



第一部份：選擇題(30%)

1. For _____, a GPS receiver is also needed.
 - A) e-commerce
 - B) c-commerce
 - C) l-commerce
 - D) m-commerce

2. A big stumbling block to the adoption of collaborative commerce is
 - A) the lack of a stable collaborative commerce software
 - B) the lack of top management support
 - C) the lack of well defined and universally agreed-on standards
 - D) the lack of awareness of the benefits of collaborative commerce

3. Characteristics of digital economy include all of the following EXCEPT:
 - A) A vast array of digitizable products like databases, news, information, books, and musical CDs.
 - B) Consumers and firms conducting financial transactions digitally.
 - C) Physical good such as home appliances and automobiles embedded with microprocessors and networking capabilities.
 - D) Elimination of all traditional intermediaries

4. A world in which every object has processing power with wireless or wired connections to a global network is the world of _____.
 - A) embedded computing
 - B) pervasive computing
 - C) ubiquitous computing
 - D) all of the above

5. _____ are self-contained, self-describing business and consumer modular applications, delivered over the Internet, that users can select and combine through almost any device, ranging from personal computers to mobile phones.
 - A) XML
 - B) Web Services
 - C) Object Services
 - D) Information Services



6. A(n) _____ refers to a company's Web site that is used as a gateway to the corporate data, information, and knowledge.
- A) URL
 - B) Company Network
 - C) Intranet
 - D) Corporate Portal
 - E) Internet
7. Characteristics of Data Warehousing include the following except:
- A) Volatile
 - B) Web-based
 - C) Relational structure
 - D) Organization
8. Which of the following statements about Knowledge Management Systems (KMSs) is NOT true?
- A) KMS refer to the use of modern information technologies like the Internet, intranets, extranets, Lotus-Notes, Software filters, Agents, and Data Warehouses to capture and share knowledge.
 - B) the purpose of KMSs is to systematize, enhance, and expedite intra-firm and inter-firm knowledge management.
 - C) KMSs are being built in part from an increased pressure to maintain a well-informed and productive workforce.
 - D) It is no longer difficult to measure the success of KMSs.
9. One component of a typical RAD System might include:
- A) reusable components
 - B) a non-GUI development environment
 - C) no reusable components
 - D) no code generators
10. Which of the following most comprehensively defines SRM?
- A) contractors are the suppliers
 - B) distributors are the suppliers
 - C) partners are the suppliers
 - D) customers are the suppliers



11. The emerging technology for integrating B2B and intrabusiness applications
 - A) Web services
 - B) Edi
 - C) XML
 - D) Groupware

12. Establishes the relationship between the overall organizational plan and the IT plan.
 - A) Information requirements analysis
 - B) Project planning
 - C) Strategic IT planning
 - D) Resource allocation

13. Which of the following are types of Interorganizational- Systems?
 - A) Integrated Messaging, EST, Exchangeable Data
 - B) Groupware, Global System, EFT
 - C) Interconnected Databases, Interfaced Messaging
 - D) Shared Databases, Integrated System, Collaboration Support System

14. Which of the following is Not one of the main reasons offered by economists to explain the productivity paradox?
 - A) problems with data or analyses hide productivity gains from IT
 - B) gains from IT are offset by losses in other areas
 - C) IT productivity gains are offset by IT costs or losses
 - D) current measures of multifactor productivity are flawed

15. _____ encompasses all activities related on the planning, organizing, acquiring, maintaining, securing, and controlling or IT resources.
 - A) IRM
 - B) ISD
 - C) IMP
 - D) IBM

第二部份：問答題(70%)

1. Describe the relationship among network effects (or network economics), positive feedback and lock-in effect; analyze their major implications on business's competitive advantages.(10%)



2. Describe the important dimensions of knowledge and the capabilities of knowledge network systems. (10%)
3. Describe the information technology and management solutions for preventing information leakage among supply chain firms. (25%)
4. Why the use of system dynamics is a method to overcome the limitations to Balance Scorecard? Describe the frame work for business intelligence with the system dynamics. (25%)



1. (a) 二元樹中一個節點最多有兩個子節點， k 元樹中一個節點最多有 k 個子節點。請設計一個資料結構可有效率的使用記憶體空間表達 k 元樹。換句話說，當節點的子節點個數不一，且很多節點的子節點個數遠小於 k 個時，你設計的資料結構不致於浪費太多空間。(b) 請先說明如何在該 k 元樹中搜尋某值 x ，然後再寫出虛擬碼 $\text{Search}(T, x)$ ，其中 T 為該樹的根節點，而且假設數值在 k 元樹中並沒有特別的排列順序。(20%)
2. Insert, into an empty binary search tree, entries with keys 32, 40, 25, 55, 47, 27, 11, 13 (in this order). (a) Draw the tree after all the insertions. (5%) (b) Write the pseudocode for the insertion operation $\text{TREE-INSERT}(T, z)$ where T is the binary search tree and z is a node which holds its key in $\text{key}[z]$ to be inserted. (10%)
3. The following algorithm recursively computes the power function. (a) Describe step by step how $\text{Power}(3,7)$ is computed according to the algorithm. (7%) (b) Please analyze the time complexity of this recursive power algorithm. (8%)

