國 立 雲 林 科 技 大 學
98 學年度碩士班入學招生考試試題

系所：資管系
科目：資訊管理導論

◎ **Part I.**
Please explain or define the following terms: (4% each)

A. Multidimensionality
B. Virtual value chain
C. SMART
D. Revolving Door Theory
E. SOAP

◎ **Part II.**
Essay questions: (10% each)

1. Explain what business processes are, and introduce four key enterprise applications with the aim of integrating business processes.

2. Define edge computing and on-demand computing, and comment on their implications on the contemporary computer hardware platform trends.

3. Identify major tools of business intelligence, and describe the way it can provide information from databases to improve business performance and decision making.

4. Describe the concept of recovery-oriented computing, and distinguish between disaster recovery planning and business continuity planning.

5. Describe component-based development and web services, and explain how they help digital firms build and enhance their information systems.

6. Introduce major types of global strategies; demonstrate the connection between global strategy and information systems design.

國 立 雲 林 科 技 大 學
98 學年度碩士班入學招生考試試題

系所：資管系
科目：資訊管理導論

◎ Part III.

Minicase

Very few people would associate a fisherman with HTML, but Bob Maillet, the owner of a small fishing company in Alaska, combined fishing and HTML, creating one of the most interesting electronic enterprises.

In an attempt to fight the stiff competition from Japan, Mr. Maillet, whose company was on the verge of bankruptcy, tried to find new niche markets. In exploring the market for sea snails, he realized that he lacked knowledge. While searching for knowledge, he was introduced the Web as a solution to this problem. In appreciation of the power of the Internet, he taught himself HTML and launched a Web site called the FishMart (www.fishmart.com). This site provides considerable information for the fisherman. For example, it helps sellers identify buyers with trouble credit histories, lists sources of loans for commercial fishermen, provides links to all related government agencies, provides weather reports, and reports fish prices in all the major markets—all for free.

The site makes money from classified ads for fishing-related products and services, including help-wanted ads for employees. A second source of income is the company's public market, which rents space on the Web site to seafood retailers who offer their products (mainly salmon) there. In 1997, actual trading was completed via the telephone, so the site was basically used for advertisement. This situation changed in 1998, and now customers can order and pay electronically. Another feature is the auction market that is available on the Web site (experimental in 1998).

The auction market can profoundly change the way the seafood industry operates. The existing process includes the following steps:

1. Fishermen catch fish and sell them to processors.
2. Processors sell the fish products to wholesales and brokers, who sell them to retailers, including supermarkets and restaurants.
3. Retailers sell the fish to customers.

Here is how the auction works:

1. Sellers of any fish product can place their products up for bid on the FishMart for any of the marketing channel. FishMart inspects the quality to assure compliance with quality standards.

2. Buyers open trading accounts with FishMart. Any approved buyer can bid on price and quantity via a click on the Web site.

3. Once a bid is accepted, payments are arranged and shipments are executed (special help is available to organize the shipments, which frequently involve inter-country traders).

4. Payments can be made via special accounts maintained by Merrill Lynch, a large financial service company. Buyers deposit funds in an inter-paying account and, using a password, can authorize electronic transfer of fund to the sellers.

5. In the past, the sellers used hundreds of salespeople to call on potential buyers. Commissions supplemented many of the salespeople's salaries. Now, the sellers use the Web site and pay a commission only when a sale is made.

Maillet's company, Innovative Internet Marketing Systems, is both business-to-customer and business-to-business oriented, and it is expected to grow rapidly.

Questions for Minicase:

A: This auction market is considered a BPR, when compared with the previous use of salespeople. Why? (10%)

B. What are the benefits of the auction market to the sellers? to the buyers? (10%)

國 立 雲 林 科 技 大 學
98 學年度碩士班入學招生考試試題

系所：資管系、設運所
科目：計算機概論

第一部分

一、單選題（每題 2 分，共 30 分）

1. I wish to have a wireless LAN to serve my house. I will use _____.
   (A) RFID　　　(B) ZigBee　　　(C) Bluetooth　　　(D) 802.11g

2. In routing tables, which column describes the attractiveness of a row?
   (A) The metric column　　　(B) The QoS column
   (C) The IP address range column　　　(D) The next-hop router column

3. Which of the following can provide priority to traffic based on TCP port numbers?
   (A) Layer 2 switches　　　(B) Layer 3 switches
   (C) Layer 4 switches　　　(D) Layer 5 switches

