

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)

1. Convert the following number according to the bases indicated. Please explain your method of conversion; it will affect your score.

$$(FDA)_{16} = (?)_8 = (?)_2 \quad (10\%)$$

2. In C or C++, character arithmetic is possible. Please indicate the results of the following statements and explain their relationships to the ACSII code.

(a). 'z'-'a'

(b). 'Z'-'A' (5%)

3. What is the major difference between 'data' and 'information'? (5%)

4. If you are designing a hard disk, what features do you think a hard disk should have in order to improve its performance? (15%)

5. What are the most significant features that distinguish the 16-bit, 32-bit, and 64-bit computers? (10%)

6. In designing the file system of an operating system, what is the possible **data structure** you may use for implementing the file allocation tables? Please give your detailed reasons by drawing, figures, and etc. (10%)

7. What is a Network Attached Storage (NAS), and what could be the relationships between a NAS and a RAID? (15%)

8. Please explain the three data transmission modes - **simplex**, **half-duplex**, and **full duplex** in general communication operations. (15%)

9. Please explain briefly the following terminology: (each 3% total 15%)

(a) Gateway (b) URL (c) Router (d) TCP and UDP (e) XML