Algorithm $\text{Power}(x,n)$

Input: A number x and integer $n \geq 0$

Output: The value x^n

if $n = 0$ then

 return 1

if n is odd then

$y \leftarrow \text{Power}(x, (n-1)/2)$

 return $x \cdot y \cdot y$

else

$y \leftarrow \text{Power}(x, n/2)$

 return $y \cdot y$

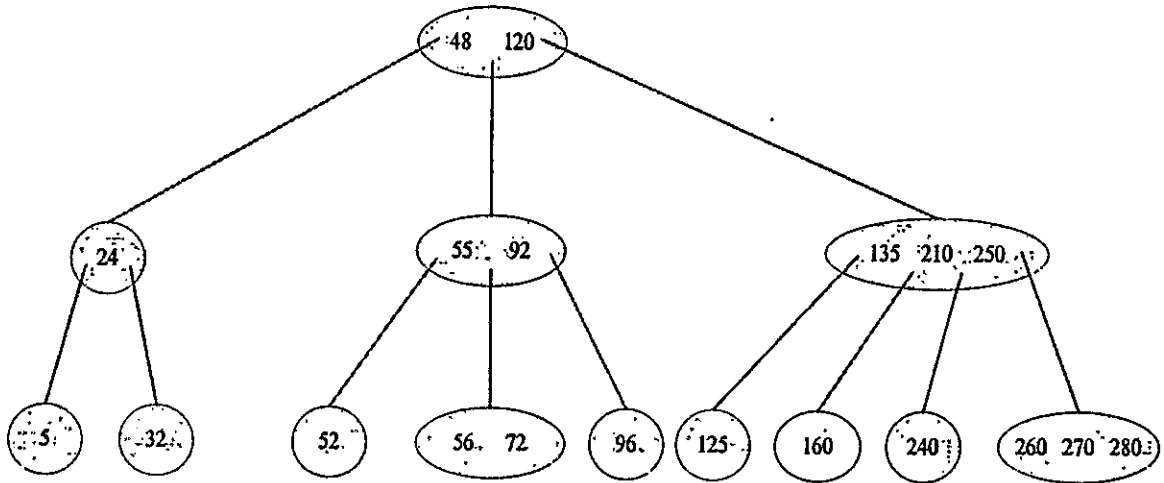
4. 有一個遞迴函數如下：

```
int f(int n) {
    if (n < 3) return n;
    else return f(n-3) + f(n-2) + f(n-1);
}
```

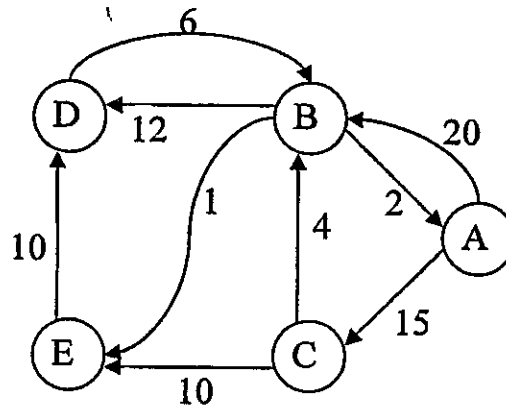
請算出 $f(15)$ 的值。(10%)



5. 將 ABCDE 五個資料依序推入(Push)堆疊，任何時刻都允許資料跳出(Pop)堆疊(從堆疊中刪除資料)。請問資料被刪除的順序(Pop 出堆疊的順序)有幾種可能？(10%)
6. 給定一棵 4 階 B 樹如下圖所示，請繪出加入資料 265 後的結果？然後再刪除資料 52 後的結果？(15%)



7. 給定一有向網路圖如下，請找出下圖任兩頂點間之最短距離。(15%)





第一部分

一、簡答題(每題 3 分，共 30 分)。

1. 設計程式主要利用哪些控制結構來完成？
 2. 試舉出兩種 VB、JAVA 及 C++ 等程式語言皆有提供呼叫函數(Function)或方法(Method)時傳參數的方法？
 3. 有哪些網頁程式設計方法可以同時使用在 Windows 及 Unix(Linux) 作業系統上的？
 4. 試舉出兩種較簡單的 CPU 排程(Scheduling)方法？
 5. 動態分頁虛擬記憶體管理的淘汰策略有哪些？
 6. 在結構化系統分析中，實體關係圖(ERD)及資料流程圖(DFD)主要的作用為何？
 7. 在統一塑模語言(UML)中，有哪些圖形(Diagram)是使用在行為模塑觀點(Behavioral Model View)上的？
 8. 試舉出兩種在 Windows 作業系統的 DOS 模式下可以有效的來偵測網路故障的指令？
 9. 試舉出兩種需要利用 Ajax 技術才可以達成的網頁程式應用？
 10. 在公開金鑰加密(Public Key Encryption)的方法中，使用者 A 要送加密的 Email 給使用者 B 時，該用哪一把金鑰(Key)加密呢？另外，使用者 A 要數位簽章某份給使用者 B 的文件，此時又該用哪一把金鑰(Key)加密呢？
- 二、試比較分析個人電腦、個人數位助理(PDA)及手機等設備，在硬體與軟體方面有何異同之處。(10%)
- 三、試分別利用遞迴(recursion)與非遞迴(non-recursion)方式，寫出輸入一串字串並顛倒(reverse)印出此字串之演算法。例如，輸入為" computer" 輸出為"retupmoc"。(10%)

第二部分 (單選題，每題 2 分，共 50 分)

1. Which one of the followings is not an advantage of the DBMS approach?
 - A. Restricting unauthorized access
 - B. Providing storage for efficient query processing
 - C. Prolonged application development time
 - D. Providing backup and recovery
2. Which one of the followings does access path belong to?
 - A. Physical data model
 - B. Implementation data model
 - C. High-level data model
 - D. Conceptual data model



3. Which one of the followings is the correct sequence (from beginning to end) of database design phases?
 - A. Physical design, conceptual design, logical design
 - B. Logical design, conceptual design, physical design
 - C. Conceptual design, logical design, physical design
 - D. Physical design, logical design, conceptual design
4. Which one of the followings can model the case in which a single superclass/subclass relationship with more than one superclass?
 - A. synthesis
 - B. category
 - C. shared subclass
 - D. lattice
5. Which one of the followings specifies the non-null of primary key?
 - A. Semantic integrity constraint
 - B. Domain constraints
 - C. Referential integrity constraint
 - D. Entity integrity constraint
6. Which one of the followings is *not* a member of the complete set of relational algebra operations?
 - A. join
 - B. select
 - C. project
 - D. minus
7. Which one of the followings, when performing ER-to-relational mapping, does the ER model construct *multi-valued attribute* map to?
 - A. attribute
 - B. domain
 - C. relation and foreign key
 - D. primary key
8. Which one of the followings is *not* a built-in aggregate function in SQL?
 - A. AVG
 - B. CNT
 - C. MAX
 - D. SUM
9. Which one of the followings embeds SQL commands in a general-purposed programming language?
 - A. iSQL
 - B. SQLPLUS
 - C. PL/SQL
 - D. SQLJ
10. What normal form is a relation schema R in, if whenever a nontrivial functional dependency $X \rightarrow Y$ holds in R , then X is a superkey in R ?
 - A. BCNF
 - B. 3NF
 - C. 2NF
 - D. 1NF
11. Which one of the followings is *not* a desirable property of relational decompositions?
 - A. Dependency preserving
 - B. Attribute preserving
 - C. Key preserving
 - D. Lossless join
12. Which one of the followings is *not* a criterion in guiding the choice of physical database design options?
 - A. Response time
 - B. Software acquisition cost
 - C. Space utilization
 - D. Transaction throughput
13. Which one of the followings is the most efficient in inserting a new record?
 - A. Linear hashing file
 - B. Clustered file
 - C. Sorted file
 - D. Heap file
14. Which one of the followings is *not* a single-level ordered index?
 - A. B-tree index
 - B. Primary index
 - C. Clustering index
 - D. Secondary index



