

科目 計算機概論 類組別 A-4 共 4 頁第 1 頁 *請在試卷答案卷(卡)內作答

Part I (40%). 第 1-20 題為單選題，每題 2 分，答錯不倒扣

1. Which of the following statements is true?
 - (1) A stack is known as a first-in-first-out (FIFO) structure.
 - (2) A queue is known as a last-in-first-out (LIFO) structure.
 - (3) The process of inserting an object on a stack is called a pop operation.
 - (4) Stacks and queues can be represented by linked lists.
2. Consider a tree as a connected, acyclic, undirected graph. Which of the following statements is false?
 - (1) A tree that has n vertices contains n edges.
 - (2) Any two vertices in a tree are connected by a unique simple path.
 - (3) If an edge is deleted from a tree, the resulting graph becomes disconnected.
 - (4) If a new edge between a pair of nonadjacent vertices is added in a tree, the resultant graph has a cycle.
3. Which of the following sorting algorithms can sort n numbers in $O(n\log n)$ worst-case time?
 - (1) bubble sort (2) insertion sort (3) quicksort (4) merge sort
4. What is the maximum number of entries that must be interrogated when applying the binary search method to a sorted list of 100 entries?
 - (1) 6 (2) 7 (3) 8 (4) 100
5. Suppose a two-dimensional array of 4 rows and 8 columns is stored in column major order beginning at memory address 10 (decimal). What is the address of the entry in the third row and second column if each entry occupies one memory cell?
 - (1) 27 (2) 28 (3) 16 (4) 17
6. The parameter-passing methodology used in the C programming language is
 - (1) pass-by-value (2) pass-by-reference (3) pass-by-result (4) pass-by-value-result.
7. Which following sentence is not true for von Neumann architecture?
 - (1) It allows self-modifying code.
 - (2) Memory holds both data and instructions.
 - (3) Most DSP processors use this architecture.
 - (4) CPU and memory are separated modules.
8. Which operating system is a micro-kernel operating system?
 - (1) Windows ME (2) Windows XP (3) Linux (4) Nucleus.
9. Real-time systems are classified into soft-real-time and hard-real-time systems. Which sentence is true for a hard-real-time system but not for a soft-real-time system?
 - (1) Each task has a deadline.
 - (2) Tasks are scheduled according to its deadline.
 - (3) Missing a deadline results in a failure of the whole system.
 - (4) It is mostly used in time-critical applications.
10. Which of the following correctly describes the usage of interrupt vectors?
 - (1) determining the processing order of I/O requests (2) locating a service routine (3) scheduling tasks on CPU (4) conducting matrix operations.