

大同大學九十學年度轉學考試試題

考試科目：計算機概論

系別：資訊工程學系

級別：二年級

第 1 頁共 3 頁

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

一、選擇題(單選題, 每題二分) 40%: [※請依題號順序答於答案卷上]

1. The _____ page is the first page of information at each Web site.
 - a. starting
 - b. desktop
 - c. home
 - d. source
2. Each of the following is a storage device *except* a _____.
 - a. CD-ROM drive
 - b. modem
 - c. hard disk drive
 - d. floppy disk drive
3. _____ require special software that can recognize how to divide up problems and bring the results back together again.
 - a. Parallel processors
 - b. Coprocessors
 - c. Microprocessors
 - d. Pipeline processors
4. Many computers improve their processing efficiency by using high-speed _____ between the CPU and main RAM memory.
 - a. RAM cache memory
 - b. flash RAM
 - c. ROM cache memory
 - d. flash ROM
5. The decimal number represented by binary 10001 is _____.
 - a. 11
 - b. 13
 - c. 16
 - d. 17
6. Data is written to both sides of a hard disk in concentric circles called _____, which are further divided into _____.
 - a. sectors, tracks
 - b. cylinders, tracks
 - c. tracks, sectors
 - d. sectors, cylinders
7. The _____ is a global network of computer networks used daily by individuals and businesses.
 - a. Interactive Services Network
 - b. Internet
 - c. Hub
 - d. Electronic Data Interchange
8. For telephone lines to carry digital signals, a special piece of equipment called a _____ is used to convert between digital signals and analog signals.
 - a. gateway
 - b. router
 - c. modem
 - d. bridge
9. A(n) _____ is a combination of a user name and the domain name that identifies the location of the mailbox computer.
 - a. Uniform Resource Locator
 - b. Internet protocol address
 - c. Internet mailbox address
 - d. Internet service provider
10. In operating system terms, a(n) _____ is a program or part of a program that can be executed separately.
 - a. process or task
 - b. charge or load
 - c. job or assignment
 - d. chore or devoir
11. The BIOS is stored _____.
 - a. in a read-only memory (ROM) chip
 - b. on the hard disk
 - c. in a random-access memory (RAM) chip
 - d. on a floppy disk

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第 2 頁共 3 頁

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12. A computer virus is a(n) _____.
a. input device
b. output device
c. program
d. peripheral
13. _____ operating systems used on personal computers usually support a single user running multiple programs at one time.
a. Single tasking
b. Multiprocessor
c. Virtual machine
d. Multitasking
14. The levels in the hierarchy of data include all of the following *except* _____.
a. folders and paths
b. bits and bytes
c. fields and records
d. files and databases
15. Records stored _____ are retrieved one record after another, in the same order in which they are stored.
a. directly
b. immediately
c. sequentially
d. randomly
16. A(n) _____ is a set of words, symbols, and codes that enables a programmer to communicate with the computer.
a. programming language
b. assembler
c. pseudocode
d. interpreter
17. _____ language is machine-independent.
a. Assembly
b. High-level
c. Low-level
d. Machine
18. A(n) _____ converts an entire source program into machine language at one time.
a. object program
b. assembler
c. interpreter
d. compiler
19. Using the object-oriented approach, the programmer packages the data and program into a single unit called a(n) _____.
a. object
b. source
c. query
d. database
20. In object-oriented programming, the capability to combine methods with attributes into a single object is called _____.
a. inheritance
b. debugging
c. looping
d. encapsulation

二、問答題 60%：〔※請依題號順序使用中文或英文作答於答案卷上〕

1. (a) When our programs start, three text files are automatically opened for us. What are these three files?
- 12% (b) Explain and state the difference between the argument passing method "call by value" and "call by reference".
- (c) Explain and state the difference between the **Local Variables** and the **Global Variables**.
- (d) What are the three important concepts in program organization that C++ expands on the C language?