本試題共三大題，共計 100 分，請依題號作答並將答案寫在答案卷上，違者不予計分。

一、是非題：34% (共 17 題，每題 2 分，請以 O, X 作答；答案請採橫式書寫，每行 5 題)

- () 1. GET 與 PUT 是 HTML Form 用來傳送資料至 Web Server 的兩種方法。
- () 2. C 語言的#include <stdio.h>會將一個 exe 檔包含在被編譯的程式中。
- () 3. Linux 系統管理者帳號的名稱是 root。
- () 4. Data Flow Diagram 是 UML diagrams 的一種。
- () 5. Java 語言的 Static 方法不是物件的方法。
- () 6. When power is turned on, the CPU begins executing the instructions located in the CMOS chip.
- () 7. Deadlock issues are resolved without the intervention of the operating system.
- () 8. The principal of induction does not apply to fiber-optic cables at all.
- () 9. Unlike repeaters and hubs, bridges have intelligence.
- () 10. Shifting the starting point of an audio waveform is known as frequency modulation.
- () 11. You can compress information by replacing repeating patterns with a code.
- () 12. The Internet is a collection of LANs and WANs that are connected together to form a giant WAN.
- () 13. A queue is another type of linked list that implements a LIFO storage system.
- () 14. The disadvantage of relative file access is that disk space can be wasted if data does not fill the entire record if some of the relative records do not have data.
- () 15. A component diagram depicts the physical architecture of a computer-based system.
- () 16. Asymmetric encryption uses a private key to both encrypt and decrypt data.
- () 17. A demilitarized zone is a location outside the firewall that is more vulnerable to attack from outside.



二、選擇題：50% (共 25 題，每題 2 分；答案請採橫式書寫，每行 5 題)

1. 以下哪一個程式語言比較適合撰寫產出 HTML 網頁的應用程式？

- (A) Java
- (B) C
- (C) Ada
- (D) JSP

2. 以下哪個執行 Web 程式的功能是在伺服器端執行？

- (A) 執行 JavaScript 的程式
- (B) 執行 SQL 查詢
- (C) 顯示 HTML 的表格
- (D) 執行 Applet 程式

3. 下列有關 C 程式語言中型態的敘述，何者正確？

- (A) C 的編譯器可以在編譯時找出所有的型態錯誤
- (B) 定義常數時需要指定其型態 (type)
- (C) short 不是一種型態
- (D) 陣列變數的型態是指標

4. 以下以有關程式語言處理軟體的敘述，何者正確？

- (A) 編譯器 (compiler) 的輸出是可執行檔 (executable file)
- (B) C 語言的常數不是由 preprocessor 處理
- (C) parser 的功能是檢查語法錯誤
- (D) 解譯器 (interpreter) 只能執行原始程式

5. 若某 C 語言程式碼的一部份，定義了兩個變數：

```
{
    int s1;
    char s2[5];
    scanf(_____);
    printf(_____);
}
```

則以下有關傳遞參數給該段程式中 scanf 與 printf 兩個函數的描述，何者正確？

- (A) scanf("%d %c", s1, s2); 在編譯時會出現錯誤訊息
- (B) scanf("%d %s", &s1, s2); 是正確的呼叫 scanf 函數的方式
- (C) printf("%d %s", s1, s2); 在編譯時會出現錯誤訊息
- (D) printf("%d %c", s1, s2); 會印出 s1 與 s2 的值



6. 以下有關 UML 的描述何者正確？
- (A) UML 與物件導向沒有關連
 - (B) UML 沒有使用案例 (use cases) 的表示法
 - (C) activity diagram 是 UML 的一種表示圖
 - (D) UML 是一種軟體開發方法
7. 以下有關全球資訊網 (World Wide Web) 程式設計的敘述何者不正確？
- (A) Ruby 是一個專門用於全球資訊網程式設計的語言
 - (B) 只使用 JSP 來開發的程式俗稱 Model 1
 - (C) Ruby on Rail 是一種網頁程式設計的框架 (framework)
 - (D) Session 是一種管理使用者連線資料的方式
8. 以下有關 XML Web Services 的敘述何者正確？
- (A) XML Web Services 容許不同的應用程式分享資料。
 - (B) SSL 定義了應用程式與 XML Web Services 間溝通的協定
 - (C) XML Web Services 需要專屬的程式語言開發
 - (D) XML Web Services 與物件導向技術無關
9. 以下有關資料結構的描述，何者正確？
- (A) 樹狀結構不能儲存在硬碟中
 - (B) 堆疊 (stack) 的特性是後進後出，佇列 (queue) 的特性是先進先出
 - (C) 遞迴是一種常常用來實做樹狀資料結構的程式設計方式
 - (D) 堆疊 (stack) 只能用陣列來實做
10. 依序使用 4, 5, 7, 6, 8, 9, 3, 2, 1 等幾個字母當作節點來建構一個二元樹 (binary tree)。在使用中序的走法 (inorder traversal) 將這棵二元樹中節點的值印出時，字母的順序會由小到大排列。請問有關這個二元樹的敘述何者正確？
- (A) 9 是一個內部節點 (internal node)
 - (B) 7 是一個葉節點 (leaf)
 - (C) 2 是一個葉節點 (leaf)
 - (D) 該二元樹的樹根是 4
11. 以下有關以 Java 虛擬機器 (JVM) 來執行 Java 程式的敘述何者不正確？
- (A) Applet 不是在 JVM 上執行
 - (B) Java 的原始程式不能直接在 JVM 上執行
 - (C) JVM 定義了自己的指令集 (instruction set)
 - (D) JVM 可以在不同的硬體上執行



