(20　　　　　2　　　　40　)

1.　　　　Windows
(1) XCMD　　　　　(2) XML　　　　　　(3) DSP　　　　　　(4) DLLs

2.
(1) DNS　　　　　(2) IP　　　　　　　(3) DAV　　　　　(4) DLLs

3.Lingo
(1) Adobe Studio　　(2) Macromedia Director　　(3) Flash MX　　(4) MAYA

4.
(1) dpi　　　　　　(2) CCD　　　　　　(3) CMOS　　　　(4) USB

5.　　　　　　　　　　　　　　　(Transparency)
(1) JPG　　　　　(2) GIF89a　　　　(3) BMP　　　　　(4) TIF

6.
(1) Morphology　　(2) Card Sorting　　(3) Prototyping　　(4) Brainstorming

7.　　　640X480　　　256
(1) 78643200
(2) 78643200
(3) 2457600
(4) 2457600

8.　　　　　　　　　　　800*640　　　　　　　　　75　/　　　　　　　(
　　　　　　　　　　　　　　)
(1) 38.4MHz　　　(2) 17MHz　　　　　(3) 60MHz　　　　(4) 75MHz

9.　　　　　　　　1011　　1
　(1) 0100　　　　　(2) 0101　　　　　(3) 1010　　　　　(4) 1011

10.　　　　　http://210.240.189.356
　(1)
　(2)
　(3)
　(4)

11.　　T1
　(1) 10Mb
　(2) 1.54Mb
　(3) 1024b
　(4) 256Kb

12.　　　　　　　　　　　　　(　　　　)
　(1)
　(2)
　(3)
　(4)

13. Which of the following is an attribute of a font?
　(1) postscript
　(2) bitmap
　(3) paragraph
　(4) tracking

14. Which of the following statements is true?
　(1) Unicode was developed to enable international character sets to be represented
　(2) Unicode uses a single bit to represent up to 127 characters
　(3) ASCII uses 4 bytes to represent characters.
　(4) ASCII can represent up to 65,000 characters.

15. Which of the following is not an advantage of vector graphics?
　(1) able to represent photorealistic images
　(2) easily scaleable
　(3) easy to select elements of the image
　(4) easy to transform image elements
　(5) generally small file sizes for simple images.

16. Anti-aliasing is best described as:
    (1) a pattern of pixels
    (2) a technique for reducing image size
    (3) a technique for compressing video size
    (4) a method for representing straight edges in a bitmapped graphic.

17. In 3D animation which of these is true?
    (1) rendering is the technique of constructing a 3D object
    (2) scene building involves extruding 3D object.
    (3) 3D modeling involves tweening between key frames
    (4) The final rendering should consider lighting and atmospheric effects

18. Which statement best describes MIDI?
    (1) a digitized wave form
    (2) a sequence of digital tempos
    (3) a set of instructions.
    (4) a sequence of digital samples

19. What is the missing tag in the following HTML document?

    ```
    <HTML>
    <HEAD>
        <TITLE>
        </TITLE>
    </HEAD>
    <BODY>
      <h1>HELLO
      <IMG SRC="pic1.gif">
    </BODY>
    </HTML>
    ```

    (1) <META>
    (2) <CSS>
    (3) <B>
    (4) </h1>
    (5) </>

20. Which of the following Web page techniques is true
    (1) Animated GIFS support sound.
    (2) The size of multimedia file should not matter
    (3) Resampling is used in the process of 'nibbling'
    (4) streaming is used to reduce the files size
    (5) the browser searches for the correct MIME-type to display multimedia data.

(6　　　　10　　　60　)

1.

2.　　GIF　MOV　AVI　SWF

3.

