單選題,每題四分,共 25 題　答錯不倒扣

1. In Von Neumann model, it does not include:
   （A）　Memory
   （B）　Heat Dissipation
   （C）　Control Unit
   （D）　Input/Output
   （E）　Logic Unit

2. Which award is considered as the Nobel Prize in computer science?
   (A) Computer Pioneer Award
   (B) Eckert-Mauchly Award
   (C) Turing Award
   (D) Computer Entrepreneur Award
   (E) Golden Bell Prize

3. Which of the following **is not true** in memory management?
   (A) Demand segmentation uses swapping.
   (B) In monoprogramming, most of the memory capacity is dedicated to a single program.
   (C) The paging approach uses the technique of virtual memory.
   (D) In demand paging, a program is divided into equally sized pages.
   (E) Partitioning is a multiprogramming approach.

4. Which of the following representations is incorrect?
   (A) 22A
   (B) $(110)_2$
   (C) $(EF)_{16}$
   (D) $(141)_8$
   (E) 145

5. The number 188.875 in decimal is equal to number ___ in octal.
   (A) 273.7
   (B) 274.7
   (C) 258.5
   (D) 278.6
   (E) 268.6

6. To convert a "Source Program" into an "Object Program", which step is NOT included?
   (A) Preprocessor
   (B) Lexical analyzer
   (C) Syntax analyzer
   (D) Semantic analyzer
   (E) all of the above

7. Covert data type (i) to data type (ii), which one may cause data loss?
   (A)　(i)　bool　(ii) char
   (B)　(i)　float　(ii) double
   (C)　(i)　int　(ii) char
   (D)　(i)　short　(ii) long
   (E)　(i)　int　(ii) float

8. Which of the following statement is **False**?
   (A) An array is a random-access structure.
   (B) A sequential list is a random-access structure.
   (C) A linked list is a random-access structure.
   (D) A stack is not a random-access structure.
   (E) None of the above

注意:背面有試題

9. Recursion is memory-intensive because:
   (A) Recursive functions tend to declare many local variables.
   (B) Previous function calls are still open when the function calls itself and the activation records of these previous calls still occupy space on the call stack.
   (C) Many copies of the function code are created.
   (D) It requires large data values.
   (E) Too many lines of code exist.

10. Assuming the following pseudocode for the Fibonacci series, what is the value of the 5th Fibonacci number (*fibonacci (5)*)?
    fibonacci(0) = 0
    fibonacci(1) = 1
    fibonacci(n) = fibonacci(n – 1) + fibonacci(n – 2)
    (A) 1.
    (B) 3.
    (C) 5.
    (D) 7.
    (E) 9.

11. Consider the C program on the right side. What will be printed on the screen after the program finishes execution?
    (A) -1
    (B) 2
    (C) 0
    (D) 1
    (E) None of the above

```
struct point { int x;};

int main() {
    struct point *p;
    struct point q;
    (*(&q)).x=2;
    p= &q;
    q.x= (&q)->x-1;
    printf("%d", p->x);
    return 0;
}
```

12. Given that k is an integer array starting at location 2000, kPtr is a pointer to k and each integer is stored in 4 bytes of memory, what location does kPtr + 3 point to?
    (A) 2003.
    (B) 2006.
    (C) 2012.
    (D) 2016.
    (E) 2024.

13. Every object of the same class:
    (A) Gets a copy of every member function and member variable.
    (B) Gets a copy of every member variable.
    (C) Gets a copy of every member function.
    (D) Shares pointers to all member variables and member functions.
    (E) Has the same address.

14. Which of the following is not a dynamic data structure?
    (A) Linked list.
    (B) Stack.
    (C) Array.
    (D) Binary tree.
    (E) Queue

15. A stack is initially empty, then the following commands are performed:

    push 5
    push 7
    pop
    push 10
    push 5
    pop

Which of the following is the correct stack after those commands (assume the top of the stack is on the *left*)?
(A) 5 10 7 5.
(B) 5 10.
(C) 7 5.
(D) 10 5.
(E) 5 10 5.