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第3頁共3頁

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2. What does the following C program print? [※請標明本題之各小題題號順序作答]
20%

```
#include <stdio.h>
int x[]={0,1,2,3,4,5,6,7,8,9}; /*The address of x[0] is FF00h */
main()
{ int i=0, *p, *endptr;
  int a = 1, b = 2, c = 3, d = 9;

  p=&x[4]; printf("value 1 = %d \n", *p); /*(1)*/
  p=&x[1]; printf("value 2 = %d \n", x[i]); /*(2)*/
  p=&x[++i]; printf("value 3 = %p \n", p); /*(3)*/
  p=x+i; printf("i=%d value 4 = %d \n", i, *(p+i)); /*(4)*/
  p=x+4; printf("value 5 = %d \n", *p); /*(5)*/
  p=x+4; i=1; printf("value 6 = %d \n", *(p-i)); /*(6)*/
  printf("%d \n", a | c); /*(7)*/
  printf("%d \n", a ^ b & c); /*(8)*/
  printf("%d \n", (a <= 3) & b); /*(9)*/
  printf("%d \n", (d >= 1) | b); /*(10)*/
  return 0;
}
```

Handwritten notes and calculations for Question 2:

- Memory diagram for array x:

0
1
2
3
4
5
6
7
8
9
- Variable values:
 - a = 0001
 - b = 0010
 - c = 0011
 - d = 1001
- Binary calculations:
 - (1) *p = &x[4] → value 4 = 4
 - (2) x[i] = x[0] → value 0 = 0
 - (3) p = &x[++i] = &x[1] → value 1 = 00000001
 - (4) i = 1, *(p+i) = x[2] → value 2 = 00000010
 - (5) *p = x[4] → value 4 = 00000100
 - (6) *(p-i) = x[3] → value 3 = 00000011
 - (7) a | c = 0001 | 0011 = 0011 = 3
 - (8) a ^ b & c = (0001 ^ 0010) & 0011 = 0001 & 0011 = 0001 = 1
 - (9) (a <= 3) & b = (1) & 2 = 2
 - (10) (d >= 1) | b = (1) | 2 = 3

3. (a) Use the C statements to declare and initialize the two-dimensional array with the following contents:
10%

85	75	93	78
79	100	86	98
56	73	45	63
86	74	83	66
76	65	55	89
86	78	78	53
77	96	67	70

Handwritten notes for Question 3(a):

- Array declaration: `a[7][4]`
- Initialization: `a = {{85, 75, 93, 78}, {79, 100, 86, 98}, {56, 73, 45, 63}, {86, 74, 83, 66}, {76, 65, 55, 89}, {86, 78, 78, 53}, {77, 96, 67, 70}}`

- (b) Write a C program to print average on each column. (Note: You must use pointers to traverse columns.)

4. What does the following C program do? If you enter two integers: 7 and 15, what will the output show?
8%

```
#include <stdio.h>
int mystery(unsigned);
main()
{ unsigned x;
  printf("Enter an integer: ");
  scanf("%u", &x);
  printf("The result is %d\n", mystery(x));
  return 0;
}

int mystery(unsigned bits)
{ unsigned i, mask = 1 << 15, total = 0;
  for (i = 1; i <= 16; i++, bits <<= 1)
    if ((bits & mask) == mask)
      ++total;
  return total % 2 == 0 ? 1 : 0;
}
```

Handwritten notes for Question 4:

- Input: 7 (0111) and 15 (1111)
- Calculation: $P(5, 2) = 5$
- Calculation: $P(5, 1) = 5 \times 5 = 25$
- Calculation: $P(5, 0) = 5 \times 5 \times 5 = 125$
- Result: 1

5. Write a recursive C function power (base, exponent) that when invoked returns $base^{exponent}$ (10%)

For example, power (4, 3) = 4 * 4 * 4. Assume that exponent is an integer greater than or equal to 1.

Handwritten notes for Question 5:

- Base: 4
- Exponent: 3

Handwritten recursive function definition:

```
P(2, 2) * 2
P(2, 1) * 2 * 2
P(2, 0) * 2 * 2 * 2
```