選擇題 (70%) (包含單、複選)

1. A small version of a larger graphic used to improve Web page display time is (A) icon (B) jpeg image (C) reduced GIF (D) condensed image (E) none of the above
2. A compiler for a programming language (A) is the actual machine language of the CPU (B) translates from a human-friendly programming language to binary 1s and 0s. (C)is the same no matter which CPU the program is running on (D) None of the above
3. A _____is a small block of very fast temporary memory which keeps instructions and date used most frequently or most recently to speed up data transfer. (A) Registers (B) Programmable ROM (C) Cache Memory (D) Extension Memory (E) Virtual Memory
4. The concept of using multiple processors in the same computer is known as (A) dual processing (B) multi-processing (C) perpendicular processing (D) parallel processing
5. When hackers use computers to launch an attack on another computer, the computers used to stage the attack are known as: (A) Trojan horses (B) packet sniffers (C) zombies (D) drones
6. Hackers who break into systems just for the challenge of it or to bring to light system vulnerabilities for the greater good are called : (A) script kiddies (B) black hat hackers (C) white hat hackers (D) valiant hackers
7. If you change the decimal number _____into the floating point in the IEEE Single Precision, then the truncation error will not occur. (A) 205.4 (B) -55.55 (C) 12.05 (D) 0.875
8. In what form does a computer read and store data? (A) images (B) numbers (C) characters (D) words
9. IP addresses that are assigned from an available pool of IP addresses are (A) called dynamic (B) less secure (C) called static (D) permanent
10. What is the legal term used to describe making several copies of an application and selling them or giving them away?
    (A) Distribution (B) Fraud (C) Piracy (D) Sharing
11. The term that defines the condition that occurs when your system is running out of virtual memory is: (A) thrashing. (B) caching (C) multitasking (D) paging
12. The type of software you would use to help you coordinate many people on a single task is (A) spreadsheet (B) database (C) system (D) project management
13. A device that tracks movement is (A) a PDA (B) a PSS (C) an RFID tag (D) a patient simulator
14. Affective computing is the science of relating computers and (A) emotional and social skills. (B) the calculation of interest rates (C) effective organizational skills

(D) results-oriented outcomes

15. The newest wireless Ethernet standard, which also provides the fastest data transfer rate, is : (A) 802.11n (B) 802.11g (C) 802.11b (D) 802.11a
16. In _____number representation, there is only one representation for 0. (A) sign-and-magnitude (B) one's complement (C) two's complement (D) zero's complement
17. The three steps of a machine cycle for performing an instruction are _____. (A) fetch, execute, and decode (B) decode, execute, and fetch (C) execute, decode and fetch (D) fetch, decode, and execute
18. The storage term that refers to 2^{40} bytes is (A) Gigabyte (B) Terabyte (C) Petabyte (D) Exabyte (E) none of the above
19. If the exponent in excess 127 is binary 10000101, the exponent in decimal is _____. (A) 6 (B) 7 (C) 8 (D) 9
20. System software includes all the programs that help the computer function properly. The most important type of system software is : (A) Basic Input Output System (B) Loader (C) Compiler (D) Operating System
21. A CPU has 500 MIPS, how much time is needed to execute an instruction ? (A) 2 ms (B) 2 ns (C) 5 ms (D) 5 ns
22. A field that has a unique value for each record in a database is called the (A) master field (B) key field (C) logical key (D) primary key
23. A combination of computer hardware and operating system software that dictate what other software can run is called _____. (A) Firmware (B) Middleware (C) Virtual Machine (D) Backbone (E) Platform
24. Which one of the following phases checks the sequence of tokens to see whether it is syntactically correct according to the rules of the programming language (A) lexical (B) parsing (C) semantic analysis and code generation (D) code optimization
25. The technique that allows a computer with small RAM to execute a program of much bigger size is (A) paging (B) virtual memory (C) spooling (D) multi-disk (E) none of the above
26. Data is sent over the Internet in small chunks called (A) pockets (B) packets (C) data envelopes (D) switches
27. When networks are deployed throughout a town to provide connectivity for the entire population, the networks would be classified as a (A) LAN (B) PAN (C) WAN (D) MAN
28. _____is /are the steps that tell the computer how to perform a particular task. (A) Instructions (B) Information (C) Data (D) Documentation
29. Which of the following algorithms is/are public key cryptosystems ? (A)

ElGamal (B) RSA (C) AES (D) DES (E) MD5

30. Which are components of cloud computing? (A) Increase in IT employee head count (B) Delivery of computing services via the Internet (C) Decreased computing start-up costs (D) Ease of adding increased computing capacity
31. Which of the following are advantages of installing a network in a college? (A) Increased productivity (B) Centralization of network security protection (C) Sharing of peripherals (D) Increased costs for NOS software
32. Which of the following are advantages of using a database versus lists ? (A) Data entry errors can be minimized with databases (B) Data integrity can be ensured with a database (C) Information assurance can be guaranteed by using a database (D) Data redundancy can be reduced by using databases
33. Currently, cell phones contain which items of the following (A) CPU (B) input devices (C) output devices (D) hard drives
34. Which networks contain the following elements (A) hubs (B) networking software (C) network adapters (D) transmission media
35. When evaluating CPU performance, which are features you need to consider ? (A) Size of the processor (B) Speed of the front side bus (C) Speed of the processor (D) Amount of cache memory

問答題 (30%)

1. Describe the three essential components of a computer that make up the von Neumann architecture. How do these components work together to produce a machine that can be programmed to complete different tasks? (6%)

2. Computer memory is usually grouped in bytes, which consist of 8 bits each. How many different values can be represented using a byte? (6%)

3. The Internet of today evolved from the ARPANet of the 1960s and 70s. In what ways is the Internet similar to the old ARPANet ? In what ways is it different? (6%)

4. Describe two advantages of high-level language programming over machine-language programming. What is the difference between a compiler and an interpreter? (6%)

5. What decimal value is represented by the binary number 011010012? Show the steps involved in the conversion, then use the Data Representation Page to verify your answer. (6%)