※ 注意：請於答案卷上依序作答，並應註明作答之大題（部份）及其題號。

Part I: 單選題 (30%)

1. Which of the following languages is an object-oriented language?
   (A) C (B) C++ (C) Cobol (D) Fortran
2. Which of the following program is **NOT** a CAD program?
   (A) AutoCAD (B) CATIA (C) ANSYS (D) MicroStation
3. Which of the following data structure is **FILO** (first in last out)?
   (A) Stack (B) Set (C) Map (D) Queue
4. Which of the following data structure is commonly implemented using tree structures for efficient access?
   (A) Stack (B) Set (C) Array (D) List
5. Which of the following technology is **NOT** developed by the World Wide Web Consortium?
   (A) XML (B) SVG (C) UML (D) SOAP
6. Which of the following method is commonly used to find the minimum or maximum of a given function?
   (A) Conjugate Gradient (B) Gaussian Elimination (C) Wavelet Transform (D) Quicksort
7. Which of the following method is commonly used to solve differential equations?
   (A) Finite Difference (B) Expert System (C) Wavelet Transform (D) Recursive
8. _____ is a vendor-neutral, multi-platform standard for high performance 2D/3D graphics on devices ranging from mobile phones to PCs to supercomputers.
   (A) JMF (B) SVG (C) SOAP (D) OpenGL
9. J2EE and .NET platforms are technologies targeting for implementing _____
   (A) Wireless Application (B) Web Services (C) Windows Application (D) GIS and GPS
10. HomeRF and _____ are two common types of wireless home network
    (A) TCP/IP (B) Microsoft Workgroup (C) Bluetooth (D) 802.11b

接背面

Part II: Computer Programming (30%)

You should write your program using one of the following programming languages: Fortran, C, C++ or Java.

1. (15%) Write a **recursive** program to compute $n!$. Your program should allow users to input the value of n and output the computed value.
2. (15%) After reading the following C code, draw a flowchart for the code and explain the main purpose of the code.

```
void locate(float xx[], int n, float x, int* j)
{
    int ascnd, ju, jm, jl;

    jl=0;
    ju=n+1;
    ascnd=xx[n] > xx[1];
    while (ju-jl > 1) {
      jm=(ju+jl) >> 1;
      if (x > xx[jm] == ascnd)
          jl=jm;
      else
          ju=jm;
    }
    *j=jl;
}
```

Part III: 問答題 (40%)

1. (20%) What are the major advantages offered by inheritance, template, encapsulation and polymorphism?
2. (20%) What are the major advantages offered by 3D modeling and presentation using computer-aided design tools?

試題隨卷繳回