※ 注意：請於答案卷內之「選擇題作答區」依序作答。

Multiple Choice Questions (單選題)

1. Which of the following is the binary representation of 4 5/8?

    A. 100.11   B. 10.011   C. 110.101   D. 100.101

2. Which of the following bit patterns represents the value -5 in two's complement notation?

    A. 00011010   B. 11111000   C. 00000101   D. 11111011

3. Which of the following data storage systems provides the most efficient random access to individual data items?

    A. Main memory   B. Magnetic disk   C. Optical CDs and DVDs   D. Tape

4. How many different symbols can be encoded using Unicode?

    A. 256   B. 4,096   C. 65,536   D. 1,046,476

5. Which of the following is not an activity performed entirely within a CPU?

    A. Fetch instructions   B. Perform Boolean operations
    C. Perform arithmetic operations   D. Move data between registers

6. Which of the following is a technique for controlling access to a critical region?

    A. Spooling   B. Time sharing   C. Semaphore   D. Booting

7. Which of the following is not involved in a context switch?

    A. Interrupt   B. Process table   C. Dispatcher   D. Shell

8. Which of the following is not a means of performing multiple activities at the same time?

    A. Pipelining   B. Multiprogramming   C. Virtual memory   D. Multiple processors

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9. Which of the following statements is true?

    A. Allowing several processes to share time in a multiprogramming system is less efficient than executing each of them to completion one after the other.
    B. The use of passwords provides an impenetrable safeguard.
    C. Both A and B
    D. Neither A not B

10. Which of the following is not a way of classifying networks?

    A. WAN versus LAN   B. Closed versus open
    C. Router versus bridge   D. Star versus bus

11. Which of the following is not an application of the Internet?

    A. FTP   B. Email   C. Telnet   D. CERT

12. The primary purpose of which of the following is not the enhancement of security?

    A. ICANN   B. Firewall   C. Encryption   D. CERT

13. Which of the following identifies the application to which a message arriving from the Internet should be given?

    A. Protocol   B. Port number   C. Domain   D. Hop count

14. When searching within the list

    Lewis, Maurice, Nathan, Oliver, Pat, Quincy, Roger, Stan, Tom

which of the following entries will be found most quickly using the sequential search algorithm?

    A. Lewis   B. Pat   C. Tom   D. Roger

15. When searching within the list

Lewis, Maurice, Nathan, Oliver, Pat, Quincy, Roger, Stan, Tom

which of the following entries will be found most quickly using the binary search algorithm?

    A. Lewis   B. Pat   C. Tom   D. Roger

16. In general, an algorithm in which of the following categories is considered more efficient?

    A. $\Theta(\lg n)$ B. $\Theta(n)$ C. $\Theta(n \lg n)$ D. $\Theta(n^2)$

17. The insertion sort algorithm is an example of an algorithm in which of the following classes?

    A. $\Theta(\lg n)$ B. $\Theta(n)$ C. $\Theta(n \lg n)$ D. $\Theta(n^2)$

18. The binary search algorithm is an example of an algorithm in which of the following classes?

    A. $\Theta(\lg n)$ B. $\Theta(n)$ C. $\Theta(n \lg n)$ D. $\Theta(n^2)$

19. Which of the following is an example of a language that is based on the functional paradigm?

    A. LISP   B. PROLOG   C. C   D. C++

20. Which of the following is an example of a language that is based on the object-oriented paradigm?

    A. LISP   B. PROLOG   C. C   D. C++

21. Which of the following is ignored by a compiler?

    A. Control statements   B. Declarations of constants
    C. Procedure headers   D. Comment statements

22. Which of the following software engineering methodologies is the most rigid?

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A. Incremental model   B. Waterfall model
C. *Extreme programming*   D. *Evolutionary prototyping*

23. Which of the following is a means of controlling the complexity of a software system?

A. CRC cards   B. Modularity   C. Specifications   D. Beta testing

24. Which of the following is a LIFO structure?

A. Array   B. Stack   C. Queue   D. Tree

25. Given the relation X below

```
X:    A    B    C
      2    5    7
      3    3    3
      4    3    2
      5    2    8
```

what value will be extracted by the following query?

```
TEMP ← SELECT from X where B > C
RESULT ← PROJECT A from TEMP
```

A. 2   B. 3   C. 4   D. 5

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