4. A Windows host sends a TCP segment with source port number 47 and destination port number 3270.
   (A) The destination host is a server　(B) The destination host is a client
   (C) The source host is a server　　　(D) The source host is a client

5. Digital certificate authentication proves that the applicant knows _____.
   (A) his or her private key
   (B) his or her public key
   (C) the public key of the party the applicant claims to be
   (D) the private key of the party the applicant claims to be

6. When an SSL/TLS gateway is used in a site that has four webservers and no other servers, how many SSL/TLS connections will the client have?
   (A) One　　　(B) Two　　　(C) Three　　　(D) Four

7. DoS attacks are attacks on _____.
   (A) integrity　　(B) sensitivity　　　(C) availability　　　(D) confidentiality

8. The scope of _____ is a single information system application.
   (A) systems planning　　　(B) systems analysis
   (C) systems design　　　(D) systems implementation

9. A _____ represents the input of data to process or the output of data from a process.
   (A) data flow　　　(B) use case
   (C) state diagrams　　　(D) connectivity diagrams

10. _____ is a property that allows the generic description of objects which are then reused by related objects.
    (A) Encapsulation　　(B) Inheritance　　　(C) Polymorphism　(D) Public

11. During the _____ phase of Rational Unified Process, you establish the business case for the system and delimit the project's scope .
    (A) elaboration　　　(B) construction　　　(C) inception　　　(D) transition

12. Which of the following is <u>not</u> a common type of threading implementation?
    (A) Many-to-One Model　　　(B) One-to-One Model
    (C) Many-to-Many Model　　　(D) One-to-Many Model

13. Which of the following is <u>not</u> a necessary condition of deadlock?
    (A) bounded waiting　　　(B) mutual exclusion
    (C) hold-and-wait　　　(D) no preemption

14. _____ is a scheme that permits the logical address space of a process to be noncontiguous.
    (A) Swapping　　　(B) Sharing　　　(C) Locating　　　(D) Paging

15. _____ is a special case of the general priority scheduling algorithm, which simply allocates the CPU to the highest-priority process?
    (A) First-come, first-served scheduling　(B) Shortest-job-first scheduling
    (C) Round-robin scheduling　　　(D) Multilevel Queue Scheduling

二、試比較分析傳統結構化程式語言與物件導向程式語言有何異同之處。（10%）

三、假設有 1 個背包及 7 項物品，背包可以載重 25 公斤，7 項物品（編號）的價值（元）及重量（公斤）如下表所示，試問該如何裝才可以帶走最有價值的物品呢？其價值又是多少呢？
註：不可直接寫答案需寫出運算過程才給分。(10%)

| 物品	1	2	3	4	5	6	7
價值	4	9	7	2	5	8	3
重量	4	6	4	10	7	8	4

第二部分（單選題，每題 2 分，共 50 分）

1. Which one of the followings is a software package that provides emulation of the underlying raw hardware on the x86 architectures?
   (A) VMware   (B) MVS   (C) CP/CMS   (D) z/OS

2. Which one of the followings is *not* a layer of the SAS (Serial Attached SCSI) architecture?
   (A) session   (B) application   (C) transport   (D) port

3. Which one of the followings consists of suites of related applications that voluntarily cede time to each other?
   (A) multiprogramming   (B) cooperative multitasking
   (C) preemptive multitasking   (D) multithreading

4. Which one of the following file systems is *not* supported by Microsoft Windows?
   (A) NTFS   (B) FAT   (C) ext4   (D) UDF

5. Which one of the following programming languages does *not* support dynamic typing?
   (A) Ruby   (B) Lisp   (C) Python   (D) Java

6. Which one of the followings is the process by which an object sends data to another object or asks the other object to invoke a method?
   (A) polymorphism   (B) encapsulation
   (C) inheritance   (D) message passing

7. Which one of the followings is *not* an anonymous P2P computer network?
   (A) GNUnet   (B) Nasper   (C) Freenet   (D) RShare

8. Which one of the followings is *not* a linear data structure?
   (A) linked list   (B) queue
   (C) binary heap   (D) circular buffer

9. Which one of the followings is *not* a geographic data model?
   (A) entity-relationship data model
   (B) vector data model
   (C) raster data model
   (D) triangulated irregular network data model

10. Which one of the followings is an algorithm that invokes itself repeatedly until a certain condition matches?
    (A) recursive algorithm   (B) iterative algorithm
    (C) deterministic algorithm (D) approximation algorithm

11. Which one of the followings is *not* a compiled language?
    (A) C++   (B) Ruby   (C) Common Lisp   (D) Visual Basic

