

系所組別： 電機工程學系在職專班丙組

考試科目： 計算機概論（專班）

考試日期： 0307，節次： 3

※ 考生請注意：本試題 可 不可 使用計算機**Total 100 points**

1. (10%) True or False.
  - i. Contiguous memory allocation may cause external fragmentation.
  - ii. Contiguous memory allocation may cause internal fragmentation.
  - iii. Paging may cause external fragmentation.
  - iv. Paging may cause internal fragmentation.
2. (10%) What is USB in a computer system? What advantages does the USB have?
3. (10%) Convert a decimal number, -33, to a 2's complement binary number. Note: the length of the binary number is one byte.
4. (10%) What assumptions do you need for using Bucket Sort?
5. (10%) Describe IP-in-IP Encapsulation.
6. (10%) What is Context Switch?
7. (10%) Compare assembler and compiler.
8. (20%) Please explain why the maximum performance of comparison sorts is  $O(n \cdot \log_2 n)$ .
9. (10%) Visit all nodes in the tree below based on preorder traversal. Show the sequence of visited nodes.

