

國立中央大學通訊工程學系 102 學年度碩士在職專班入學筆試

【計算機概論】試卷

考試地點：通訊館一樓 E1-109 室

考試時間：100 分鐘

試題總分：100 分

1. (20%) Please explain the following terms:
 - a. (5%) Internet Router.
 - b. (5%) CPU multitasking.
 - c. (5%) Kernel (of an operation system).
 - d. (5%) RISC.

2. (20%) Digital data storage.
 - a. (10%) Convert a binary number
1011.011
to its equivalent base ten form.
 - b. (10%) Suppose that the hard disk on your personal computer rotates at 7200 revolutions per minute, that each track contains 64 sectors, and that each sector contains 1024 bytes. Approximately, what communication rate is required between the disk drive and the disk controller if the controller is going to receive bits from the disk drive as they are read from the spinning disk?

3. (20%) Operation system.
 - a. (6%) What is the difference between embedded systems and PCs?
 - b. (8%) How does the memory manager work with virtual memory?
 - c. (6%) Describe a deadlock avoidance scheme.

4. (20%) TCP/IP.
 - a. (8%) Please describe fundamental differences between TCP and UDP protocols.
 - b. (6%) List applications using TCP and UDP respectively.
 - c. (6%) What is IPv6? Why do we need it?

5. (10%) What are the main features of objective oriented programming?

6. (10%) Fibonacci number. In mathematics, the Fibonacci series is defined as:
0, 1, 1, 2, 3, 5, 8, ...
Please describe an algorithm which can generate the series using programming languages.