺 5 萬元，阿呆一天中只能割 1 片草坪或去賺 50 元。請用這個案例，說明交易能使雙方得利。(20)
- 試用圖表說明「季芬財一定是劣等財，劣等財卻不一定是季芬財」。(10)
- 有個獨買廠商，他的平均利益是  $AR = a - bY$ ，他所面對的供給者是毫無議價能力的，平均成本是  $AC = \frac{1}{2} \cdot C \cdot Y$ ，請問他會以多少價格？買多少數量？(20)

備 考 試 題 隨 卷 繳 交

命 題 委 員：

(簽章) 91年4月9日

考試科目	企業管理個案	所別	科管所學士後乙組	考試時間	4月20日 星期六 上午第二節
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國立政治大學圖書館

依下列格式

請將答案填入答案紙內，每題 1.61 分

	一	二	三	四	五	六
1						
2						
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10						
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\* 請注意：請勿於此格式內作答，務必依此格式範例於答案卷內作答。

備 考 試 題 隨 卷 繳 交

命 題 委 員：

(簽章)

年 月 日

日

考試科目	企業管理個案	所別	科管研 (碩士後乙組)	考試時間	4月20日上午 星期六 (下) 午第二節
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The economic depression that beset the United States and other countries in the 1930s was unique in its magnitude and its consequences. At the depth of the depression, in 1933, one American worker in every four was out of a job. In other countries unemployment ranged between 15 percent and 25 percent of the labor force. The great industrial slump continued throughout the 1930s, shaking the foundations of Western capitalism and the society based upon it.

President Calvin Coolidge had said during the long prosperity of the 1920s that "The business of America is business." Despite the seeming business prosperity of the 1920s, however, there were serious economic weak spots, a chief one being a depression in the agricultural sector. Also depressed were such industries as coal mining, railroads, and textiles.

Throughout the 1920s, an average of 600 U. S. banks per year had failed, as had thousands of other business firms. By 1928 the construction boom was over. The spectacular rise in prices on the stock market from 1924 to 1929 bore little relation to actual economic conditions. In fact, the boom in the stock market and in real estate, along with the expansion in credit -created, in part, by low-paid workers buying on credit- and high profits for a few industries, concealed basic problems. Thus the U. S. stock market crash that occurred in October 1929, with huge losses, was not the fundamental cause of the Great Depression, although the crash sparked, and certainly marked the beginning of, the most traumatic economic period of modern times.

- Line (5) industrial slump continued throughout the 1930s, shaking the foundations of Western capitalism and the society based upon it.
- (10) President Calvin Coolidge had said during the long prosperity of the 1920s that "The business of America is business." Despite the seeming business prosperity of the 1920s, however, there were serious economic weak spots, a chief one being a depression in the agricultural sector. Also depressed were such industries as coal mining, railroads, and textiles.
- (15) Throughout the 1920s, an average of 600 U. S. banks per year had failed, as had thousands of other business firms. By 1928 the construction boom was over. The spectacular rise in prices on the stock market from 1924 to 1929 bore little relation to actual economic conditions. In fact, the boom in the stock market and in real estate, along with the expansion in credit -created, in part, by low-paid workers buying on credit- and high profits for a few industries, concealed basic problems. Thus the U. S. stock market crash that occurred in October 1929, with huge losses, was not the fundamental cause of the Great Depression, although the crash sparked, and certainly marked the beginning of, the most traumatic economic period of modern times.
- (20)
- In line 20, the word "traumatic" is closest in meaning to
    - contentious
    - insipid
    - miserable
    - protracted
  - Which of the following could best replace the word "beset" in line 1?
    - benefitted
    - assailed
    - disseminated
    - constrained
  - In line 5, the word "slump" could best be replaced by
    - bias
    - decline
    - fusion
    - hybrid
  - In line 2, the word "its" refers to
    - magnitude
    - the United States
    - depression
    - the 1930s
  - To which of the following does the word "it" in line 8 refer?
    - capitalism
    - foundation
    - slump
    - society
  - Where does the author discuss the stock market's role in masking the root causes of the Great Depression?
    - lines 4-6
    - lines 8-10
    - lines 15-17
    - lines 17-19
  - The best title for the passage would be
    - The great Depression - a postscript
    - The aftermath of the Great Depression
    - The prelude to the Great Depression
    - The myth of the Great Depression
  - The passage does NOT discuss
    - bank failures during the 1920s
    - consequences of the Great Depression
    - the role of the press in fostering an economic panic
    - the depressed agricultural sector during the 1920s
  - According to the passage,
    - unemployment in the US and other countries during the Great Depression ran as high as 25 percent of the labor force
    - unemployment in the labor force ran high in 25 percent of the United States and other countries
    - the United States alone accounted for 25 percent of the total unemployment, and other countries accounted for 75 percent
    - of the 25 percent of the labor force thrown out of work during the Great depression, 15 to 25 percent came from other countries
  - From lines 14-15, it can be inferred that
    - the stock market from 1924-1929 was an accurate barometer of the real economic conditions during that period
    - economic conditions from 1924-1929 were less in tune with reality than the stock market
    - the overinflated stock market from 1924-1929 may have helped to foster a false impression of prosperity and economic robustness
    - economic conditions from 1924-1929 may have helped to foster a false impression of the robustness of the stock market