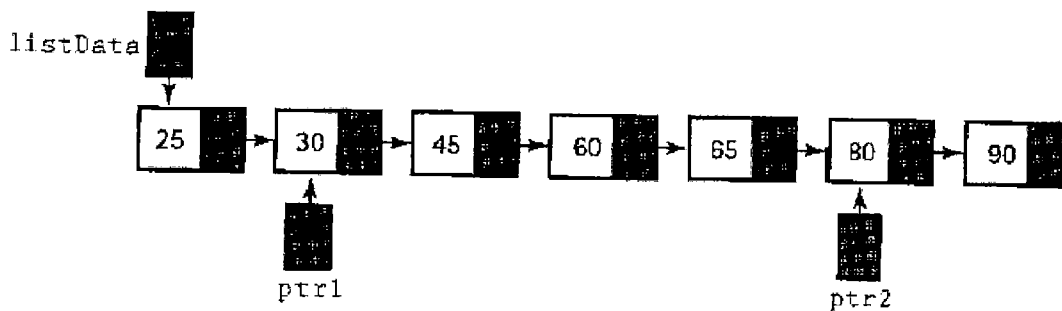16. A queue performs the following commands (in pseudo-code):
    enqueue 4, 6, 8, 3, 1
    dequeue three elements
    enqueue 3, 1, 5, 6
    dequeue two elements
What number is now at the front of the queue?
(A) *3.*
(B) *4.*
(C) *5.*
(D) *6.*
(E) *8*

17.

What will be the value of the following expression:

    listData -> next -> next -> info

(A) 25
(B) 30
(C) 45
(D) 60
(E) None of the above

18. Which of the formulas gives the maximum number of nodes in the Nth level of a binary tree?
(A) $N^2 - 1$
(B) 2^N
(C) $2^{N+1} - 1$
(D) 2^{N+1}
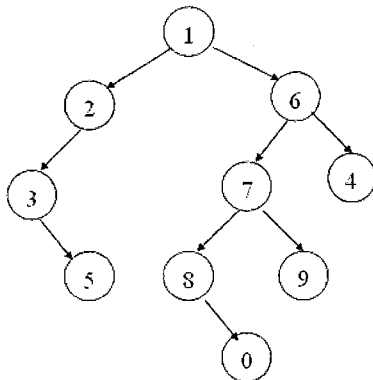(E) None of the above

注意：背面有試題

19. Given the array

26	24	3	17	25	24	13	60	47	1

Which sorting algorithm would produce the following results after four iterations：

1	3	13	17	26	24	24	25	47	60

(A) Bubble sort
(B) Selection sort
(C) Insertion sort
(D) Quick sort
(E) None of the above

20. Which of the following choices represents a correct in-order traversal for the binary tree on the right side?

(A) 5 3 2 0 8 9 7 4 6 1
(B) 5 3 2 1 0 8 7 9 6 4
(C) 4 6 9 7 0 8 1 2 5 3
(D) 3 5 2 1 8 0 7 9 6 4
(E) None of the above

21. In a _____ data compression method, the received data need not be an exact copy of the original message.
    (A) MP3
    (B) JPEG
    (C) MPEG
    (D) GIF
    (E) all of the above

22. Which protocol is designed for file transfer?
    (A) FTP
    (B) SMTP
    (C) TELNET
    (D) HTTP
    (E) POP

23. Which of the following is a white box (glass box) testing in software engineering?
    (A) Random testing
    (B) Boundary-value testing
    (C) Basis path testing
    (D) Exhaustive testing
    (E) All of the above

24. Which of the following is true regarding the TCP/IP protocol suite?
    (A) The application layer is responsible for providing services to the users.
    (B) The transport layer is responsible for the logical delivery of a message between client and server processes.
    (C) The network layer is responsible for the delivery of individual packets from the source host to the destination host.
    (D) The data link layer is responsible for node-to-node- delivery of frames.
    (E) All of the above

25. Which of the following is true regarding computer security?
    (A) Authentication keeps information secret from unauthorized access.
    (B) Steganography conceals the secret message by covering it with something else, such as an image file and a video file.
    (C) In public-key cryptography, two parties communicate each other by using a shared key to encrypt and decrypt their secret messages
    (D) Denial-of-service (DoS) attacks confidentiality of the secret communication channel between two parties.
    (E) All of the above