

國立臺北科技大學 106 學年度碩士班招生考試

系所組別：2150 電機工程系碩士班戊組

第一節 計算機概論 試題

第一頁 共二頁

注意事項：

1. 本試題共 15 題，共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

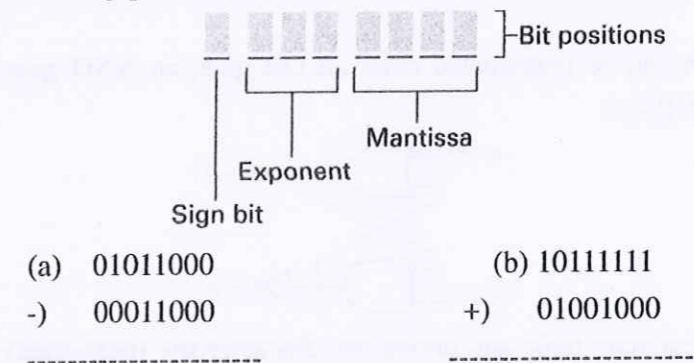
一、選擇題：40% (共 10 題，每題 4 分)

1. Which of the following is **NOT** associated with object-oriented programming?
(A) Resolution (B) Inheritance (C) Polymorphism (D) Encapsulation
2. In which of the following locations is information most readily available for manipulation by the CPU?
(A) Cache (B) Mass storage (C) General-purpose registers (D) Main memory
3. Most machine languages are based on the
(A) Declarative paradigm (B) Functional paradigm (C) Object-oriented paradigm (D) Imperative paradigm
4. 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) Nathan (E) Roger
5. Suppose a binary tree contained the nodes W , X , Y , and Z . If W and X were children of Y , and Z had no children, which node would be the root?
(A) W (B) X (C) Y (D) Z
6. Which layer of the TCP/IP hierarchy chops messages into units whose size is compatible with the Internet?
(A) Link (B) Network (C) Application (D) Transport
7. Which of the following is used to translate domain name to IP address?
(A) File server (B) Name server (C) Mail server (D) FTP server
8. Which of the following function is **NOT** contained in BIOS(basic input/output system)?
(A) Manage memory usage

- (B) Detect hardware error
- (C) Keep computer time accurately
- (D) Load kernel from mass storage
9. Which of the following is **NOT** a role of a typical operating system?
(A) Assist the computer user in the task of processing digital photographs
(B) Maintain records regarding files stored in mass storage
(C) Control the allocation of the machine's resources
(D) Control access to the machine
10. Which of the following components of an operating system is **NOT** part of the kernel?
(A) Scheduler (B) Memory manager (C) Shell (D) Dispatcher
(E) Device driver

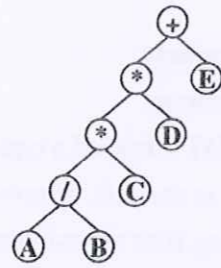
二、簡答題：60% (共 5 題)

1. (10%, 5% each) In each of the following problems, interpret the bit patterns using the eight bit floating-point format presented as follows, the exponent is presented as 2's complement system. Add or subtract the values represented, and encode the answer in the same floating-point format. Identify these cases if truncation errors occur or not.

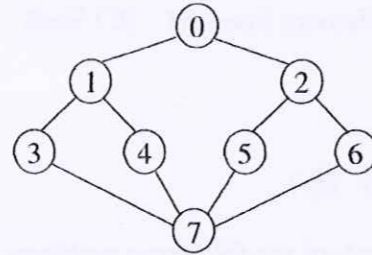


2. (9%) Give the definition of the following terms and compare their difference:
(a) Register (3%) (b) Cache memory (3%) (c) Virtual memory (3%)
3. (15%) Write the sequence in which the nodes of the following tree would be visited using the following traversal orders.
(a) In-order (3%) (b) Post-order (3%) (c) Pre-order (3%)
(d) Write a recursive function in C/C++ language for the post-order transversal. (6%)

注意：背面尚有試題



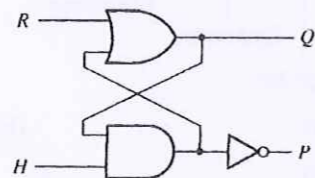
4. (16%) Consider a graph G as follows.



(a) Define and draw its adjacency list. (6%)

(b) What is the result of Breadth First Search (BFS) of the graph G starting from vertex 0. (10%)

5. (10%) A latch can be constructed from an OR gate, an AND gate, and an inverter connected as follows:



Construct a next-state table and derive the characteristic (next-state) equation for the latch.