12. 以下有關 C 語言變數的敘述，何者正確？
- (A) 儲存區域變數的記憶體，在程式執行的不同階段，都會使用相同的地址
 - (B) `extern` 是 C 的一個儲存類別 (storage class)
 - (C) 在一個檔案中使用 `import` 便可以使用其他檔案的全域變數
 - (D) 指標變數的值不能用整數輸出
13. The high-speed cache memory in your computer is made from ____ circuits.
- (A) adder
 - (B) shifter
 - (C) flip-flop
 - (D) decoder
14. ____ patterns contain information about the color and brightness of a pixel.
- (A) Binary
 - (B) Octal
 - (C) Decimal
 - (D) Hexadecimal
15. ____ direct network traffic based on the logical (IP) addresses assigned at the third layer of the OSI stack.
- (A) Hubs
 - (B) Bridges
 - (C) Gateways
 - (D) Routers
16. The total pool of IPv4 addresses is separated into groups, called ____.
- (A) classes
 - (B) entities
 - (C) aggregations
 - (D) clusters
17. So that packets do not keep bouncing from router to router forever, one of the fields in the IP header is the ____ field.
- (A) time to live
 - (B) time to expire
 - (C) lifetime
 - (D) expiration



18. With _____, multiple computers can share one Internet connection.
- (A) NAT
 - (B) DHCP
 - (C) TCP/IP
 - (D) UDP
19. _____ formats content for display in a browser and transfers information via the Web.
- (A) SGML
 - (B) XML
 - (C) HTML
 - (D) PHP
20. A(n) _____ dependency exists when one column is dependent upon another column that is not the primary key.
- (A) transitive
 - (B) dysfunctional
 - (C) relational
 - (D) associative
21. _____ shows the numeric occurrences between entities in an ER model.
- (A) Functionality
 - (B) Cardinality
 - (C) Transitivity
 - (D) Dependency
22. _____ occurs when new changes are continually added to a project thus changing the proposed completion date so that the project is never completed, but is instead in constant improvement mode.
- (A) SDLC
 - (B) Prototyping
 - (C) Scope creep
 - (D) Testing



23. ____ is a method of splitting a laser beam and using a device called a spatial light modulator to store full pages of information in layers on a crystal material.
- (A) Fuzzy logic
 - (B) Pattern recognition
 - (C) Holographic storage
 - (D) Speech recognition
24. ____ are well suited for applications such as visual speech recognition applications.
- (A) DVRs
 - (B) Quantum computers
 - (C) Turing tests
 - (D) Neural networks
25. The concept of each person interacting with many, sometimes invisible computers has been named "____" by computer scientist Mark Weiser.
- (A) 1984
 - (B) ubiquitous computing
 - (C) massive parallelism
 - (D) nanotechnology

三、問答題：16%

請使用 C 或 Java 撰寫三個程序或方法，這三個程序或方法分別使用遞迴 (recursion)、尾端遞迴 (tail recursion) 與迴圈 (loop)，實做階乘函數 (factorial function)。



第一部份：個案題 50%

(要得高分，必須引用實際案例並說理清楚)

所謂企業電子化是指企業內部透過網路進行協調、分享與合作等。過程中所運用的技術及工具，包含：企業內外部網路基礎建設、電子交易標準與環境，以及企業資源規劃、顧客關係管理、供應鏈管理等各項軟體，再以企業流程再造、商業智慧及知識管理為輔。

問題：企業電子化已成為提昇企業競爭的利器，然而資訊科技的應用與產業的特性、營運模式有密不可分的關係。請就以下所列的相關行業，任挑兩個行業，並回答下面兩個問題。

- (1)分析各個行業是否均合適利用電子化創造其優勢。
- (2)並就各行各業討論其電子化適用的對向、範圍、方法、相關配套措施、及營運模式。

相關行業：1. 人壽保險業；2. 汽車代理商；3. 房屋仲介業；
4. 証券業；5. 銀行業

第二部份：問答題 50%

1. 資訊科技(IT)引進組織可能影響多重構面。以遠距教學為例，請以 Leavitt 的鑽石模式分析其對傳統教育的衝擊。
2. 請描述企業中智慧資本的種類，與組織創造與成長知識的動態過程。
3. 請建議維持網路安全的主要防護機制。
4. 支援企業電子化需要新的資訊科技基礎架構，請敘述在資料儲存與資料分析方面常用的 IT 工具。
5. 請分析影響組織資訊系統實施(Implementation)成敗的主要因素。



In this test, there are 20 multiple choice questions with 5 points for each question. Please select the correct answer for each question.

1. The ages of people in a class (to the nearest year) are as follows:

Age	18	19	20	21	22	23	24	25	32
Number of students	14	120	200	200	90	30	10	2	1

What is true about the median age?

- (A) It must be 20. (B) It could be any number between 19 and 21.
 (C) It must be 21. (D) It must be over 21.
 (E) None of the above answer is correct.
2. You select an employee at random from all those in a large company. An employee can be either male or female, and can be under 30 years old, between 30 and 45 years old, or over 45 years old. The table below gives the probability of each of the six possible age and gender combinations for a randomly selected employee.

	Under 30	30 – 45	Over 45	Under 30	30 – 45	Over 45
Age-gender Combination	Male	Male	Male	Female	Female	Female
Probability	.3	.3	?	.1	.1	.1

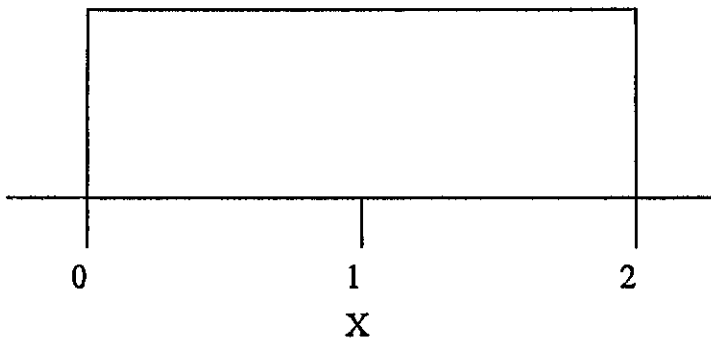
The probability that you select neither a male nor a female under 30 years of age is

- (A) .1 (B) .3 (C) .4 (D) .5 (E) .6
3. A survey asks a random sample of 1500 adults in Ohio if they support an increase in the state sales tax from 5% to 6%, with the additional revenue going to education. Let X denotes the number in the sample that say they support the increase. Support that 40% of all adults in Ohio support the increase. The standard deviation of X is
- (A) 18.97 (B) 26.69 (C) 75 (D) 360 (E) 600
4. A fair coin (one for which both the probability of heads and the probability of tails are 0.5) is tossed six times. The probability that less than $1/3$ of the tosses are heads is
- (A) 0.3333 (B) 0.1667 (C) 0.1094 (D) 0.0938 (E) 0.0043



The following information is used in problems 5 – 6.

