Multiple Choice Questions (單選題): (60%)

1. The storage capacity of a DVD-ROM is ____ that of a CD, because images are stored at higher resolutions.
   A. greater than a CD, and a DVD's quality far surpasses
   B. less than a CD, but a DVD's quality far surpasses
   C. greater than a CD, but a DVD's quality is far less than
   D. less than a CD, and a DVD's quality is far less than
   E. none of the above

2. When a program assigns 6 bits to a pixel, that pixel can display one of up to _____ different shades of gray.
   A. 8
   B. 64
   C. 256
   D. 1,024
   E. None of above

3. Operating systems and utility programs are in a class of software known as:
   A. application software.
   B. operation software
   C. system software.
   D. software suites.
   E. BIOS software.

4. All of the following are true of a wireless network EXCEPT:
   A. computers at the nodes can run different operating systems.
   B. less trouble to install.
   C. convenient for users that work in many locations.
   D. generally faster than wired LAN.

E. easier to be compromised by hackers.

5. Google Docs is a cloud storage provider for all of the following EXCEPT ____.
   A. e-mail messages
   B. spreadsheets
   C. presentations
   D. documents
   E. none of the above

6. ____ is a program placed on a computer without the user's knowledge or consent that secretly collects information about the user, often related to Web browsing habits.
   A. Spam
   B. Spyware
   C. A pop-up ad
   D. A filter
   E. A worm

7. A personal ____ is a utility that detects and protects a computer from unauthorized intrusions.
   A. anti-hacker
   B. threat neutralizer
   C. protection utility
   D. anti-virus
   E. firewall

8. A(n) ____ operating system supports two or more processors running programs at the same time.
   A. virtual
   B. indexed
   C. multi-user
   D. multiplied
   E. multiprocessing

9. Broadcast radio is _____ susceptible to noise than physical transmission media but it provides flexibility and portability.

   A. slower and more

   B. slower and less

   C. faster and more

   D. faster and less

   E. none of the above

10. Fiber-optic cables have all of the following advantages over cables that use wire *except* _____.

    A. faster data transmission and smaller size

    B. lower costs and easier installation and modification

    C. less susceptible to noise from other devices

    D. better security for signals during transmission

    E. all of the above

11. Each networked computer in a house can _____.

    A. share a single high-speed Internet connection

    B. access files and programs on other computers in the house

    C. share peripherals such as a printer, scanner, external hard disk, or optical disc drive

    D. operate other computers in the house remotely

    E. all of the above

12. Bringing data from a word processing program into a database program is known as:

    A. importing.

    B. exporting.

    C. batch processing.

    D. mining.

    E. none of the above.

13. If you want to create a new encoding system which contains only number digits (0~9) and both uppercase and lowercase English alphabets (a~z & A~Z), how many bits does your system need to store a single stroke of data?

    A. 4 bits

    B. 6 bits

    C. 8 bits

    D. 10 bits

    E. None of the above.

14. By putting multiple CPUs on a single chip, chip makers have created:

    A. parallel processors.

    B. multi-core processors.

    C. CPU duplicate processors.

    D. multi-tasking processors.

    E. clusters.

15. DSL _____.

    A. uses a line that is shared with other users in the neighborhood

    B. is much slower than dial-up service

    C. uses a modem that sends digital data and information from a computer to a DSL line

    D. have different speed in uploading and downloading data

    E. all of the above

16. A data _____ is a huge database that stores and manages the data required to analyze historical and current transactions.

    A. stockhouse

    B. drive

    C. center

    D. warehouse

    E. storage

17. In a relational database, each row ____.
    A. and each column has a primary key
    B. has a unique name and each column has a primary key
    C. has a primary key and each column has a unique name
    D. and each column has a unique name
    E. all of the above

18. In a log, a DBMS places ____.
    A. a copy of a record prior to a change
    B. the actual change to a record
    C. a copy of a record after a change
    D. a list of people who access the records
    E. all of the above

19. Most DBMSs include a(n) ____ feature, like the one in the accompanying figure, which has a graphical user interface to assist users with retrieving data.
    A. SQL
    B. QBE
    C. data dictionary
    D. data model
    E. none of the above

20. In a database, list the following terms in the order of size, from the smallest to the largest.
    A. table, character, record, field
    B. character, record, field, table
    C. record, field, character, table
    D. character, field, record, table
    E. none of the above

21. The primary difference between a LAN and a WAN is the:
    A. number of software programs available.
    B. variety of hardware devices.
    C. geographical area.
    D. number of hardware devices.
    E. all of the above.

22. When a computer is turned on, where does it get the first instructions that it loads into RAM?
    A. From RAM
    B. From ROM
    C. From the hard disk
    D. From FLASH memory
    E. From a CD

23. Which of the following numbers is different from the others?
    A. $(001101101101)_2$
    B. $(877)_{10}$
    C. $(1555)_8$
    D. $(36E)_{16}$
    E. none of the above.

24. How is a magnetic disk drive read?
    A. Randomly
    B. Through a laser beam
    C. Sequentially
    D. In clustering blocks
    E. In sequential blocks

25. Software designed to be used by several people simultaneously is known as:
    A. shareware.
    B. cluster software.
    C. groupware.
    D. collaborative software
    E. group taskware.

26. A(n) _____ graphic is composed of a grid of dots.
    A. Bitmap
    B. embedded
    C. roster
    D. vector
    E. object-oriented

27. If a user needs information instantly available to the CPU, it should be stored:

A. in the CPU.

B. in RAM.

C. in secondary storage.

D. in CMOS.

E. on a CD.

28. =((C10+C11)/12)+D18 in Microsoft Excel is an example of a:

    A. function.

    B. cell address.

    C. calculation.

    D. formula.

    E. value.

29. The program that allows I/O devices to communicate with the computer is known as a(n):

A. software device file.

B. utility program.

C. operating device file.

D. communication system

E. device driver.

30. Data mining is:

    A. batch processing using files stored on a mainframe computer.

    B. locating trends and patterns in information kept in large databases.

    C. querying databases used by the mining industry.

    D. creating a database warehouse from many smaller databases.

    E. all of the above.

Short Essay Questions (簡答題): (24%)

說明：若需計算卻沒有計算過程則不予給分。

1. Describe the basic ideas of database normalization.

2. Give examples of prefix, infix, and postfix expressions of tree traversal.

3. What are the differences among hubs, bridges, switches, and routers?

Programming Question (程式寫作題): (16%)

說明：程式語言不拘，但須將所有必要的函式與變數予以宣告。

Write a complete program to get 25 integers from keyboard input, and store them in array A. Declare another array B, and put all the integers of array A into array B in ascending order. Print the content of array A and array B on screen as program output.