

大同大學 96 學年度研究所碩士班入學考試試題

考試科目：計算機概論

所別：資訊工程研究所

第 1/3 頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

選擇(1~35題)、是非(36~50題)，每題各佔1%，請在答案紙上註明題號。

1. () Prolog is a(n) ____ language. (a) logic (b) functional (c) imperative (d) object-oriented.
2. () We can use an RFID is a(n) _____. (a) media player (b) protocol (c) identification technology (d) on-line game.
3. () Which of the following is used to describe the pattern of identifiers in programming language? (a) CFG (b) regular expression (c) Java (d) HTML (e) Web 2.0.
4. () Which of the following data structure is used to implement the call-return sequence. (a) queue (b) B-tree (c) stack (d) binary tree (e) graph
5. () HTML is commonly used as (a) programming language (b) communication protocol (c) data structure (d) markup language.
6. () Which is true for the C assignment statement, $i=i+1$; (a) the left i is value (b) the right i is value (c) both i 's are value (d) both i 's are location.
7. () Which of the following is not the feature of object-oriented language? (a) Inheritance (b) Abstract data type (c) Polymorphism (d) Activation record
8. () Short-term memory that your computer uses as it processes information is (a) a smart phone (b) CPU (c) RAM (d) a DVD.
9. () All of the following are file formats for graphics and images except: (a) .ra (b) .jpeg. (c) .png. (d) .bmp.
10. () Which of the following is the bottom layer of OSI reference model (a) transport (b) physical (c) presentation (d) data link.
11. () The most common "fundamental unit" of digital electronics is _____. (a) boolean algebra (b) SSI (c) the logic gate. (d) microchip.
12. () mp3 is a file format for storing (a) video (b) audio (c) game (e) image.
13. () A KB is roughly equal to _____. (a) one million (b) ten (c) one billion (d) one kilo bytes.
14. () _____ is application software that helps you create and edit information that will appear in electronic slides. (a) presentation software (b) word processor (c) HTML editor (d) XML editor.
15. () In a pull technology environment on the Internet you: (a) Pull information to server computers. (b) Are required to have a browser to initiate a request. (c) Automatically receive information from a server computer. (d) Automatically deliver information to the other people.
16. () XML is a(n) _____. (a) programming language (b) structured syntax (c) platform (d) on-line game.
17. () Which of the following data structured is used to implement the Kruskal's algorithm? (a) B-tree (b) stack (c) priority queue (d) graph.
18. () The schema of relational database is a kind of _____. (a) table (b) tree (c) graph (d) list.
19. () _____ is software and information that enables your operating system to establish the communications between your existing hardware and your new device. (a) DBMS (b) memory management module (c) device driver (d) file system.
20. () _____ is hardware and/or software that protects a computer or network from intruders. (a) firewall (b) anti-virus software (c) computer virus (d) utility software.
21. () The technical term for a Web page address is a(n) (a) domain name. (b) top-level domain. (c) URL. (d) URN.
22. () The type of server that supports your use of a chat room is specifically called a(n) (a) mail server (b) IRC server (c) Internet host server (d) Web server
23. () A parallel connector and port are (a) plug and play and hot swap capable (b) used for mice and trackballs (c) used mostly for printers (d) both a and b.
24. () A(n) _____ is a field in a database table that uniquely identifies a record in that table. (a) foreign key (b) unique key (c) secondary key (d) primary key.
25. () Com, edu, and mil are all examples of _____. (a) URL (b) ISP (c) top-level domains (d) communication protocol.
26. () Compressed files are popularly called (a) unzipped files. (b) shrunken files. (c) zipped files. (d) encrypted files.
27. () Yacc/lex is a(n) _____. (a) utility software (b) code generator (c) authoring tool (d) program generator.
28. () SOA is (a) System Operation Algorithm (b) Service Oriented Architecture (c) Server Operating Agent (d) System Operating Application
29. () _____ provide(s) information for search engines about your Web page. (a) meta tags (b) anchor tags (c) header (d) link tags.
30. () An example of a client-side Web programming language is (a) CGI. (b) ASP. (c) PHP. (d) JavaScript.

