

*請在答案卡內作答

單選題 (1~16), 每題 5 分, 不倒扣

1. Convert the decimal integer -107 to sign-and-magnitude with 8-bit allocation. Which one is correct?
(A) 1110 1011 (B) 1111 1011 (C) 1110 1001 (D) 0110 1011 (E) None of the above
2. Which of the following gate represents the function that $f(0,0)=0, f(0,1)=1, f(1,0)=1, f(1,1)=0$.
(A) Exclusive-OR (B) OR (C) NAND (D) NOR (E) None of the above
3. A computer has 128 MB (megabytes) of memory. Each word is 4 bytes. How many bits are needed to address each single word in memory?
(A) 24 (B) 25 (C) 26 (D) 27 (E) None of the above
4. The _____ layer is responsible for process-to-process delivery of the entire message: logical communication is created between the client and the server computer.
(A) data link (B) network (C) transport (D) application (E) none of the above
5. Operating systems can be divided into two broad categories of _____ management: mono-programming and multiprogramming.
(A) memory (B) process (C) device (D) file (E) none of the above
6. The _____ layer has a specific duty: routing. Routing means determination of the partial or total path of a packet.
(A) data link (B) network (C) transport (D) application (E) none of the above
7. Choose the following items that are the necessary condition(s) for the deadlock.
(A) Mutual Exclusion
(B) Hold and wait
(C) No preemption
(D) Circular waiting
(E) Above of all

8. What is the output of the following code?

- (A) 2
- (B) 2457
- (C) 2456
- (D) 2357
- (E) None of the above.

```
int i=2;
while (i<8)
{
    printf("%d", i);
    i= i+i%3;
}
```

9. What is the output of the following code?

- (A) 2
- (B) 4
- (C) 6
- (D) 8
- (E) None of the above.

```
void main(void)
{
    int n = 0;
    if (n = 0) n = 2;
    else if (n = 2) n = 4;
    else if (n = 4) n = 6;
    else if (n = 6) n = 8;
    printf ("%d\n", n);
}
```

參考用

注意: 背面有試題

科目 計算機概論

類組別 A4 802 951

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10. Consider the C code piece on the right side. What is the output?

- (A) 1
- (B) 6
- (C) 14
- (D) 16
- (E) None of the above.

```
int main ( void )
{
    int a1[3][3] = {{1,2,3},{4,5,6},{7,8,9}};
    printf("%d", a1[1][2]+a1[2][1]);
    return 0;
}
```

11. Consider the C code piece on the right side. What is the output?

- (A) -2
- (B) -1
- (C) 0
- (D) 4
- (E) None of the above.

```
int f(int b, int a)
{
    return b-a;
}
int main(void)
{
    int a=4, b=1;
    printf("%d", f(2,f(a,b)));
    return 0;
}
```

12. Consider the C code piece on the right side. Which of the following is correct regarding the computing result?

- (A) a= 9 and &a= 9
- (B) &a= 9 and aPtr= 9
- (C) aPtr= 9 and *aPtr= 9
- (D) a=9 and *aPtr=9
- (E) None of the above

```
int a = 9;
int *aPtr = &a;

return 0;
```

13. Consider the C code piece on the right side. Which of the following is correct after executing the code piece?

- (A) c= 3 and a=3 (B) c= 3 and a=1
- (C) c= 2 and a=3 (D) c= 2 and a=0
- (E) None of the above

```
int a, b, c;
a = 3;
b = 3%2;
a /= 2;
c = a + ++b;
```

14. What will the following program output?

- (A) 11 (B) 23
- (C) 24 (D) 25
- (E) None of the above

```
#include <stdio.h>
#include <string.h>
int main(void)
{
    char s[24]="Hello Word!";
    printf("%d",strlen(s));
    return 0;
}
```

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15. What will the following program output?
 (A) -1 (B) 1
 (C) 2 (D) 4
 (E) None of the above

```
#include <stdio.h>
int main(void)
{
    int a=17, b=9;
    while (a!=b)
        if (a>b) a=a-b;
        else b=b-a;
    printf("%d",a);
    return 0;
}
```

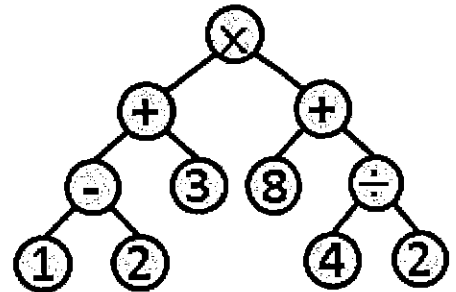
16. What will the following program output?
 (A) 0 (B) 5.03
 (C) 10.06 (D) 10
 (E) None of the above

```
int main(void)
{
    printf("%d", (float)5.03+(int)5.03);
    return 0;
}
```

多選題，一題 5 分，每一選項單獨計分，答錯倒扣

17. Which of the following is correct?
 (A) The object-oriented paradigm deals with active objects instead of passive objects.
 (B) C++, Pascal and Java are object-oriented language.
 (C) FORTRAN, COBOL are procedural language.
 (D) LISP and Scheme are common functional language.
 (E) PROLOG is one of the best known declarative languages.

18. Consider the figure on the right side.
 (A) The order of the nodes using prefix traversal is $x + -1238 + \div 42$
 (B) The order of the nodes using infix traversal is $(1 - 2 + 3) \times (8 + \div 42)$
 (C) The tree is a binary tree.
 (D) 3 and 8 are internal node.
 (E) - is an internal node.



19. Choose the following items that are correct regarding computer security.
 (A) Symmetry-key cryptography uses a single key for encryption and decryption.
 (B) Asymmetric-key cryptography uses only one public key.
 (C) Confidentiality, integrity and availability are three goals of security.
 (D) AES is an example of a modern asymmetric-key cipher.
 (E) Steganography is the technique of concealing a message, image, or file within another message, image, or file.
20. Choose the following items that are correct regarding file structures.
 (A) Sequential and random are two general types of file access methods.
 (B) An indexed file cannot be accessed randomly.
 (C) If the transaction file key is 17 and the first master file key is 21, then we add the new record to the new master file.
 (D) An indexed file consists of an index and a random data file.
 (E) When a hashing algorithm produces an address for an insertion key and that address is already occupied, it is called a collision.