備 考 試 題 隨 卷 繳 交

命 題 委 員:

( 簽 章 )

年

月

日

考試科目	企業管理個案	所別	社會研究所 乙組	考試時間	4月20日 星期六 (下) 午第二節
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國立政治大學圖書館

The futurist Richard Buckminster Fuller achieved an international reputation as an inventor, designer, and philosopher. Although he showed inventive talent at an early age, Fuller had great difficulty finding an appropriate occupation. Dropping out of Harvard after his freshman year, he educated himself while working at various industrial jobs and serving in the U.S. Navy during World War I. Fuller had no patience with the profit motive and was interested in developing new products and designs only as long as technical problems remained challenging. This trait so displeased investors in his early business ventures that in 1927 he found himself unemployed in Chicago, with a family to support, but without prospects. Characteristically, he devoted the next year to formulating a philosophical approach to technological innovation. Fuller worked from the premise that humankind's creative intelligence is limitless. Therefore, technological progress can, if unhampered by outmoded traditions and conventions, give all human beings a rich and satisfying life. The earth's limited resources, in his view, can be overcome by inventions that provide ever-greater amenities while using ever-decreasing amounts of materials.

Because Fuller was persuaded that humans' geographical mobility should also be limitless, many of his major inventions were designed to reduce or eliminate barriers to mobility. The first of these, the Dymaxion House of 1927 - entirely self-contained and readily movable - hung from a central core, thereby greatly reducing its use of materials, weight, and cost. His Dymaxion Car of 1933 brought similar economies to the automobile. His geodesic dome, first perfected in 1947, encloses a greater volume with less material than any alternative form and may well be the most significant structural innovation of the 20th century. The interesting large, spherical carbon molecules that display geodesic form have been named fullerenes, or Buckminsterfullerenes, in his honor.

1. The word "outmoded" in line 12 is closest in meaning to  
(A) innovative  
(B) revered  
(C) obsolete  
(D) desperate
2. Which of the following could best replace the word "unhampered" in line 11?  
(A) unfettered  
(B) unsettled  
(C) undone  
(D) uncorrupted
3. In line 14, the word "amenities" is closest in meaning to  
(A) conveyances  
(B) blessings  
(C) contrivances  
(D) conveniences
4. The word "its" in line 18 refers to  
(A) central core  
(B) materials  
(C) Dymaxion house  
(D) major invention
5. The phrase "this trait" in lines 7 refers to  
(A) Fuller's ability to stick with a project to the end  
(B) Fuller's obsession with turning a profit on every venture  
(C) Fuller's preference for the process of invention over its end result  
(D) Fuller's unwillingness to seek new challenges
6. Which of the following may NOT be inferred from reading the passage?  
(A) Fuller may be equally revered as both an inventive genius and an offbeat philosopher  
(B) Fuller's geodesic dome was he inspiration for the spheric shape of carbon molecules  
(C) A problem, once solved, ceased to be of any interest to Fuller  
(D) Fuller may have exploited his investors more than they exploited him
7. Where does the author discuss how Fuller proposed to overcome the problems posed by the finite nature of the earth's resources?  
(A) lines 5-7  
(B) lines 10-12  
(C) lines 13-14  
(D) lines 19-22
8. The author does NOT discuss  
(A) Fuller's early failures  
(B) Fuller's repudiation of technocracy  
(C) Fuller's most significant structural innovation  
(D) Fuller's premise on human intelligence
9. According to the passage,  
(A) the geodesic dome was a later version of the Dymaxion car  
(B) the geodesic dome revolutionized automotive design  
(C) the geodesic dome encloses more volume with less material than any other structural form  
(D) the volume of a geodesic dome increases in proportion to the sine of its prime axis
10. Fuller saw unfettered technological progress as a means of  
(A) enriching people's lives  
(B) justifying the status quo  
(C) getting back to basics  
(D) extolling the virtues of traditional thinking

