

臺北市立大學

106 學年度第一學期學士班二、三年級轉學生招生考試試題

系 別：資訊科學系（三年級）

科 目：計算機概論（含程式設計）

考試時間：90 分鐘【10:30-12:00】

總 分：100 分

不得使用計算機
或任何儀具。

※ 注意：不必抄題，作答時請將試題題號及答案依照順序寫在答卷上；限用藍色或黑色筆作答，使用其他顏色或鉛筆作答者，所考科目以零分計算。（於本試題紙上作答者，不予計分。）

一、選擇題（每題 3 分，共 93 分）

- 組合語言指令中“MOV BX, AX”表示
 - 暫存器 BX 值改變，AX 值不變
 - 暫存器 AX 值改變，BX 值不變
 - 暫存器 BX, AX 值均不改變
 - 暫存器 BX, AX 值均改變
- 在 word 文件編輯中，若要插入一圖形檔案且需將圖形放大 20 倍，何者圖形格式較能保持原圖形的清晰？
 - bmp
 - wmf
 - gif
 - png
- 使用氣泡排序法(bubble sort)來將 $2n$ 個數值做排序，其計算複雜度為
 - $O(n)$
 - $O(n \log n)$
 - $O(n^2 \log n)$
 - $O(n^2)$
- Which of the following types of gates can be used to realize all switching functions?
 - AND, NOT
 - XOR
 - NAND
 - OR, AND
- What will happen when you attempt to compile and run the following Java code?

```
public class Newtaipei{
private String i="0";
public static void main(String argv[]){
    Newtaipei te = new Newtaipei();
    System.out.println(te.i);
}
```

}}

- (A) null (B) 2
(C) 0 (D) 0.0

6. What the values of output of Java language?

```
public class Precedence {  
    public static void main(String[] args) {  
        int x = 1, y = 2;  
        int a = x + y - 2/2;  
        System.out.println("a = " + a);} }
```

- (A) a=3 (B) a=2
(C) a=1.5 (D) a=1

7. What will happen when you attempt to compile and run the following Java code?

```
public static void main(String argv[]){  
    int i =3;  
    i = i++;  
    System.out.println(i);  
}}
```

- (A) 4 (B) 2
(C) 3 (D) null

8. 若用 5 位元長度之 2 的補數來表示十進位數值-5，應為

- (A)10101 (B)11011
(C)11110 (D)11010

9. 哪種數值表示法的 -0 為 111111 (假設使用 6 位元儲存資料)？

- (A)帶符號大小 (B) BCD
(C) 2's 補數 (D)1's 補數

10. 以下的換算關係，何者有誤？

- (A)1MB = 1024 KB (B)1GB = 1048576 KB
(C)1GB = 1024 TB (D)1TB = 1024 GB

11. 在下列位元組中，何者為奇同位編碼？

- (A)11010111 (B)01101000
(C)01110001 (D)01101010

12. Which of these is not a valid identifier?

- (A) X1_valid_identifier (B) 1_valid_identifier
(C) x_valid_identifier (D) x_valid_identifier

13. Which of the following will generate an error?
 (A) `answer == 87 ? puts("Yay!") : puts("Noo!");`
 (B) `if (answer == 87) puts("Yay!"); else puts("Noo!");`
 (C) `puts(answer == 87 ? "Yay! : Noo!");`
 (D) `printf("%s\n", answer == 87 ? "Yay!" : "Noo!");`
14. In C, the condition $8 > x > 0$ _____.
 (A) evaluates correctly
 (B) does not evaluate correctly and should be replaced by
 `(8 > x && x > 0)`
 (C) does not evaluate correctly and should be replaced by
 `(8 > x & x > 0)`
 (D) does not evaluate correctly and should be replaced by
 `(8 > x || x > 0)`
15. Which of the following functions does not contain any errors?
 (A) `double triple (float n) { return (3 * n); }`
 (B) `void printnum (int x) { print("%i", x); return x; }`
 (C) `int cube(int s) { int s; return (s * s * s); }`
 (D) `double circumference (int r); return (3.14 * 2 * r);`
16. Assuming the following pseudocode for a function series, what is the value of $f(11)$?
 $f(0) = 0$
 $f(1) = 1$
 $f(n) = f(n - 1) + (n - 2)$
 (A) 144
 (B) 89
 (C) 121
 (D) 55
17. Which statement is false?
 (A) Both iteration and recursion involve repetition.
 (B) Both recursion and iteration are based on a control structure.
 (C) Recursion always has better performance than iteration.
 (D) Both recursion and iteration are based on a control structure.
18. Which definition tells the computer to reserve 111 elements for integer array c ?
 (A) `int c[111];`
 (B) `c[111] int;`
 (C) `int[111] c;`
 (D) `c int[111];`
19. The _____ is the value that occurs most frequently in the data.
 (A) median
 (B) mean
 (C) average
 (D) mode

