

## 本考科禁用計算機

(請於此線以下開始出題)

**1. Explain the following terms:(20%)**

**01. Breadth first search / Depth first search**

**02. 802.11a / 802.11b / 802.11g**

**03. CODEC / MODEM**

**04. Virtual Private Network**

**2. Answer the following questions:(15%)**

**01. Convert the Infix expression  $4 * 3 + (10 - 7) / 5$  to postfix expression.**

**02. What is the broadcast address in MAC-layer and IP-layer?**

**03. Convert the decimal real number  $(47.609375)_{10}$  into binary.**

**3. Use an example to explain the difference between "call by value" and "call by address".(6%) Can Java language support "call by address"? Why? (4%).**

**4. In the object-oriented model, what is the purpose of "Encapsulation" and "Overriding"? (10%)**

**5. Why the average time complexity of sequential search is  $O(n)$ . Show your answer.(10%)**

**6. Is merge sort stable? Is quick sort stable? Give an example to show your answer.(10%)**

**7. Please write an program that converts a decimal integer number into binary string. For example, an integer 15 can be converted into binary string "1111". You can use C, Java, Basic or Pascal language.(15%)**

**8. Give an array of N elements  $a[N]$ . Please write a recursive program to find the total sum of  $a[N]$ . You can use C, Java, Basic or Pascal language. (10%)**