備	考	試題隨卷繳交
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考試科目	企業管理個案	所別	科管研學士後乙組	考試時間	4月20日 上午第二節 星期六 (下)
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國立政治大學圖書館

Brucellosis, a bacterial infection characterized by extreme weakness, backache, chills, and headache is an occupational hazard for persons such as veterinarians, animal breeders, farmers, slaughterhouse workers, etc who work closely with animals.

The disease which is passed to man from infected cattle, goats, and hogs is also known as undulant fever, Mediterranean fever, and Malta fever. It takes its name from three closely related organisms of the Brucella group of bacteria. In animals, the disease can cause spontaneous abortions, most notably in cattle. The infection tends to localize in the udders and cause contamination of the milk. Humans can contract the disease by direct contact with infected animals or by drinking contaminated milk.

Prevention involves isolation of infected animals and pasteurizing milk.

The incubation period ranges from as little as five days to as long as three weeks in man. A victim may experience a sudden onset or a gradual development of symptoms. The patient may suffer from aching joints and heavy sweating as well as weakness and a lingering fever which comes and goes over long periods of time. Most victims also experience diminished appetite and weight loss. Women may undergo disruption of their menstrual cycle, and some patients may have uncontrolled trembling in their tongue and fingers and feel irritable and depressed. Complications could affect the testicles, the nervous system, and the valves of heart in severe cases.

Most patients recover in three to six months time with antibiotic therapy and ample bed rest.

1. This passage might be found in a report titled
  - (A) occupational hazards of the livestock industry
  - (B) the risks of practicing veterinary medicine
  - (C) viral diseases in man and animals
  - (D) bacterial afflictions of man and beast
2. According to the passage, the time it takes for an exposed person to show symptoms is
  - (A) rarely more than five days
  - (B) rarely less than three weeks
  - (C) three weeks or less
  - (D) the incubation period
3. The disease can be passed to humans by
  - (A) Touching the udders of infected animals
  - (B) drinking pasteurized milk
  - (C) drinking milk from uninfected animals
  - (D) eating untreated goose liver
4. Which of the following was not discussed as a symptom of the disease?
  - (A) perspiration
  - (B) incontinence
  - (C) palsy
  - (D) loss of appetite
5. What is the best way to avoid catching the disease?
  - (A) Become a vegetarian.
  - (B) Don't drink milk.
  - (C) Practice hibernation.
  - (D) Follow prescribed prophylaxis.
6. In line 7, the phrase "spontaneous abortions" refers to
  - (A) emergency surgical termination of pregnancy
  - (B) miscarriages
  - (C) post-partum complications
  - (D) tubular ligations
7. In line 4, the word "hogs" could best be replaced by
  - (A) kine
  - (B) stoat
  - (C) swine
  - (D) porcine
8. In line 8, the word "contract" could best be replaced by
  - (A) imbibe
  - (B) catch
  - (C) expose
  - (D) convey
9. In line 15, the word "undergo" could best be replaced by
  - (A) undertake
  - (B) forego
  - (C) experience
  - (D) relate
10. In line 5, the word "it" refers to
  - (A) Malta fever
  - (B) Undulant fever
  - (C) Mediterranean fever
  - (D) Brucellosis
11. In line 18, the second "their" refers to
  - (A) women's
  - (B) victims's
  - (C) patients's
  - (D) men's
12. A paragraph following this passage would most probably discuss
  - (A) other diseases passed to man from animals
  - (B) other symptoms of Malta fever
  - (C) other therapies of Mediterranean fever
  - (D) other human tissues infected by Brucellosis