The probability density of a random variable X is given in the figure below.



5. From this density, the probability that X is between 0.5 and 1.5 is
(A) $1/4$ (B) $1/3$ (C) $1/2$ (D) $3/4$ (E) 1
6. The probability that $X = 1.5$ is
(A) 0 (B) $1/4$ (C) $1/3$ (D) $1/2$ (E) 1
7. A multiple choice exam has 100 questions, each with five possible answers. If a student is just guessing that all the answers, the probability that he or she gets at least 30 correct is
(A) 0.2000 (B) 0.1020 (C) 0.0228 (D) 0.0062 (E) 0.3000
8. During the evening hours of 7 PM until 9 PM, the number of calls received at a suicide hotline can be modeled as a Poisson distribution with a mean of 3.5 calls per 15 minutes. The probability of zero calls in a 15-minute period is 0.0302. The probability of getting zero calls between 7:30 PM and 8:00 PM is
(A) 0.0009 (B) 0.0151 (C) 0.0302 (D) 0.0604
(E) None of the above answer is correct.

Use the following to answer questions 9-10.

A particular electronic component is produced at two plants for an electronics manufacturer. Plant A produces 60% of the components used and the remainder are produced by plant B. The proportion of defective components produced at plant A is 1% and the proportion of defective components produced at plant B is 2%.



9. If a component received by the manufacturer is defective, the probability that it was produced at plant A is
(A) 0.14286 (B) 0.28571 (C) 0.42857 (D) 0.57142 (E) 0.71429
10. If a component received by the manufacturer is not defective, the probability that it was produced at plant A is
(A) 0.398 (B) 0.602 (C) 0.622 (D) 0.684 (E) 0.713
11. According to Barron's 1998 Primary Reader Survey, the average annual number of investment transactions for a subscriber is 24. Suppose the number of transactions in a year follows a Poisson probability distribution. What is the probability of no transactions during the month of January for a particular subscriber?
(A) 0.0333 (B) 0.0417 (C) .0500 (D) 0.0821 (E) 0.1353
12. A police officer wants to estimate the true proportion of all drivers who exceed the speed limit on a certain stretch of road where accidents frequently happen. How large should the sample to be so that, with 95 percent confidence, the sample proportion will not differ from the true proportion by more than .027?
(A) 673 (B) 36 (C) 1318 (D) 899 (E) 30
13. A major department store chain is interested in estimating the average amount its credit card customers spent on their first visit to chain's new store in the mall. Fifteen credit card amounts were randomly sampled and analyzed with following results: $\bar{x} = \$50.50$ and $s^2 = 400$. Construct a 95% confidence interval for the average amount its credit card customers spent on their first visit to the chain's new store in the mall.
(A) $\$50.50 \pm \26.67
(B) $\$50.50 \pm \11.08
(C) $\$50.50 \pm \10.12
(D) $\$50.50 \pm \9.09
(E) $\$50.50 \pm \5.16

Use the following problem to answer questions 14-16.

In 1990, the average duration of long-distance telephone calls originating in one town was 8.7 minutes. A long-distance telephone company wants to perform a test to determine whether the average duration of long-distance phone call has changed from year of 1990. A random sample of size 62 was selected and sample mean is 10.4 minutes. Assume that $\sigma = 5.9$, and the significance level is .05.



14. Which alternative hypothesis is being tested?
- (A) $H_a: \mu > 8.7$ (B) $H_a: P > 0.05$ (C) $H_a: \mu \neq 0$
- (D) $H_a: P \neq 0.05$ (E) $H_a: \mu \neq 8.7$
15. Express the decision criterion for the hypothesis test in terms of \bar{x} .
- (A) Reject H_0 if $\bar{x} < 7.23$ (B) Reject H_0 if $7.23 < \bar{x} < 10.17$
- (C) Reject H_0 if $\bar{x} < -1.96$ (D) Reject H_0 if $\bar{x} < 7.23$ or $\bar{x} > 10.17$
- (E) Reject H_0 if $\bar{x} > 1.96$.
16. The p-value of the test is
- (A) 0.0119 (B) 0.4481 (C) 0.05 (D) 0.0232 (E) 0.5228

Use the following problem to answer questions 17-18.

In placing a weekly order, a concessionaire who provides services at a baseball stadium must know what size crowd is expected during the coming week in order to know how much food, etc., to order. Since advance ticket sales give an indication of expected attendance, food needs might be predicted on the basis of the advance sales. A random sample of size 20 was selected and the following least squares model was obtained.

$$\hat{y} = 2.084 + 0.67x, \text{ where } R^2 = .55$$

17. Which of the following values represents the test statistic for determining if the model is a useful to predict the amount of food needed?
- (A) 22 (B) 4.41 (C) 2.084 (D) 0.67 (E) 0.55
18. Which of following statement about this regression model is correct?
- (A) The model explains about 55% of the variation in mean advance ticket sales sampled.
- (B) The dependent variable (response) is the advance ticket sales.
- (C) If one more ticket is sold, the average foods were estimated to increase 0.67 units.
- (D) The correlation between foods need and ticket sales about 55%.
- (E) The food needed is about 2.084 units.

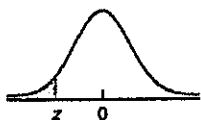


Use the following problem to answer questions 19-20.

An educational psychologist claims that the order of questions on an exam affects the student's score on the exam. She believes that students will score better on an exam if questions are ordered from easiest to hardest. To test the claim, she randomly selects two groups of 10 students each to take exam A (questions are ordered from easiest to hardest) and exam B (random order).