4. What is the extrusion technique of 3D modeling?

5. Please explain the Run Length Encoding (RLE) technique, and give an example.

6. Please explain the AVI format in multimedia systems, and describe its operating procedure.
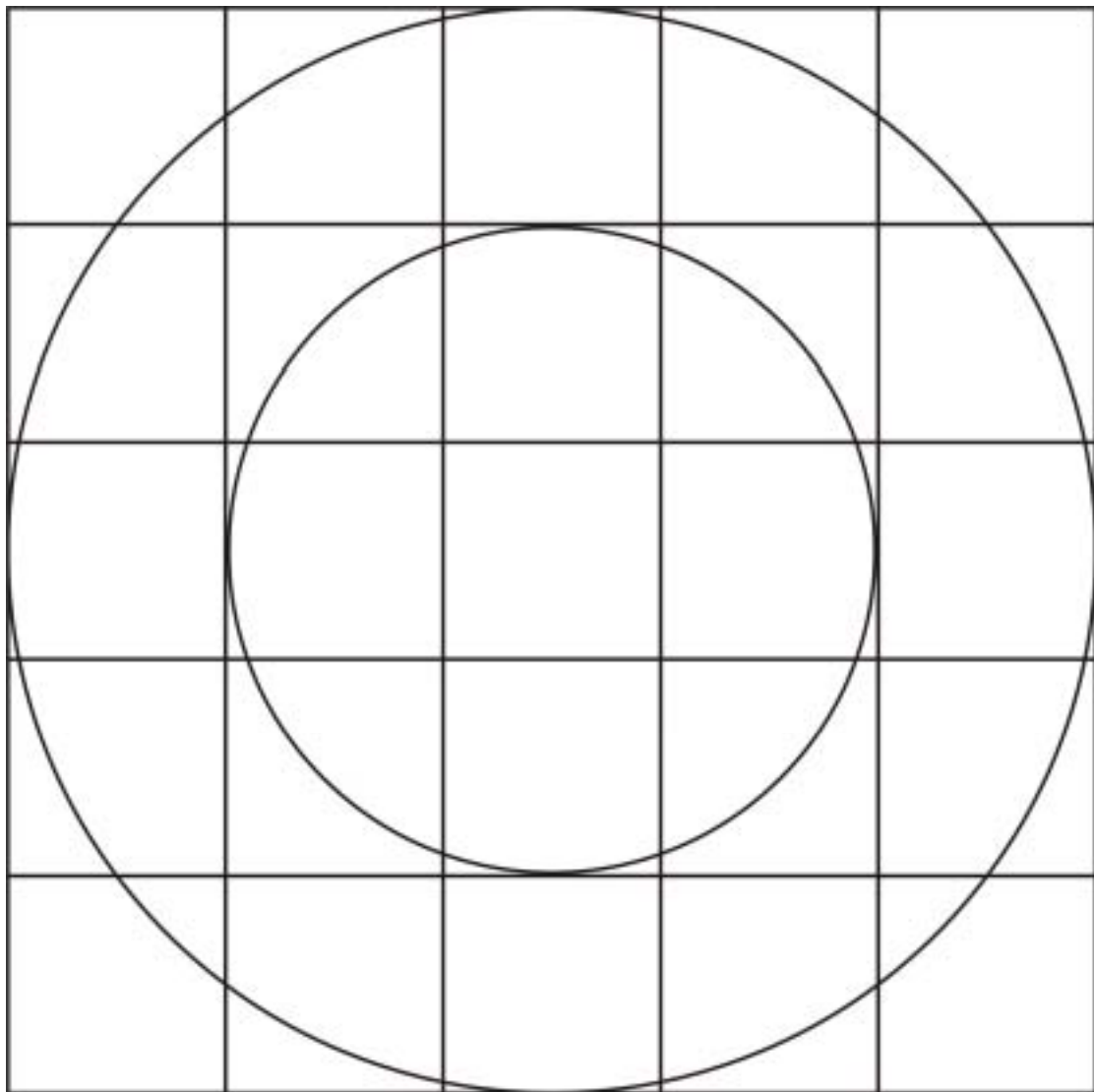
25

Classic Graphic Design Theory     Principles of Design    Movement,
Balance, Emphasis, Unity

5

(
)

I.
   A

                                           PDA         Table PC
   WebTV                     Wireless Communication

II.