備 考 試 題 隨 卷 繳 交



考試科目	企業管理個案	所別	科管(士班)後 乙組	考試時間	4月20日 上午 星期六 第一節
<p>百、</p>	<p>The German-American physicist Albert Einstein contributed more than any other scientist to the 20th-century vision of physical reality. In the wake of World War I, Einstein's theories, especially his theory of relativity seemed to many people to point to a pure quality of human thought, one far removed from the war and its aftermath. Seldom has a scientist received such public attention for having cultivated the fruit of pure learning.</p> <p>In a paper presented in 1905, Einstein proposed what is today called the special theory of Relativity. At the time Einstein knew that the mass of an electron increased as the velocity of the electron approached the velocity of light. Einstein also knew that the electron theory carried along with it the assumption of a luminiferous ether, but that attempts to detect its physical properties had not succeeded. Einstein realized that the equations describing the motion of an electron in fact could describe the nonaccelerated motion of any particle or any suitably defined rigid body. He based his new kinematics on a reinterpretation of the classical principle of relativity - that the laws of physics had to have the same form in any frame of reference. As a second fundamental hypothesis, Einstein assumed that the speed of light remained constant in all frames of reference, as required by classical theory. Einstein abandoned the hypothesis of the ether, for it played no role in his kinematics or in his reinterpretation of the theory of electrons. As a consequence of his theory Einstein recovered the phenomenon of time dilatation, wherein time, analogous to length and mass, is a function of the velocity of a frame of reference. Later in 1905, Einstein elaborated how, in a certain manner of speaking, mass and energy were equivalent. Einstein was not the first to propose all the elements that went into the special theory of relativity; his contribution lies in having unified important parts of classical mechanics and electro-dynamics.</p>				
<p>Line (5)</p> <p>(10)</p> <p>(15)</p> <p>(20)</p>	<p>1. Which of the following is closest in meaning to the word "aftermath" in line 6?</p> <p>(A) posterity (B) consequence (C) precursor (D) by-product</p> <p>2. The word "ether" in line 9 could best be replaced by</p> <p>(A) aether (B) tundra (C) Aurora (D) ectoplasm</p> <p>3. In line 14, the word "hypothesis" is closest in meaning to</p> <p>(A) hypocrite (B) superstition (C) hypnosis (D) supposition</p> <p>4. The word "its" in line 10 refers to</p> <p>(A) electron (B) light (C) ether (D) velocity</p> <p>5. The passage mainly discusses</p> <p>(A) Einstein's early career at the Swiss patent office (B) Einstein's belief in the existence of a luminiferous ether (C) Einstein's special theory of relativity (D) Einstein's theory of spatial relationships</p> <p>6. The author does NOT discuss</p> <p>(A) Einstein's assumption of the constant speed of light (B) Einstein's abandonment of the hypothesis of a luminiferous ether (C) Einstein's reinterpretation of the classical principle of conductivity (D) Einstein's recovery of the phenomenon of time dilatation</p> <p>7. Where does the author discuss the importance of Einstein's work?</p> <p>(A) lines 1-2 (B) lines 6-8 (C) lines 14-16 (D) lines 20-22</p> <p>8. According to the passage,</p> <p>(A) Einstein equated mass with energy (B) Einstein distinguished mass from energy (C) Einstein was the first to propose all the elements that went into the special theory of relativity (D) Einstein's contribution lies in having identified important parts of classical mechanics and electro-dynamics</p> <p>9. From lines 1-5, it may be inferred that</p> <p>(A) before Einstein, physical reality was considered more rumor than fact (B) Einstein was the first proponent of real-time interface (C) Einstein's public persona was vastly different from the private man (D) Einstein was greatly admired by the public</p> <p>10. The use of the word "theory" in line 6 implies that</p> <p>(A) pure human thought cannot be expressed in absolute terms (B) the proof is in the pudding (C) Einstein's ideas about relativity were unproven (D) Einstein's ideas could not be classified as laws without the consent of the Nobel selection committee</p>				
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