



## 第一部份 單選題 50% (每題兩分)

(請依題號作答並將答案寫在答案卷上，只寫在試題卷上不予計分。答案請採橫式書寫，每行 5 題，並請註明題號)

1. Which of the following is *not* a concept of entity-relationship data model?  
(A) composite attribute (B) operator overloading (C) key (D) total participation  
(E) recursive relationship
2. Which of the following is *not* a concept of relational data model?  
(A) multivalued attribute (B) tuple (C) candidate key (D) foreign key (E) NULL value
3. The schema of a database is sometimes called the \_\_\_\_\_.  
(A) extension (B) database state (C) intension (D) data model (E) tuples
4. A \_\_\_\_\_ in SQL terminology is a single table that is derived from other tables.  
(A) trigger (B) base table (C) meta-data (D) view (E) constraint
5. Entity types that do not have key attributes of their own are called \_\_\_\_\_ entity types in the entity-relationship data model.  
(A) derived (B) virtual (C) incomplete (D) partial (E) weak
6. The \_\_\_\_\_ constraint states that no primary key value can be NULL.  
(A) referential integrity (B) candidate key (C) foreign key (D) entity integrity (E) NULL
7. In a(n) \_\_\_\_\_ attack, the attacker injects a string input through the application, which changes or manipulates the SQL statement to the attacker's advantage.  
(A) SQL injection (B) denial of service (DOS) (C) SQL virus (D) virus injection  
(E) SQL worm
8. Which of the following is *not* commonly accepted database security goal?  
(A) integrity (B) availability (C) confidentiality (D) efficiency (E) none of the above.
9. Which analysis technique is closely related to Business Intelligence?  
(A) computer network (B) data mining (C) SQL (D) XML (E) computer graphics
10. Which one of the following is usually used to process the data stored in a data warehouse?  
(A) OLTP (B) relational algebra (C) OLAP (D) SQL (E) PHP.
11. A \_\_\_\_\_ is a collection of objects that are inserted and removed according to the last-in first-out principle.  
(A) stack (B) queue (C) heap (D) hash table (E) linked list



12. In the context of object-oriented design, \_\_\_\_\_ refers to the ability of an object variable to take different forms.  
 (A) polymorphism (B) inheritance (C) multivalued attribute (D) reference (E) subclass.
13. What is the time complexity of Algorithm 1?  
 (A)  $O(n)$  (B)  $O(n^2)$  (C)  $O(\log n)$  (D)  $O(n \log n)$  (E)  $O(2^n)$
- Algorithm 1**  
**for**  $i \leftarrow 0$  **to**  $n - 1$  **do**  
    $a \leftarrow 0$   
   **for**  $j \leftarrow 0$  **to**  $i$  **do**  
      $a \leftarrow a + X[j]$   
    $A[i] \leftarrow a / (i + 1)$   
**return** array  $A$
14. Assume array  $X[0..4] = [5\ 9\ 1\ 1\ 4]$  and  $n = 5$ . What is the result of the returned array  $A$  by Algorithm 1?  
 (A)  $[5\ 9\ 1\ 1\ 4]$  (B)  $[7\ 5\ 4\ 4]$  (C)  $[5\ 7\ 5\ 4\ 4]$  (D)  $[4\ 4\ 4\ 4\ 4]$  (E)  $[14\ 10\ 2\ 5]$
15. How many times has the statement  $a \leftarrow a + X[j]$  been executed in Algorithm 1?  
 (A)  $n \times i$  (B)  $n(n + 1) / 2$  (C)  $n^2$  (D)  $i^2$  (E)  $i(i + 1) / 2$
16.  $f(n)$  is  $O(g(n))$  means that  $f(n)$  is \_\_\_\_\_ another function  $g(n)$  up to a constant factor and in the asymptotic sense as  $n$  grows toward infinity.  
 (A) greater than (B) equal to (C) less than or equal to (D) greater than or equal to (E) none of the above.
17. Which one is not a collision-handling scheme with respect to a hash table?  
 (A) linear probing (B) separate chaining (C) double hashing (D) open addressing (E) overwriting.
18. Which one of the following programming languages is processed by an interpreter rather than a compiler?  
 (A) C (B) Delphi (C) FORTRAN (D) PHP (E) none of the above.
19. Which of the following is a Web browser released by Google in recent years?  
 (A) Firefox (B) Chrome (C) IE (D) Mozilla (E) Opera
20. A computer's software can be divided to two broad categories: application software and system software. Which one of the following is application software?  
 (A) operating system (B) shell (C) kernel (D) Microsoft Word (E) none of the above.