Layout
70%            30%

30      2      60

1.　　　　　　　　　　FAT16
  (1) 16384
  (2) 65536
  (3) 1048576
  (4) 131072

2.　　　12.25
  (1) 110.01
  (2) 110.10
  (3) 1100.10
  (4) 1100.01

3.
  (1)　　　　　=　　+　　+
  (2)　　　　　=　　+　　+
  (3)　　　　　=　　+　　+
  (4)　　　　　=　　+　　+

4.
  (1) OR
  (2) AND
  (3) NOR
  (4) XOR

5.　　　　　　　(A+B) + (A'　B')　　　　.
  (1) 0
  (2) 1
  (3)-1
  (4)

6.
  (1)　　　(encapsulation)　　　(inheritance)　　　(class)
  (2)　　　(encapsulation)　　　(inheritance)　　　(polymorphism)
  (3)　　　(inheritance)　　　(class)　　　(encapsulation)
  (4)　　　(class)　　　(inheritance)　　　(polymorphism)

7.　　　　　　　　　　　　　(ISO)　　　TCP

  (1)
  (2)
  (3)
  (4)

8.　　　　　　　　(Address Resolution Protocol, ARP)
  (1)
  (2)
  (3)
  (4)

9.　　　　　　　　　　(　　　　)
  (1)
  (2)
  (3)
  (4)

10.　　　(addressing)　　　　　(indirect addressing)

  (1)
  (2)
  (3)　　　PC
  (4)

11.　　　　　(sector)　　1K　　　　　　　　　　　2100 bytes
  1100bytes　500bytes　　　　　　　　　　?
  (1) 4
  (2) 5
  (3) 6
  (4) 7

12.　　　C　　　　　　　　　　　　　　　　　0　50000

　(1) short int　(2) long int　(3) unsigned short int　(4) unsigned long int

13.　　multiprogramming
　(1) time sharing　(2) multiuser　(3) batch　(4)

14.　　　　　　I/O　　　　　　　?
　(1) Polling　(2) Paging　(3) DMA　(4) Interrupt

15.　　select sort
　(1) O(n)　(2) O(nlogn)　(3) O(nlog$^2$n)　(4) O(n$^2$)

16. $\sum_{k=1}^{n} k^2$ is propositional to
　(1) O(n)
　(2) O(nlogn)
　(3) O(n$^2$)
　(4) O(n$^3$)

17. If a decimal number is negative, then the leftmost bit of the number in the two's
　　complement representation will be
　(1) 0
　(2) 1
　(3) -1
　(4) none of above

18. Consider the addition and subtraction of two 4-bit 2's complement integers, which
　　operation as follows will occur overflow?
　(1) 1001 + 0100
　(2) 1010 - 1100
　(3) 1111 - 1001
　(4) 0101 + 0011

19. If there are 128 nodes to be stored in a binary tree, the minimum height of the tree is
　(1) 7
　(2) 8
　(3) 9
　(4) greater than 10

20.The connection establishment procedure of TCP is called _____.

   (1) one way hash

   (2) two way commit

   (3) three way handshake

   (4) four way confirm

21.Which one is incorrect for CPU-scheduling algorithms?

   (1) The FCFS scheduling algorithm must be nonpreempitve.

   (2) The SJF algorithm must be preemptive.

   (3) An SJF algorithm is simply a priority algorithm where the priority is the inverse of the next CPU burst.

   (4) The round-robin scheduling algorithm is designed especially for time-sharing systems.

22.Which one of following choices is the correct result of

   (A and (Not B) and (Not C)) or (A and (Not B) and C) or (A and B and C)?

   (1) AB' + AC

   (2) A'B + AC

   (3) AB + A'C

   (4) AB + AC'

23.Which one of following choices is correct sequence of Waterfall model?

(1) requirements analysis   system analysis   system design   coding   testing   maintenance

(2) system analysis   requirements analysis   system design   coding   testing   maintenance

(3) requirements analysis   system analysis   system design   coding   maintenance   testing

(4) system analysis   requirements analysis   system design   coding   maintenance   testing

24.Which one of following choices is the result of F(3)?

```
int F(int x) {
    if (x <= 1) return 1;
    else return (x²+F(x-1));
}
```

   (1) 10

   (2) 12

   (3) 14

   (4) 16

25. The software used to explore the Internet is called?

   (1) ISP

   (2) browser

   (3) email

   (4) PDA

26. Which is not an image tag attribute in HTML?

   (1) SRC

   (2) HREF

   (3) HEIGHT

   (4) ALIGN

27. Which is not a type of database model?

   (1) relational

   (2) network

   (3) hierarchical

   (4) operational

28. In a network, a computer decided to screening access from outside the network is called?

   (1) connector

   (2) firewall

   (3) web server

   (4) bridge

29. The unique address of a web page or file on the Internet is called?

   (1) domain name

   (2) applet

   (3) URL

   (4) HTTP

30. The file format most suitable for photographs is?

   (1) RTF

   (2) GIF

   (3) HTML

   (4) JPG

TCP     UDP                                                    ? (10%)

