

# 國立彰化師範大學 100 學年度碩士班招生考試試題

系所：資訊管理學系數位內容科技與管理碩士班

科目：計算機概論

☆☆請在答案紙上作答☆☆

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## 一. 單選題(40%，每題 4%)

- \_\_\_\_\_ is a technology used to improve parallelization of computations performed on Intel Core processors. It can use processor resources more efficiently, enabling multiple threads to run on each core.  
(A)RISC (B) Hyper-link (C) Hyper-threading (D) Virtual memory (E) Multi-touch
- \_\_\_\_\_ is a mobile operating system used by Apple.  
(A) Android (B) Linux (C) Windows 7 (D) iPad (E) iOS
- A \_\_\_\_\_ system consists of multiple autonomous computers communicating through a network and interacting with each other to achieve a common goal.  
(A) distributed (B) networked (C) centralized (D) peer-to-peer (E) hierarchical
- \_\_\_\_\_ is a game console that uses body gesture to provide controller-free gaming and entertainment experience.  
(A) Wii (B) NDS (C) PSP (D) Kinect (E)None of the above
- Several modern runtime environments such as Microsoft's .NET Framework and most implementations of Java use \_\_\_\_\_ to improve code execution.  
(A) direct interpretation (B) just-in-time compilation (C) static translation (D) dynamic linking (E) None of the above.
- \_\_\_\_\_ is a widely implemented cross-platform API for mobile 3D graphics.  
(A)DirectX (B) OpenGL ES (C) X3D (D) OpenAL (E) None of the above
- \_\_\_\_\_ uses demand paging or demand segmentation technique to run a program that is not entirely in the main memory.  
(A)Multi-tasking (B) Bootstrap (C)Virtual Memory (D) DMA (E) None of the above
- \_\_\_\_\_ is a scripting language for creating dynamic Web pages.  
(A) XML (B) WML (C) HTML (D) PHP (E) All of the above
- \_\_\_\_\_ describes computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services.  
(A)ERP (B) E-Commerce (C) Web Computing (D) CRM (E) Cloud Computing
- In the von Neuman model, the \_\_\_\_\_ subsystem stores data and program.  
(A) memory (B) input/output (C) ALU (D) control unit (E) None of the above.

## 二. 寫出底下專有名詞的英文全名(20%，每題 5%)

- DNS (in Internet) stands for \_\_\_\_\_
- XML (in Web Technology) stands for \_\_\_\_\_
- RAM (in Computer) stands for \_\_\_\_\_
- LAN (in Network) stands for \_\_\_\_\_

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## 三. Problems (40%)

(1) Show the result of the following operations assuming that the numbers are stored in 8-bit two's complement representation. Let  $A = (CD)_{16}$ ,  $B = (17)_{16}$ . Compute  $A-B$ . (10%)

$$\begin{array}{r} A = ( \quad \quad \quad )_2 \\ B = ( 0 0 0 1 0 1 1 1 )_2 \quad -B = ( \quad \quad \quad )_2 \\ \hline A+(-B) = ( \quad \quad \quad )_2 \end{array}$$

(2) Finish the following **recursive** method (function) sum according to the program specification.(10%)

```
public class FunnyMath {
    // the method sum computes the sum of all digits of a positive integer n
    // for example, sum(1234) returns 10 and sum(12345) returns 15.
    public static int sum(int n){ // assume n is positive integer
        if(n < 10){
            return _____;
        }
        return _____ + _____;
    }
    public static void main(String[] args) {
        Date d = new Date();
        System.out.println(FunnyMath.sum(12345)); // print out 15
    }
}
```

(3) Heap and stack are commonly used in JAVA and C++ to store data in memory for a running program. Explain both heap and stack using the above program. (10%)

(4) C++, JAVA and C# are popular programming languages currently. Write down their common features. Which one is best suited for Web-based applications and why? (10%)