12. Which one of the followings is a sequential development process, in which development is seen

as flowing steadily downwards through the phases of requirements analysis, design, implementation, testing (validation), integration, and maintenance?
(A) software prototyping   (B) incremental development
(C) waterfall model   (D) spiral model

13. Which one of the following classifications will distributed systems be generally recognized as?
 (A) single instruction, single data stream
 (B) single instruction, multiple data streams
 (C) multiple instruction, single data stream
 (D) multiple instruction, multiple data streams

14. Which one of the followings is a software testing method that is used to test internationalization aspects of software?
 (A) code coverage   (B) fault injection
 (C) boundary value analysis   (D) pseudolocalization

15. Which one of the followings is *not* a metric of service level agreement?
 (A) time service factor   (B) cyclomatic complexity
 (C) abandonment rate   (D) turnaround time

16. Which one of the followings is *not* a part of the database transaction ACID properties?
 (A) atomicity   (B) consistency   (C) isomorphism   (D) durability

17. Which one of the following relational algebra operations produces a new relation with only some of the attributes of its operand?
 (A) π (B) σ (C) $\times$ (D) $\cup$

18. Which one of the followings is a DDL statement in SQL?
 (A) ALTER   (B) COMMIT   (C) INSERT   (D) SELECT

19. Which one of the followings is a web application architecture based on XForms, REST and XQuery?
 (A) OQL   (B) XRX   (C) LINQ   (D) QBE

20. Which one of the followings is a protocol specification for exchanging structured information in the implementation of Web Services in computer networks?
 (A) DHCP   (B) SSH   (C) SOAP   (D) SMTP

21. Which one of the followings is a public key/private key encryption algorithm?
 (A) SHA-1   (B) MD5   (C) DES   (D) RSA

22. Which one of the followings is an entity which issues digital certificates for use by other parties?
 (A) registration authority   (B) validation authority
 (C) trusted authority   (D) certificate authority

23. Which one of the followings can perform some or all of the functions normally performed by a router?
 (A) layer 2 switch   (B) layer 3 switch
 (C) layer 4 switch   (D) layer 7 switch

24. Which one of the followings is *not* a part of the Java programming language?
 (A) while   (B) for   (C) goto   (D) switch

25. Which one of the followings is an architecture to attach remote computer storage devices to servers in such a way that the devices appear as locally attached to the operating system?
 (A) SAN   (B) NAS   (C) NFS   (D) AFS

1. 請分別以串列(linked list)及相鄰矩陣(adjacency matrix)表達下列圖形
   (graph)，並分析以這兩種資料結構表達圖形之優缺點。(10%)

Figure 1
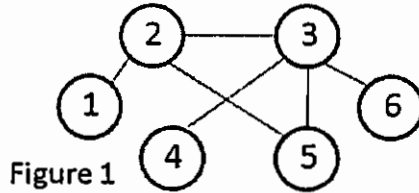
2. 假設串列 L 內的鍵值都不相同，演算法 *count sort* 能將 L 內的鍵值依大小順
   序排列在一個新的陣列 S 中。從頭到尾 L 內的每個鍵值 L.entry[i].key，Count
   sort 逐一和 L 串列內每一個鍵值比較，計算有多少鍵值比 L.entry[i].key 還
   小。若有 c 個的話，就將該鍵值放在新的陣列 S 中 c+1 的位置。(a)請分析
   count sort 演算法需要進行多少次鍵值比較？(10%) (b)請以虛擬碼寫出 count
   sort 演算法。(10%)

3. MAX-HEAPIFY is a subroutine for manipulating max-heaps. Its inputs are an
   array A and an index *i* into the array. When MAX-HEAPIFY is called, it is
   assumed that the binary trees rooted at LEFT(i) and RIGHT(i) are max-heaps,
   but that A[i] may be smaller than its children, thus violating the max-heap
   property. After MAX-HEAPIFY is called, the violation will be corrected. (a)
   Given an array A as shown in Figure 2, after MAX-HEAPIFY(A, 2) is executed,
   what content will A have? (10%) (b) Assume *n* be the size of A, analyze the
   time-complexity of MAX-HEAPIFY in terms of *n*. (10%)

