國立臺北科技大學 101 學年度碩士班招生考試

系所組別：4130 工業工程與管理系碩士班丙組

第二節　計算機概論　試題

注意事項：

1. 本試題共六大題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Let the digits 0-9 and the letters A-F be the hexadecimal digits with values of decimal 0 to 15. Please compute the following expression and give the results in hexadecimal form.
   (1) 3A+2B　(5%)
   (2) 10×C3　(5%)

2. Let the arithmetic expression be $(A\times B+C)\times D-(E+F)$.
   (1) Please draw a binary tree to represent the arithmetic expression given above. (10%)
   (2) List the post-order traversal of the binary tree obtained in (1). (10%)

3. The factorial of a positive integer n, denoted by factorial(n), is defined by

$$\text{factorial}(n)=\begin{cases}1, & \text{if } n=0\\ n\times(n-1)\times\cdots\times 2\times 1, & \text{if } n\geq 0\end{cases}$$

   (1) Use the recursive representation to rewrite the definition of the function factorial(n). (10%)
   (2) Write a computer program (C, C++, or Java) to implement the recursive version of the factorial function. (10%)

4. Write a computer program (C, C++, or Java) that asks the user for a height of a triangle and then output a right triangle with the input height. For example, if the height is 5, the right triangle would appear as follows: (15%)

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5. Please give each of the following terms a brief description:
   (1) IP address (5%)
   (2) Domain Name Service (5%)
   (3) Local Area Network (LAN) (5%)
   (4) Network topology (5%)

6. Please give a brief description about supply chain management (SCM), and use an example describe how the information technology can be used to support the SCM. (15%)