20. Given the following definitions, what is the value of `a[0][1]`?
- ```
int a[2][2] = { { 1 }, { 3, 4 } };
```
- (A) 1 (B) 3  
(C) 0 (D) this isn't a valid definition
21. The program segment
- ```
int counter = 1;
do {
printf( "%d ", counter );
} while ( ++counter <= 10 );
```
- will _____.
- (A) print the numbers 2 through 10
(B) print the numbers 2 through 9
(C) print the numbers 1 through 9
(D) print the numbers 1 through 10
22. Denial of service is a type of attack that threatens _____.
- (A) confidentiality (B) integrity
(C) availability (D) none of the above
23. What are the four layers in the TCP/IP reference model?
- (A) HTTP, TCP, IP, Ethernet
(B) TCP, IP, Ethernet, IEEE
(C) application, transport, internet, network access
(D) application, presentation, session, transport
24. The current IP configuration of a small company is done manually and is time-consuming. Because of increased network growth, a technician needs a simpler way for IP configuration of workstations. Which service would simplify the workstation IP configuration task?
- (A) DNS (B) DHCP
(C) ARP (D) RIP
25. An audio signal is sampled 8000 times per second. Each sample is represented by 256 different levels. How many bits per second are needed to represent this signal?
- (A) 2048000 (B) 8000
(C) 64000 (D) 256K
26. Which is correct to initialize a 2-dimension array in C?
- (A) `int A[3][2] = { { 1,2,3 }, { 4,5,6 } };`
(B) `int A[][3] = { 1,2,3,4,5,6 };`
(C) `int A[][] = { 1,2,3,4,5,6 };`
(D) `int A[3][] = { 1,2,3,4,5,6 };`

27. What are the two operating systems that are found on mobile devices?
(Choose two.)
- (A) Google and Apple (B) Android and iOS
(C) MobileOS and MAC (D) ARM and Intel
28. How many times the statement in the following code segment in C is executed?
- ```
for (int i=5; i<21; i++) {
 statement;
 i=i+1;
}
```
- (A)16 (B)15  
(C)9 (D)8
29. Which of the following is definitely **not** a valid IPv4 address?
- (A)140.113.1.254 (B)163.21.256.1  
(C)12.23.34.45 (D)1.1.1.255
30. What is the IEEE single precision floating point representation of  $(1000.101)_2$ ? (Notice that Sign=1 bit, Exponent=8 bits in Excess  $_127$ , and Mantissa=23bits)
- (A)0 1000010 10001010000000000000000  
(B)0 0000011 00010100000000000000000  
(C)0 1000010 00010100000000000000000  
(D)0 1000011 10001010000000000000000
31. What is the result after the execution of the following code segment?
- ```
int i, j;
main()
{
    i=j=1;
    while (i<=k) {
        j=j*i;
        i++;
    }
    printf ("The result is: %d\n ", j);
}
```
- (A) $k*(k+1)/2$ (B) $k!$
(C) $(1+2+\dots+k)^k$ (D) K^K

二、問答題 (每題 7 分, 共 7 分)

1. Use the Huffman Tree provided to decode binary string 11001110100110111110.

