慈 濟 大 學 醫 學 資 訊 學 系
１０４ 學 年 度 碩 士 班 入 學 考 試 命 題 紙

科目： 計算機概論   共1頁

請注意:不得攜帶計算工具或參考書。

(1) What are the process deadlock problem and starvation problem in operation system? What are the necessary conditions which are in effect for a deadlock to exist? (20%)

(2) Consider a binary tree T whose preorder traversal and inorder traversal are as follows:

   Preorder: +**/ABCDE

   Inorder: A/B*C*D+E

   Please show the postorder traversal of T. (10%)

(3) What is the Euler cycle of a graph? (5%) Do the following graphs (see Fig.1) contain an Euler cycle? If so, show the cycle. (5%)
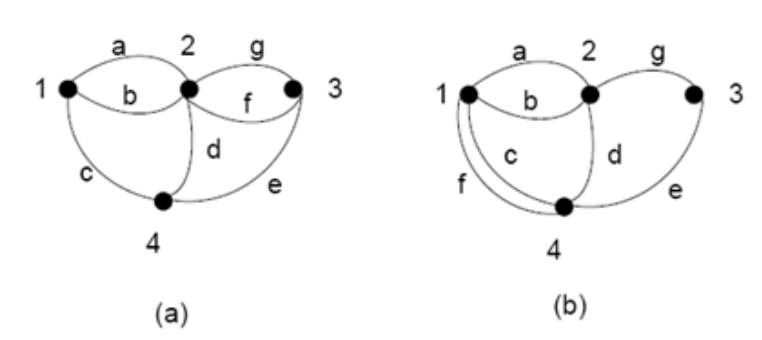

Fig.1

(4) We can use linked list to implement the stack data structure. Write the algorithms for such stack push and pop operations. (20%)

(5) Use the C or C++ programming language to implement the quick sort algorithm. (10%) What is the average time complexity of quick sort? (5%) Suggest one way to improving the running time of quick sort. (5%)

(6) Explain the following terms: (20%)

   (a) memory-mapped I/O and isolated-I/O

   (b) TCP/IP

   (c) Client/Server architecture

   (d) Digital signature