

# 國立中興大學97學年度碩士班招生考試試題

科目：計算機概論

所別：電子商務研究所甲組

本科目試題共2頁

## PART 1: Answer the following questions in English. (30 points)

(Extremely Important Note: You may lose credits if you fail to write down the answers in English.)

1. The 2 questions below are about the history of computer systems architecture.

Question (1-1): What is a von Neumann machine? (3 points)

Question (1-2): What are the functions of the basic units of a von Neumann machine? (3 points)

2. The 4 questions below are about the World Wide Web (WWW).

Question (2.1): What is the term "domain name"? Is a domain name required to set up a Web server for conducting the electronic commerce (EC)? Why do you think a domain name is or is not needed for setting up a Web server to serve client EC requests? (3 points)

Question (2.2): What is the term "IP address"? Is an IP address required to set up a Web server for conducting the electronic commerce (EC)? Why do you think an IP address is or is not needed for setting up a Web server to serve EC client requests? (3 points)

Question (2.3): What is the term "hyperlink"? Are hyperlinks important to WWW? Why do you think the hyperlinks are or are not important to WWW? (3 points)

Question (2.4): What are the Internet, intranet, and extranet? (3 points)

3. The 2 questions below are about computer languages.

Question (3-1): Compared with the machine language or assembly-language, what are the advantages and the disadvantages of the high level language? (3 points)

Question (3-2): What is a pointer in a high level language (such as C, C++, Pascal, and Java)? (3 points)

4. The 2 questions below are about computer software.

Question (4-1): What are the roles/functions of system software? (3 points)

Question (4-2): What are the roles/functions of application software? (3 points)

## PART 2: Essay Test (30 points)

(Extremely Important Note: You may lose credits if you fail to write down the answers in English.)

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5. Are networks of personal computers (PCs) and servers making mainframe computers obsolete? Please write an English essay (about 100 words and no more than 150 words) to tell us your answers/opinions. (10 points)
6. Why is an operating system necessary for supporting both personal computing and business/enterprise computing? Please write an English essay (about 100 words and no more than 150 words) to tell us your answers/opinions. (10 points)
7. "You have zero privacy anyway, ... Get over it." Do you agree with this statement told by Scott McNealy, the CEO of Sun Microsystems, to a group of reporters and analysts about 8 years ago? Please write an English essay (about 100 words and no more than 150 words) to tell us your answers/opinions. (10 points)

## PART 3: Programming Test (40 points)

(Extremely Important Note: You may lose credits if you fail to write down the answers in English.)

8. This test is for writing a software program in a high-level programming language (such as C, C++, PL/I, Ada, Pascal, Java, Fortran, Basic, COBOL, JavaScript, etc). Please write a code fragment, function, subroutine or class method to generate a random permutation of numbers 1, 2, 3, 4, ...  $N$ . Assume that you were given an integer  $N$  and a random number generator function  $G()$  which at each call generates a random number in  $[0, 1)$ . In other words, the random numbers generated by  $G()$  are always greater than or equal to zero and less than 1, i.e.  $0 \leq G() < 1$ . Remember to specify what high-level programming language you are using to answer this question.

- NOTE:
- (1) In case you are not familiar with any high-level programming language, you may still get partial credits on this test by writing your code segment, function, subroutine or class method in pseudo code.
  - (2) Except for calling  $G()$ , the code written by you is not allowed to call any other readily available function, subroutine, service or class method.