21. \_\_\_\_\_, the condition in which two or more processes are blocked from progressing because each is waiting for access to resources allocated to another, can arise during resource allocation.  
 (A) Overloading (B) Awaiting (C) Deadlock (D) Intersection (E) Time sharing
22. What is the hexadecimal notation for the bit pattern 111001011011?  
 (A) 323 (B) 3122 (C) AC3 (D) E5B (E) none of the above
23. What is the result of performing XOR operation on two bit patterns: 10000011 and 11101100?  
 (A) 01101111 (B) 11101111 (C) 10000000 (D) 10010000 (E) none of the above
24. Which one of the following is a declarative programming language?  
 (A) C (B) PHP (C) Delphi (D) Java (E) Prolog
25. The process of converting a program from one language to another is called *translation*. What is the correct order of the translation process consisting of three activities, Parsing (P), Code generation (C) and Lexical analysis (L)?  
 (A) P→C→L (B) L→P→C (C) C→L→P (D) P→L→C (E) C→P→L

**第二部份 單選題 50% (每題兩分)**

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26. Separate the following four words so that the similar words are in one group  
**recursive      iterative      inductive      repeat**  
 (A){recursive, iterative} and {inductive, repeat}  
 (B){recursive, inductive} and {iterative, repeat}  
 (C){recursive, repeat} and {inductive, iterative}  
 (D){recursive} and {iterative, inductive, repeat}
27. Any data or instruction entered into the memory of a computer is considered as \_\_\_\_\_.  
 (A) storage (B) output (C) input (D) information (E) None of these
28. A collection of related information sorted and dealt with as a unit is a \_\_\_\_\_.  
 (A) disk (B) data (C) file (D) floppy (E) None of these
29. The process of a computer receiving information from a server on the Internet is known as \_\_\_\_\_.  
 (A) pulling (B) pushing (C) downloading (D) transferring (E) None of these
30. \_\_\_\_\_ is the process of carrying out commands.  
 (A) Fetching (B) Storing (C) Executing (D) Decoding (E) None of these



31. Which of the following groups consist of only output devices?  
 (A) Scanner, Printer, Monitor (B) Keyboard, Printer, Monitor (C) Mouse, Printer, Monitor (D) Plotter, Printer, Monitor (E) None of these
32. A repair for a known software bug, usually available at no charge on the internet, is called a (n) \_\_\_\_\_.  
 (A) version (B) Patch (C) Tutorial (D) FAQ (E) None of these
33. In the URL <http://www.upscportal.com/>, the portion labelled http is the \_\_\_\_\_.  
 (A) host (B) domain name (C) protocol (D) top-level domain (E) None of these
34. The ability to easily add additional users means that a network is \_\_\_\_\_.  
 (A) Scalable (B) dedicated (C) Decentralized (D) Secure (E) None of these
35. The number of pixels displayed on a screen is known as the screen \_\_\_\_\_.  
 (A) resolution (B) color depth (C) refresh rate (D) viewing size (E) None of these
36. If you wish to extend the length of the network with less signal degrade, you would use a \_\_\_\_\_.  
 (A) repeater (B) router (C) gateway (D) splitter (E) None of these
37. The time it takes a device to locate data and instructions and make them available to CPU is known as \_\_\_\_\_.  
 (A) clock speed (B) a processing cycle (C) CPU speed (D) access time (E) None of these
38. A(n) \_\_\_\_\_ is a private corporate network, used exclusively by company employees.  
 (A) Internet (B) local area network (C) peer-to-peer (D) extranet (E) None of these
39. Thrashing occurs when  
 (A) too much of the time is spent in waiting to swap between memory and disk.  
 (B) two processes try to access the same resource.  
 (C) the size of the data to be inserted is less than the size of a page in memory.  
 (D) the processor's mapping table discovers that the program is trying to use an address that doesn't currently exist.
40. Which of the following allows devices on one network to communicate with devices on another network?  
 (A) multiplexer (B) gateway (C) t-switch (D) modem
41. A station in a network forwards incoming packets by placing them on its shortest output queue. What routing algorithm is being used?  
 (A) flooding (B) hot potato routing (C) static routing (D) delta routing



42. The communication mode that supports data in both directions at the same time is  
(A) simplex (B) half-simplex (C) full-duplex (D) multiplex
43. A 'C' program contains the declarations and initial assignments:  
`int i=8, j=5;`  
The value of arithmetic expression `int from 2*((i/5)+(4*j-3)%(i+j-2))` is  
(A) 18 (B) 14 (C) 1 (D) 17 (E) 0
44. Which of the following is used to transfer data and information from a portable device such as a notebook or PDA to a desktop computer?  
(A) Infrared (B) Microwave (C) Satellite (D) Broadcast radio
45. This type of network provides access to regional service providers and typically span distances greater than 100 miles.  
(A) LAN (B) MAN (C) WAN (D) WLAN
46. This provides in one tool an uncomplicated interface to the Internet and Web documents.  
(A) Internet service providers (B) Browsers (C) E-mail (D) Filters
47. The CAN-SPAM Act requires that marketing-related e-mail provide a/an \_\_\_\_\_ option.  
(A) opt-out (B) no-send (C) only-once (D) block-me
48. which of the following statement is true?  
(A) MIDI files and WAVE files are similar (B) MIDI files are comparatively smaller than WAVE files (C) MIDI files are video files and Wave are Audio files (D) MIDI files are larger than WAVE files
49. The acronym 'PPP' stands for:  
(A) Peer to Peer Protocol (B) Point to Point Protocol (C) Program to Program Protocol (D) Personal to Personal Protocol (E) Procom to Procom Protocol
50. \_\_\_\_\_ means listening or reading the communications from others on a chat group or list.  
(A) Lurking (B) Flaming (C) Spying (D) Key-holing