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31. () ___ a small text file containing specific information about you that a Web site stores on your computer's hard drive. (a) sniffer (b) spam (c) cookie (d) my favorite.
32. () Bluetooth is a standard for connecting devices wirelessly over short distances, usually not exceeding ___ feet. (a) 5 (b) 30 (c) 100 (d) 300.
33. () ___ are mistakes that occur when you run the software code. (a) run-time errors (b) logic errors (c) syntax errors (d) bugs
34. () A graphical depiction of an algorithm is called ___. (a) pseudocode. (b) logical structure. (c) a program flowchart. (d) a GUI layout.
35. () Your Internet-enabled home of the future will probably be (a) wirelessly networked. (b) a part of the Internet. (c) dominated by intelligent home appliances. (d) all of the above.
36. () A linked list contains a number of sequentially connected nodes, each of which must contain data of the same type. True or false.
37. () The two classes of sorting algorithms are $O(n)$ and $O(n \log n)$. True or false. (1%)
38. () The left-hand side of a production of context-free grammar is a terminal symbol. True or false.
39. () LRU (Least Recently Used) is an example of caching algorithms that discards the least recently used items first. True or false.
40. () In a two-pass assembler, on pass one, the definition symbols, including statement labels, are collected and stored in a table. True or false.
41. () CPU cache is the memory that the CPU uses when there's not enough RAM. True or false.
42. () Fragmentation occurs when you computer places parts of files over many disk areas or clusters. True or false.
43. () RJ-45 connector is the same shape as the phone connectors on the ends of your telephone wire, but is narrower. True or false.
44. () DBMS software is application software that allows you to arrange, modify, and extract information from a data warehouse. True or false.
45. () Shareware is public domain software that you can use in any way you wish including "sharing" it with other people. True or false.
46. () The content of the resources on the WWW can not be processed by machine. True or false.
47. () HT of HTTP means high technology. True or false.
48. () A weblog is a small Web page containing an advertisement that appears on your computer screen outside the current Web site loaded into your browser. True or false.
49. () RSS used on the blog is an XML document. True or false.
50. () When thousands of computers overload a target site by trying to access it at the same time, the target site may be a victim of a denial-of-service attack. True or false.

問答(51~56題)、程式設計(57題)，請在答案紙上註明題號。

51. (5%) Using the following C function definition, describe what do those A, B, C, and D mean ?

A B(C) {D;}

52. (5%) Explain by an example the differences between call by reference and call by value.

53. (5%) If Ptr is a pointer variable to an array, what does the following statement mean?

(a) &Ptr (b) *&Ptr (c) *Ptr (d) Ptr (e) Ptr++

54. (5%) Why might you prefer to experience a fatal error rather than a non-fatal error or warning while writing programs?

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55.(10%) Find the error in each of the following program segments and explain how to correct it:

```
a) double cube( float ); /* function prototype */
...
   cube( float number ) { /* function definition */
       return number * number * number;
   }
b) register auto int x = 7;
c) double y = 123.45678;
   int x;
   x = y;
   printf( "%f\n", (double) x );
d) double square( double number ) {
   double number;
   return number * number;
}
e) int sum( int n ) {
   if ( n == 0 ) return 0;
   else return n + sum( n );
}
```

56. (10%) What does this program do?

```
#include <stdio.h>
void mystery1( char *s1, const char *s2 ); /* prototype */
int main()
{ char string1[ 80 ], string2[ 80 ]; /* create char array */
  printf( "Enter two strings: " );
  scanf( "%s%s", string1, string2 );
  mystery1( string1, string2 );
  printf( "%s", string1 );
  return 0; /* indicates successful termination */
} /* end main */

void mystery1( char *s1, const char *s2 )
{
  while ( *s1 != '\0' ) s1++;
  for ( ; *s1 = *s2; s1++, s2++ ) {
    /* empty statement */
  } /* end for */
} /* end function mystery1 */
```

57.(10%) Write a program to solve the Towers of Hanoi problem. We attack the problem with recursion in mind, it immediately becomes tractable. Moving n disks can be viewed in terms of moving only $n - 1$ disks (and hence the recursion) as follows:

- Move $n - 1$ disks from peg 1 to peg 2, using peg 3 as a temporary holding area.
- Move the last disk (the largest) from peg 1 to peg 3.
- Move the $n - 1$ disks from peg 2 to peg 3, using peg 1 as a temporary holding area.

Write a recursive function, in any programming language you want, with four parameters:

- The number of disks to be moved
- The peg on which these disks are initially threaded
- The peg to which this stack of disks is to be moved
- The peg to be used as a temporary holding area

Your program should print the precise instructions it will take to move the disks from the starting peg to the destination peg. For example, to move a stack of three disks from peg 1 to peg 3, your program should print the following series of moves: $1 \rightarrow 3$ (This means move one disk from peg 1 to peg 3.), $1 \rightarrow 2, 3 \rightarrow 2, 1 \rightarrow 3, 2 \rightarrow 1, 2 \rightarrow 3$, and $1 \rightarrow 3$.