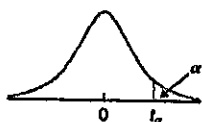
Exam A	Exam B
$\bar{X}_1=87$	$\bar{X}_2=83$
$S_1^2=12$	$S_2^2=10$

19. Find the test statistic in order to test whether the data support the psychologist claim. Use $\alpha=.05$.
- (A) 4 (B) 2.70 (C) 11 (D) 2.2 (E) 1.48
20. Give the rejection region appropriate when testing $\alpha=.05$ to determine whether the order of questions on an exam affects the student's score on the exam.
- (A) Reject H_0 if $z > 1.645$
 (B) Reject H_0 if $F > 1.79$
 (C) Reject H_0 if $t > 1.734$
 (D) Reject H_0 if $z > 1.96$ or $z < -1.96$
 (E) Reject H_0 if $F > 2.12$


 TABLE II
 Areas under the
 standard normal curve


Second decimal place in z										z
0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.00	
									0.0000 [†]	-3.9
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	-3.8
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	-3.7
0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	-3.6
0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	-3.5
0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	-3.4
0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	-3.3
0.0005	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	-3.2
0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010	-3.1
0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0013	0.0013	0.0013	-3.0
0.0014	0.0014	0.0015	0.0015	0.0016	0.0016	0.0017	0.0018	0.0018	0.0019	-2.9
0.0019	0.0020	0.0021	0.0021	0.0022	0.0023	0.0023	0.0024	0.0025	0.0026	-2.8
0.0026	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034	0.0035	-2.7
0.0036	0.0037	0.0038	0.0039	0.0040	0.0041	0.0043	0.0044	0.0045	0.0047	-2.6
0.0048	0.0049	0.0051	0.0052	0.0054	0.0055	0.0057	0.0059	0.0060	0.0062	-2.5
0.0064	0.0066	0.0068	0.0069	0.0071	0.0073	0.0075	0.0078	0.0080	0.0082	-2.4
0.0084	0.0087	0.0089	0.0091	0.0094	0.0096	0.0099	0.0102	0.0104	0.0107	-2.3
0.0110	0.0113	0.0116	0.0119	0.0122	0.0125	0.0129	0.0132	0.0136	0.0139	-2.2
0.0143	0.0146	0.0150	0.0154	0.0158	0.0162	0.0166	0.0170	0.0174	0.0179	-2.1
0.0183	0.0188	0.0192	0.0197	0.0202	0.0207	0.0212	0.0217	0.0222	0.0228	-2.0
0.0233	0.0239	0.0244	0.0250	0.0256	0.0262	0.0268	0.0274	0.0281	0.0287	-1.9
0.0294	0.0301	0.0307	0.0314	0.0322	0.0329	0.0336	0.0344	0.0351	0.0359	-1.8
0.0367	0.0375	0.0384	0.0392	0.0401	0.0409	0.0418	0.0427	0.0436	0.0446	-1.7
0.0455	0.0465	0.0475	0.0485	0.0495	0.0505	0.0516	0.0526	0.0537	0.0548	-1.6
0.0559	0.0571	0.0582	0.0594	0.0606	0.0618	0.0630	0.0643	0.0655	0.0668	-1.5
0.0681	0.0694	0.0708	0.0721	0.0735	0.0749	0.0764	0.0778	0.0793	0.0808	-1.4
0.0823	0.0838	0.0853	0.0869	0.0885	0.0901	0.0918	0.0934	0.0951	0.0968	-1.3
0.0985	0.1003	0.1020	0.1038	0.1056	0.1075	0.1093	0.1112	0.1131	0.1151	-1.2
0.1170	0.1190	0.1210	0.1230	0.1251	0.1271	0.1292	0.1314	0.1335	0.1357	-1.1
0.1379	0.1401	0.1423	0.1446	0.1469	0.1492	0.1515	0.1539	0.1562	0.1587	-1.0
0.1611	0.1635	0.1660	0.1685	0.1711	0.1736	0.1762	0.1788	0.1814	0.1841	-0.9
0.1867	0.1894	0.1922	0.1949	0.1977	0.2005	0.2033	0.2061	0.2090	0.2119	-0.8
0.2148	0.2177	0.2206	0.2236	0.2266	0.2296	0.2327	0.2358	0.2389	0.2420	-0.7
0.2451	0.2483	0.2514	0.2546	0.2578	0.2611	0.2643	0.2676	0.2709	0.2743	-0.6
0.2776	0.2810	0.2843	0.2877	0.2912	0.2946	0.2981	0.3015	0.3050	0.3085	-0.5
0.3121	0.3156	0.3192	0.3228	0.3264	0.3300	0.3336	0.3372	0.3409	0.3446	-0.4
0.3483	0.3520	0.3557	0.3594	0.3632	0.3669	0.3707	0.3745	0.3783	0.3821	-0.3
0.3859	0.3897	0.3936	0.3974	0.4013	0.4052	0.4090	0.4129	0.4168	0.4207	-0.2
0.4247	0.4286	0.4325	0.4364	0.4404	0.4443	0.4483	0.4522	0.4562	0.4602	-0.1
0.4641	0.4681	0.4721	0.4761	0.4801	0.4840	0.4880	0.4920	0.4960	0.5000	-0.0

[†] For $z \leq -3.90$, the areas are 0.0000 to four decimal places.