MAX-HEAPIFY(A, i)
$l \leftarrow$ LEFT(i)
$r \leftarrow$ RIGHT(i)
if $l \leq$ heap-size[A] and A[l] > A[i]
   then *largest* $\leftarrow l$
   else *largest* $\leftarrow i$
if $r \leq$ heap-size[A] and A[r] > A[*largest*]
   then *largest* $\leftarrow r$
if *largest* $\neq r$
   then exchange $A[i] \leftrightarrow A[largest]$
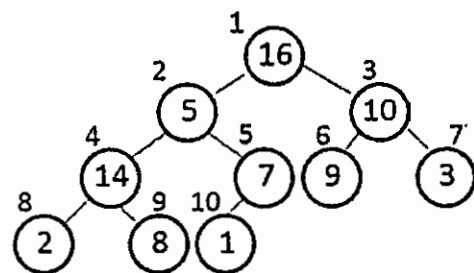   MAX-HEAPIFY(A, *largest*)

Figure 2

4. 某個二元搜尋樹的前序(preorder)追蹤結果是
   90 60 10 50 40 20 30 70 80 100
   請畫出此二元搜尋樹及它的中序(inorder)與後序(postorder)追蹤結果。(15%)

5. 請將下列的遞迴定義化簡。(20%)

$$T(n) = \begin{cases} 1, & if\ n = 1 \\ n + \sum_{j=1}^{n-1} T(j), & if\ n > 1 \end{cases}$$

6. 將下列鍵值以 hash 函數 h(k)=k mod 11 依序放入陣列裡面,若產生碰撞,則以 linear probing 的方式來解決。請畫出全部 hash 的經過。(15%)

　21　32　13　10　20　9

(一) 選擇題：單選題，每題 5 分。

1. A discrete random variable X has the probability function
$$p(x) = k(1/2)^x \qquad x = 1, 2, 3$$
What is the value of k?

    (A) $\dfrac{1}{2}$ (B) $\dfrac{1}{4}$ (C) $\dfrac{8}{7}$ (D) $\dfrac{4}{3}$ (E) $\dfrac{7}{8}$

2. A joint probability density function of Y_1 and Y_2 is
$$f(y_1, y_2) = \begin{cases} 6(1 - y_2), & 0 \le y_1 \le y_2 \le 1 \\ 0, & \text{elsewhere} \end{cases}$$
Find $Cov(Y_1, Y_2)$.

    (A) 0.25 (B) 0.50 (C) 0.15 (D) 0.125 (E) 0.025

3. The lifetime (in hours) Y of an electronic component is a random variable with density function given by
$$f(y) = \begin{cases} \dfrac{1}{100} e^{-y/100}, & y > 0 \\ 0, \text{elsewhere} \end{cases}$$

    Three of these components operate independently in a piece of equipment. The equipment fails if at least two of the components fail. What is the probability that the equipment will operate?

    (A) 0.050 (B) 0.135 (C) 0.250 (D) 0.571 (E) 0.905

4. One out of three mini-vans sold by a nationwide auto dealer has a hidden defect in its transmission. What is the probability that a randomly selected purchaser of two mini-vans will wind up with at least one mini-van with a defective transmission?

    (A) 0.333 (B) 0.5 (C) 0.667 (D) 0.250 (E) 0.556

5. An experienced person has an 80% probability of getting a particular job. An inexperienced person has a 50% chance of getting the same job. 60% of the applicants are inexperienced. If the job is offered to a person, what is the probability that the person was inexperienced?

    (A) 0.4 (B) 0.6 (C) 0.3 (D) 0.4839 (E) 0.6667

6. The owner of a 100-room hotel has discovered that his reservations team has booked 110 reservations for an upcoming weekend. Experience has shown that 10% of reservations are "no shows." How likely is this hotel to be overbooked (i.e., have more guests arrive than there are rooms available) for this particular weekend?

    (A) 0.1 (B) 0.3156 (C) 0.3 (D) 0.4839 (E) 0.9

7. There are two stocks: A and B. The price of each stock is normally distributed. Stock A has a mean of $20 and a standard deviation of $4. Stock B has a mean of $25, and the standard deviation is $8. What is the probability that the total price for buying two stocks will exceed $60?

(A) 0.4535   (B) 0.4332   (C) 0.4247   (D) 0.0753   (E) 0.0465

8. A particular product is shipped in lots of 20. At the receiving department, an inspector samples 5 items from each lot and rejects the lot if more than 1 defective is observed. If a lot contains 4 defectives, what is the probability that it will be rejected?

(A) 0.2817   (B) 0.2487   (C) 0.4696   (D) 0.632   (E) 0.8030

9. The number of industrial accidents at a particular manufacturing plant is found to average three per month. What is the probability that six accidents occurred?

