

# 東吳大學 113 學年度碩士班招生考試試題

第1頁，共2頁

系級	資訊管理學系碩士班	考試時間	100 分鐘
科目	計算機概論	本科總分	100 分

※一律作答於答案卷上(題上作答不予計分)；並務必標明題號，依序作答。

## 一、選擇題(每題 5 分，共 30 分)

1. How many nodes that a full binary tree of depth h can have?

- (A)  $2h-1$  (B)  $2h+1$  (C)  $2^{h+1}$  (D)  $2^{h-1}$

2. Which of the following describes the Platform as a service (PaaS) the best?

- (A) The employees use Gmail to send email to colleagues  
 (B) Andy uses Azure to develop AI chatbot  
 (C) One of the advantages of PaaS is the scalability.  
 (D) PaaS is a cloud service which users can rent for computation and storage via cloud.

3. Given an empty Queue, what are the elements would be (from bottom to top) in the Queue after the following instructions?

**Insert (A) → Insert (B) → Insert (C) → Delete() → Insert (B) → Delete()  
 → Insert (D) → Insert (A)**

- (A) CDAB (B) ABBDA (C) ABDA (D) CBDA

4. Which of the following statement is corret?

- (A) Gateway connects devices and networks  
 (B) UDP is more reliable than TCP  
 (C) In Ring topology, all devices connect to each other so that it can make sure the data would be sent to the designated device even few of the the devices is not working.  
 (D) The OSI model inclues Physical, Data link, Network, Transport, Session, Presentation, and Application layers. The HTTP is in the Application layer.

5. Which of the following statement is corret?

- (A) O2O stands for Online-to-Online  
 (B) B2B refers to the trade involving manufacturers and retailers.  
 (C) The fast food restaurant KFC is one of the C2C companies.  
 (D) B2C refers to that customers can purchase online and get their products in physical stores.

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第2頁，共2頁

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科目	計算機概論	本科總分	100 分

6. Which of the following statement is correct?
- (A) Random-access memory (RAM) is nonvolatile memory
  - (B) Read-only memory (ROM) is volatile memory
  - (C) The CPU registers is faster than Cache
  - (D) All of above

## 二、簡答題(共 70 分，可中文或英文作答)

1. Please describe the two types of encryption, symmetric and asymmetric key encryption, and compare the differences between them. (10%)

2. Please convert the following numbers.

- (1) Convert 45.1275 from decimal into binary. (5%)
- (2) Convert ECB.75 from hexadecimal into decimal (5%)
- (3) Represents the decimal number 75.015625 in IEEE 754 standard single precision.(10%)  
(IEEE 754 consists of 1 bit of sign, 8 bits of exponent, and 23 bits of mantissa)

3. Please explain what is deadlock and how to prevent it (10%)

4. Please explain how the context switch works (10%)

5. The inorder traversal of a binary is DCEFHBGJ, and its preorder sequence is ACDEFHBGJ.

- (1) Please draw the binary tree (5%)
- (2) Write down its postorder sequence (5%)

6. Please write down how to represent the following expression in the postfix form and the results. The prefix expression is  $(E-X)/(A+M)*(S+C-U)$ . (10%)