 TABLE IV
 Values of t_α


df	$t_{0.10}$	$t_{0.05}$	$t_{0.025}$	$t_{0.01}$	$t_{0.005}$	df
1	3.078	6.314	12.706	31.821	63.657	1
2	1.886	2.920	4.303	6.965	9.925	2
3	1.638	2.353	3.182	4.541	5.841	3
4	1.533	2.132	2.776	3.747	4.604	4
5	1.476	2.015	2.571	3.365	4.032	5
6	1.440	1.943	2.447	3.143	3.707	6
7	1.415	1.895	2.365	2.998	3.499	7
8	1.397	1.860	2.306	2.896	3.355	8
9	1.383	1.833	2.262	2.821	3.250	9
10	1.372	1.812	2.228	2.764	3.169	10
11	1.363	1.796	2.201	2.718	3.106	11
12	1.356	1.782	2.179	2.681	3.055	12
13	1.350	1.771	2.160	2.650	3.012	13
14	1.345	1.761	2.145	2.624	2.977	14
15	1.341	1.753	2.131	2.602	2.947	15
16	1.337	1.746	2.120	2.583	2.921	16
17	1.333	1.740	2.110	2.567	2.898	17
18	1.330	1.734	2.101	2.552	2.878	18
19	1.328	1.729	2.093	2.539	2.861	19
20	1.325	1.725	2.086	2.528	2.845	20
21	1.323	1.721	2.080	2.518	2.831	21
22	1.321	1.717	2.074	2.508	2.819	22
23	1.319	1.714	2.069	2.500	2.807	23
24	1.318	1.711	2.064	2.492	2.797	24
25	1.316	1.708	2.060	2.485	2.787	25
26	1.315	1.706	2.056	2.479	2.779	26
27	1.314	1.703	2.052	2.473	2.771	27
28	1.313	1.701	2.048	2.467	2.763	28
29	1.311	1.699	2.045	2.462	2.756	29
30	1.310	1.697	2.042	2.457	2.750	30
31	1.309	1.696	2.040	2.453	2.744	31
32	1.309	1.694	2.037	2.449	2.738	32
33	1.308	1.692	2.035	2.445	2.733	33
34	1.307	1.691	2.032	2.441	2.728	34
35	1.306	1.690	2.030	2.438	2.724	35
36	1.306	1.688	2.028	2.434	2.719	36
37	1.305	1.687	2.026	2.431	2.715	37
38	1.304	1.686	2.024	2.429	2.712	38
39	1.304	1.685	2.023	2.426	2.708	39
40	1.303	1.684	2.021	2.423	2.704	40
41	1.303	1.683	2.020	2.421	2.701	41
42	1.302	1.682	2.018	2.418	2.698	42
43	1.302	1.681	2.017	2.416	2.695	43
44	1.301	1.680	2.015	2.414	2.692	44
45	1.301	1.679	2.014	2.412	2.690	45
46	1.300	1.679	2.013	2.410	2.687	46
47	1.300	1.678	2.012	2.408	2.685	47
48	1.299	1.677	2.011	2.407	2.682	48
49	1.299	1.677	2.010	2.405	2.680	49



F distribution critical value landmarks

Table entries are critical values for F^* with probably p in right tail of the distribution.

Figure of F distribution (like in Moore, 2004, p. 656) here.

p		Degrees of freedom in numerator (df1)												
		1	2	3	4	5	6	7	8	12	24	1000		
Degrees of freedom in denominator (df2)	1	0.100	39.88	49.50	53.59	55.83	57.24	58.20	58.91	59.44	60.71	62.00	63.30	
		0.050	181.4	199.5	215.7	224.6	230.2	234.0	236.9	238.9	243.9	249.1	254.2	
		0.025	647.6	799.5	864.2	899.6	921.8	937.1	948.2	958.6	976.7	997.3	1017.8	
		0.010	4052	4999	5404	5624	5764	5859	5928	5981	6107	6234	6363	
		0.001	405312	499725	540257	562668	576496	586033	593185	597954	610352	623703	638101	
		2	0.100	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.41	9.45	9.49
			0.050	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.41	19.45	19.49
			0.025	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.41	39.46	39.50
			0.010	98.50	99.00	99.16	99.25	99.30	99.33	99.36	99.38	99.42	99.46	99.50
			0.001	998.38	998.84	999.31	999.31	999.31	999.31	999.31	999.31	999.31	999.31	999.31
		3	0.100	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.22	5.18	5.13
			0.050	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.74	8.64	8.53
			0.025	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.34	14.12	13.91
			0.010	34.12	30.82	29.48	28.71	28.24	27.91	27.67	27.48	27.05	26.60	26.14
			0.001	167.06	148.49	141.10	137.08	134.58	132.63	131.61	130.62	128.32	125.93	123.52
		4	0.100	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.90	3.83	3.76
			0.050	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	5.91	5.77	5.63
			0.025	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.75	8.51	8.28
			0.010	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.37	13.93	13.47
			0.001	74.13	61.25	56.17	53.43	51.72	50.52	49.65	49.00	47.41	45.77	44.09
		5	0.100	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.27	3.19	3.11
			0.050	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.68	4.53	4.37
			0.025	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.52	6.28	6.02
			0.010	16.26	13.27	12.08	11.39	10.97	10.67	10.46	10.29	9.89	9.47	9.03
			0.001	47.18	37.12	33.20	31.08	29.75	28.83	28.17	27.65	26.42	25.13	23.62
		6	0.100	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.90	2.82	2.72
			0.050	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.00	3.84	3.67
			0.025	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.37	5.12	4.88
			0.010	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.72	7.31	6.89
			0.001	35.51	27.00	23.71	21.92	20.80	20.03	19.46	19.03	17.99	16.90	15.77
		7	0.100	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.67	2.58	2.47
			0.050	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.57	3.41	3.23
			0.025	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.67	4.41	4.15
			0.010	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.47	6.07	5.66
			0.001	29.25	21.69	18.77	17.20	16.21	15.52	15.02	14.63	13.71	12.73	11.72
		8	0.100	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.50	2.40	2.30
			0.050	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.28	3.12	2.93
			0.025	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.20	3.95	3.68
			0.010	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.67	5.28	4.87
			0.001	25.41	18.49	15.83	14.39	13.48	12.86	12.40	12.05	11.19	10.30	9.38
		9	0.100	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.38	2.28	2.16
			0.050	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.07	2.90	2.71
			0.025	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	3.87	3.61	3.34
			0.010	10.58	8.02	6.99	6.42	6.08	5.80	5.61	5.47	5.11	4.73	4.32
			0.001	22.86	16.38	13.90	12.56	11.71	11.13	10.70	10.37	9.57	8.72	7.84