(A) 0.0504   (B) 0.0899   (C) 0.1033   (D) 0.3192   (E) 0.8667

10. In a gambling game a man is paid $5 if he gets all heads or all tails when three fair coins are tossed and he pays out $3 if either one or two heads show. What is his expected gain?

(A) -2   (B) -1   (C) 0   (D) 1   (E) 2

(二) 計算題：

1. 若公司允許的型一誤差為 5%，檢驗人員檢驗兩箱產品，在甲箱 50 個產品中有 7 個不良品，乙箱 45 個產品中也有 7 個不良品。
   (a) 請問甲、乙箱產品的品質是否相同? (5%)
   (b) 若此兩箱產品是分別由甲、乙台機器抽驗所得，請問甲、乙兩台機器生產的產品品質是否相同? (10%)
   (c) 請求出此兩台機器產品品質差異的 98%信賴區間。(5%)

2. 某公司收集 10 位生產線上工人每小時完成工作件數 y 與其技能測驗成績 x 之資料如下：

成績x	85	97	94	92	91	81	77	76	75	71
件數y	25	49	32	26	27	22	23	19	17	15

   (a) 若工作件數 y 與技能測驗成績 x 為簡單線性迴歸模型：$y_i = \beta_0 + \beta_1 x_i + \varepsilon_i$，請以最小平方法估計$\beta_0$，$\beta_1$之值。(10%)
   (b) 試求 x, y 的相關係數。(10%)
   (c) 列出迴歸變異數分析表，試檢定此迴歸模式是否合適($\alpha = 5\%$)？(10%)

國 立 雲 林 科 技 大 學
98 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

TABLE II (cont.)
Areas under the standard normal curve
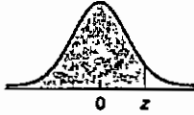
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
				Second decimal place in z						
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998
3.5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998
3.6	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.7	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.8	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.9	1.0000†									

† For $z \geq 3.90$, the areas are 1.0000 to four decimal places.

國 立 雲 林 科 技 大 學
98 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

TABLE IV
Values of t_α
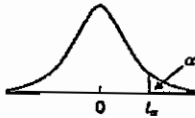
df	$t_{0.10}$	$t_{0.05}$	$t_{0.025}$	$t_{0.01}$	$t_{0.005}$	df
1	3.078	6.314	12.706	31.821	63.657	1
2	1.886	2.920	4.303	6.965	9.925	2
3	1.638	2.353	3.182	4.541	5.841	3
4	1.533	2.132	2.776	3.747	4.604	4
5	1.476	2.015	2.571	3.365	4.032	5
6	1.440	1.943	2.447	3.143	3.707	6
7	1.415	1.895	2.365	2.998	3.499	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

TABLE VIII
Values of F_α
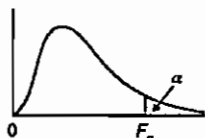
dfd	α	1	2	3	4	5	6	7	8	9
						dfn				
	0.10	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86
	0.05	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54
1	0.025	647.79	799.50	864.16	899.58	921.85	937.11	948.22	956.66	963.28
	0.01	4052.2	4999.5	5403.4	5624.6	5763.6	5859.0	5928.4	5981.1	6022.5
	0.005	16211	20000	21615	22500	23056	23437	23715	23925	24091
	0.10	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38
	0.05	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
2	0.025	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39
	0.01	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39
	0.005	198.50	199.00	199.17	199.25	199.30	199.33	199.36	199.37	199.39
	0.10	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24
	0.05	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
3	0.025	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47
	0.01	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35
	0.005	55.55	49.80	47.47	46.19	45.39	44.84	44.43	44.13	43.88
	0.10	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94
	0.05	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
4	0.025	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90
	0.01	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66
	0.005	31.33	26.28	24.26	23.15	22.46	21.97	21.62	21.35	21.14
	0.10	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32
	0.05	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
5	0.025	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68
	0.01	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16
	0.005	22.78	18.31	16.53	15.56	14.94	14.51	14.20	13.96	13.77
	0.10	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96
	0.05	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
6	0.025	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52
	0.01	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98
	0.005	18.63	14.54	12.92	12.03	11.46	11.07	10.79	10.57	10.39
	0.10	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72
	0.05	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
7	0.025	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82
	0.01	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72
	0.005	16.24	12.40	10.88	10.05	9.52	9.16	8.89	8.68	8.51
	0.10	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56
	0.05	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
8	0.025	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36
	0.01	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91
	0.005	14.69	11.04	9.60	8.81	8.30	7.95	7.69	7.50	7.34