Explain the differences between program, process, and thread. (10%)

Please explain the functions of the Bridge and the Hub, and describe the differences between them. (10%)

Design a circuit using only AND, OR, and NOT gates to implement the following truth table. (10%)

| a | b | Output |
|---|---|--------|
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

1. A stack is also known as a _____ list.
    (1) First-In-First-Out
    (2) Last-In-Last-Out
    (3) Last-In-First-Out
    (4) None of above

2. A priority queue deletes the element with the highest (or the lowest) priority. Consequently, _____ are frequently used to implement priority queues.
    (1) Lists
    (2) Stacks
    (3) Heaps
    (4) Graphs

3. Which of the following will build large tables with all known previous results?
    (1) Parallel algorithm
    (2) Dynamic programming
    (3) Approximation algorithm
    (4) Divide-and-Conquer algorithm

4. Which of the following represents a possible balanced factor of a node in an AVL tree?
    (1) -1
    (2) -3
    (3) 3
    (4) Infinity

5. The sequence to traverse a tree with post-order traversal is ____.
    (1) left sub-tree, right sub-tree, the node
    (2) left sub-tree, the node, right sub-tree
    (3) the node, left sub-tree, right sub-tree
    (4) right sub-tree, left sub-tree, the node

90%

1. A *palindrome* is a string whose reversal is identical to the string, e.g., 101 and 11011. Write an algorithm (pseudo code) to print all *decimal* strings of length $n$ that are palindromes? What is time complexity of your algorithm? (10 %)

2.                    A    1    n        STACK        insert    delete

3.                          time complexity   (10 %)

    For I = 1,2,…,n
        For J =1,2,…,n
            sum = 0
            For K=1,2,…, n
                sum = sum + A[I,K] + B[K,J]
            Next
            C[I,J] = sum
          Next
     Next

4. The recursive function of the Fibonacci Series is defined as $F_n = F_{n-1} + F_{n-2}$, $F_0=0$, $F_1=1$, n 2. Please analyze the time complexity of the Fibonacci function. (10%)

5. There is a float array A[18][10] (sizeof(float) =4). If the address of A[11][2] is $10E9_{16}$. What is the address of A[15][13] ? (5%)

6. There are 1 binary tree with one node, 2 binary trees with two nodes, and 5 binary trees with three nodes. How many binary trees are there with five nodes? (5%)

7.   $O(n!)$, $O(n^2)$, $O(2^n)$, $O(\sqrt{n})$, $O(n \log^2 n)$, $O(n \log n^2)$, $O(n \log \log n)$
(10 %)

8.               (41, 22, 6, 28, 2, 12, 8, 14)                   heap tree
  heap tree                            (       )  (10%)

9. Insert a sequence of keys (27, 49, 17, 20, 61, 23, 92, 33) into a data structure that has no keys in the beginning. Depict the data structure after these insertion if it is (10 %)
(a) AVL tree(b) Binary search tree.

10. Construct Huffman Binary codes for the following 6 messages where probabilities of appearance are A=0.29, B=0.25, C=0.14, D=0.13, E=0.11, F=0.10. Suppose that E is encoded as 010 and D is 101. What are A and F encoded (10 %)

10

People here in Taiwan are the first-ever 100% free people in Chinese history. They have changed a lot in recent years, but people with the right combination of tradition and sophistication are still very few. There is not enough complexity and difference in people's personalities. They must rely on themselves to build-up an interesting social life.

English Composition (30%)

It has been said that the best things in life are free. What does this mean? Write an English composition of about 200 words, and talk about what best things that happened to you in your life are free.

(10%)

1.
   A
   B ____
   C ____
   D ___

2.
   A                  B
   C                  D

3.

   A     B     C    D

4.

   A        B        C        D

5.
   A       B      C      D

6.
   A      B      C    D

7.
   A      B      C      D

8.
   A        B        C        D

9.
   A ____ B _____ C ____ D _____

10.
   A        B        C        D

(20%)

(20%)