

編號：F 354 系所：會計學系乙組

科目：計算機概論

本試題是否可以使用計算機： 可使用， 不可使用（請命題老師勾選）

一 選擇題（每題 3 分）

- 1) A new mode of software delivery is recently emerging. CRM is its early adopter. What is this mode? (A) On-premise delivery (B) SaaS (C) Customized software (D) None of the above.
- 2) Which algorithm sorts a list of n fixed-size numbers of length k in $O(n \cdot k)$ time by treating them as bit strings? (A) bubble sort (B) merge sort (C) quick sort (D) radix sort.
- 3) What does ASP mean? (A) An enterprise app (B) A provider of application services (C) A business process (D) The steps of developing a system.
- 4) Which one is correct about Radio Frequency ID Tags (RFID)? (A) Intelligent chips that can't be embedded in or attached to a product (B) Periodically send out signals identifying their location. (C) RFID should be scanned manually (D) RFID will improve a company's ability to track inventory only in the distribution processes.
- 5) The technique of holding data for output at a later but more convenient time is called (A) coupling (B) cohesion (C) spooling (D) cycle stealing.
- 6) The technique which combines two or more independent processors into a single package, often a single integrated circuit, is called (A) multitasking (B) multiprocessing (C) hyper-threading (D) multi-core.
- 7) A software abstraction layer between the physical hardware of a computer and the software that runs on that computer is called (A) hardware abstraction layer (B) virtual memory (C) operating system kernel (D) application programming interface (API)
- 8) Dekker's algorithm is a concurrent programming algorithm for (A) isolation (B) durability (C) mutual exclusion (D) consistency.
- 9) Which of the following is **not** an advantage of web services?
 - (A) Web services provide interoperability between various software applications running on disparate platforms.
 - (B) Web services use open standards and protocols, making it easy for developers to comprehend.
 - (C) The performance of web services is superior to other distributed computing approaches such as CORBA.
 - (D) By utilizing HTTP, web services can work through many common firewall security measures without requiring changes to the firewall rules.
- 10) What is the maximum number of entries that must be interrogated when applying the binary search to a list of 200 entries? (A) 8 (B) 10 (C) 100 (D) none of the

（背面仍有題目，請繼續作答）

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above.

二 For each of the terms in the left-hand column below, select the term in the right-hand column that best matches it. (每題 3 分)

- | | |
|--|--|
| 1. _____ Class | A. A special data structure which stores information about the active subroutines of a computer program |
| 2. _____ Polymorphism | B. Describing approaches to a variety of tasks or activities that take place during the software development process |
| 3. _____ Capability Maturity Model (CMM) | C. Implicit conversion between data types |
| 4. _____ .NET Framework | D. A mathematical notation used to describe the asymptotic behavior of functions |
| 5. _____ Big O | E. A classic multi-process synchronization problem |
| 6. _____ Intractable problem | F. A technology that allows cross-language development and provides a large standard library |
| 7. _____ Call stack | G. Place in a CPU that contains parts of the page table which translate from virtual into real addresses |
| 8. _____ Dining philosophers' problem | H. Behavior that varies depending on the class in which the behavior is invoked |
| 9. _____ Translation lookaside buffer | I. Problem that does not have polynomial-time solutions |
| 10. _____ Coercion | J. The unit of definition of data and behavior (functionality) for some kind-of-thing |

三 問答題

1. Programming languages can be classified as static or dynamic typing. Explain their difference. (6 分)

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2. Draw a binary tree structure you can use to store the list R, S, T, U, V, W, X, Y, and Z for future searching. (9 分)
3. Deadlock can be detected by constructing the so-called wait-for graph. Describe the graph in detail and how it is used to detect deadlock. (6 分)
4. Most computers possess four kinds of memory. What are they? (8 分) Compare their typical speed and capacity (6 分)
5. Two common cache replacement policies are *fully associative* and *direct mapped*. What is their difference? (5 分)