Critical values computed with Excel 9.0



國立雲林科技大學
97 學年度碩士班入學招生考試試題

系所：工管所、資管系

科目：統計學

		Degrees of freedom in numerator (df1)												
		1	2	3	4	5	6	7	8	12	24	1000		
Degrees of freedom in denominator (df2)	10	0.100	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.28	2.18	2.06	
		0.050	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	2.91	2.74	2.54	
		0.025	6.94	5.48	4.83	4.47	4.24	4.07	3.95	3.85	3.62	3.37	3.09	
		0.010	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.08	4.71	4.33	3.92	
		0.001	21.04	14.90	12.55	11.28	10.48	9.93	9.52	9.20	8.45	7.84	6.78	
		12	0.100	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.15	2.04	1.91
			0.050	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.69	2.51	2.30
			0.025	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.28	3.02	2.73
			0.010	9.33	6.93	5.95	5.41	5.08	4.82	4.64	4.50	4.16	3.78	3.37
			0.001	18.64	12.97	10.80	9.63	8.89	8.38	8.00	7.71	7.00	6.25	5.44
		14	0.100	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.05	1.94	1.80
			0.050	4.60	3.74	3.34	3.11	2.96	2.85	2.78	2.70	2.53	2.35	2.14
			0.025	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.05	2.79	2.50
			0.010	8.88	6.51	5.56	5.04	4.69	4.46	4.28	4.14	3.80	3.43	3.02
			0.001	17.14	11.78	9.73	8.62	7.92	7.44	7.08	6.80	6.13	5.41	4.62
		16	0.100	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	1.99	1.87	1.72
			0.050	4.49	3.63	3.24	3.01	2.85	2.74	2.68	2.59	2.42	2.24	2.02
			0.025	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	2.89	2.63	2.32
			0.010	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.55	3.18	2.78
			0.001	16.12	10.97	9.01	7.94	7.27	6.80	6.46	6.20	5.55	4.85	4.08
	18	0.100	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	1.93	1.81	1.68	
		0.050	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.34	2.15	1.92	
		0.025	5.98	4.58	3.95	3.61	3.38	3.22	3.10	3.01	2.77	2.50	2.20	
		0.010	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.37	3.00	2.58	
		0.001	15.38	10.39	8.49	7.46	6.81	6.35	6.02	5.76	5.13	4.45	3.69	
	20	0.100	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.89	1.77	1.61	
		0.050	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.28	2.08	1.85	
		0.025	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.68	2.41	2.09	
		0.010	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.23	2.86	2.43	
		0.001	14.82	9.95	8.10	7.10	6.46	6.02	5.69	5.44	4.82	4.15	3.40	
	30	0.100	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.77	1.64	1.48	
		0.050	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.09	1.89	1.63	
		0.025	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.41	2.14	1.80	
		0.010	7.58	5.39	4.51	4.02	3.70	3.47	3.30	3.17	2.84	2.47	2.02	
		0.001	13.29	8.77	7.05	6.12	5.53	5.12	4.82	4.58	4.00	3.36	2.61	
	50	0.100	2.81	2.41	2.20	2.06	1.97	1.90	1.84	1.80	1.68	1.54	1.33	
		0.050	4.03	3.18	2.79	2.56	2.40	2.29	2.20	2.13	1.95	1.74	1.45	
		0.025	5.34	3.97	3.39	3.05	2.83	2.67	2.55	2.46	2.22	1.93	1.58	
		0.010	7.17	5.06	4.20	3.72	3.41	3.19	3.02	2.89	2.58	2.18	1.70	
		0.001	12.22	7.98	6.34	5.46	4.90	4.51	4.22	4.00	3.44	2.82	2.05	
	100	0.100	2.76	2.36	2.14	2.00	1.91	1.83	1.78	1.73	1.61	1.46	1.22	
		0.050	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.85	1.63	1.30	
		0.025	5.18	3.83	3.25	2.92	2.70	2.54	2.42	2.32	2.08	1.78	1.38	
		0.010	6.90	4.82	3.98	3.51	3.21	2.99	2.82	2.69	2.37	1.98	1.45	
		0.001	11.50	7.41	5.86	5.02	4.48	4.11	3.83	3.61	3.07	2.46	1.64	
	1000	0.100	2.71	2.31	2.09	1.95	1.85	1.78	1.72	1.68	1.55	1.39	1.08	
		0.050	3.85	3.00	2.61	2.38	2.22	2.11	2.02	1.95	1.76	1.53	1.11	
		0.025	5.04	3.70	3.13	2.80	2.58	2.42	2.30	2.20	1.96	1.65	1.13	
		0.010	6.68	4.63	3.80	3.34	3.04	2.82	2.66	2.53	2.20	1.81	1.16	
		0.001	10.89	6.96	5.46	4.65	4.14	3.78	3.51	3.30	2.77	2.16	1.22	

Use StatTable, WinPepi > Whatts, or other reliable software to determine specific p values



- 一、試從混合式學習策略與模式中，請問你(妳)依目前之教育結構與現況如何做積極有效地推展通識教育(general education)課程，以強化基礎學科之跨領域整合課程之理念，並如何落實此跨領的統整教學模組化，以達『人文與科技』的均衡發展？請舉例實務案例敘述之。(25 分)
- 二、試從 96 學年度全國大學校長會議，教育部杜部長正勝在會中以「高等教育發展與努力方向」為題發表演說，特別回顧 2004 年曾期許「大學人管大學事」，落實大學自治，又於 2005 年大學校長會議提出教育部與大學不同的目標與責任。杜部長並說明上任近 4 年來整體高等教育的發展與績效，並針對：(1)「經費逐年成長」(2)「大學更加自治」(3)「國際化已見成效」(4)「學校定位衝擊」(5)「推動產學合作」(6)「強化弱勢照顧」等。請你(妳)從上述之六大議題中之一，依目前教育現況提出個人見解，加以解釋說明之。(25 分)
- 三、天下雜誌教育專刊的調查中顯示，有 50% 的國中生認為作弊沒有關係，由此民調，我們憂心孩子錯誤的價值觀不僅影響自己的一生，也將影響國家未來的前途。在企業界，「倫理」成為核心能力，「品格」成為新世紀用人的新哲學。足見品格教育在各行各業的重要性可見一斑，品格教育亦為全球教育界的新顯學，新世紀人才的必備能力。請說明何謂品格教育，以及其教育的內容為何？(25%)
- 四、教育部目前積極推動試辦高級中等以下學校教師專業發展評鑑，其目的為協助教師專業成長，增進教師專業素養，提升教學品質。教師專業發展評鑑是校務經營的一種良好方式，請說明教師專業發展評鑑的願景、使命、核心價值為何？在中小學要推展教師專業發展評鑑宜有那些配套措施？(25%)