

→ 備註：請在答案卷上作答，於本試題紙上作答者一律不予計分。

一、複選題 (20%) 每題 5 分答對每一選項 1 分

1. Which of the following high level languages need compilers (編譯器) to generate an executable file?
(A) Objective C (B) Java (C) C++ (D) C (E) BASIC
2. Which of the following high level languages need interpreters (直譯器) to run statements directly?
(A) JavaScript (B) Java (C) C++ (D) C (E) PHP
3. Which of the following are mobile operating systems?
(A) Google's Android (B) Nokia's Symbian (C) Oracle's Solaris (D) Apple's iOS (E) Microsoft's Mango
4. Which of the following are Unix-like or Linux-like operating systems?
(A) Google's Android (B) Nokia's Symbian (C) Oracle's Solaris (D) Apple's iOS (E) Microsoft's Mango

二、單選題 (30%) 每題 2 分

1. A _____ is a Layer-1 switch.
(A) hub (B) bridge (C) router (D) Network Address Translation (IP 分享器)
2. A _____ is a Layer-2 switch.
(A) hub (B) bridge (C) router (D) Network Address Translation (IP 分享器)
3. A _____ is a Layer-4 switch.
(A) hub (B) bridge (C) router (D) Network Address Translation (IP 分享器)
4. Java primitive data types of **byte**, **short**, **int**, and **long** indicate 8-bit, 16-bit, 32-bit, and 64-bit signed two's complement integers respectively. In other words, the (A) byte (B) short (C) int (D) long data type has a minimum value of -32,768 and a maximum value of 32,767.
5. In Java, the program **short i; for(i=1; i>0; ++i);** will loop (A) zero time (B) only one time (C) infinite (無窮迴圈) (D) exactly 32767 times
6. In Java, the program **byte k = -128; k--; System.out.println(k);** will print out (A) -129 (B) 0 (C) 127 (D) program bug
7. Which sorting algorithm is the fastest one as data items become larger?
(A) heap sort (B) bubble sort (C) insertion sort (D) selection sort
8. The notation **120.96.183.0/27** indicates that the LAN can connect (A) 30 (B) 62 (C) 126 (D) 254 hosts or computers at most.
9. The subnet mask **255.255.255.224** indicates that the LAN can connect (A) 30 (B) 62 (C) 126 (D) 254 hosts or computers at most.

實踐大學 101 學年度研究所碩士班入學招生考試試題

所 別：資訊科技與管理學系碩士班

80 分鐘

科 目：計算機概論

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10. Which of the following description is **INCORRECT**?
- (A) both Apple's iPhone and HTC's smartphones use ARM processor
 - (B) ARM processor is a RISC architecture
 - (C) ARM processor is x86 compatible
 - (D) ARM is one of the mobile processors designed to save power
11. Which of the following description of Java is correct?
- (A) Java is not an object-oriented language
 - (B) Java virtual machine can run byte code directly
 - (C) Java Script is identical to Java
 - (D) Java virtual machine is a register-based machine
12. Which of the following description of an integer k in C or Java is **INCORRECT**?
- (A) $k \gg 4$ (位元右移 shift right) is identical to $k / 16$
 - (B) $k \& 15$ (位元邏輯且 logic AND) is identical to $k \% 16$
 - (C) $k \ll 4$ (位元左移 shift left) is identical to $k * 16$
 - (D) $k \wedge k$ (位元邏輯互斥或 logic exclusive OR) is identical $k = 0$
 - (E) $k | 16$ (位元邏輯或 logic OR) is identical to $k = k + 16$
13. Which of the following description of cloud computing is **INCORRECT**?
- (A) provides lots of virtual machines
 - (B) provides all kinds of operating systems
 - (C) provides only relational database
 - (D) Amazon EC2 is one kind of private cloud
14. Which of the following protocol is **NOT** used in mail service?
- (A) SMTP (B) POP3 (C) IMAP (D) SSH
15. Which of the following description is correct?
- (A) HTTP uses the port 443 and HTTPS uses the port 80
 - (B) web page design is different for HTTP and HTTPS
 - (C) both URI schemes of HTTP and HTTPS are identical
 - (D) both performance of HTTP and HTTPS are identical

三、簡答題 (20%) 任選 4 題，每題 5 分

1. What is ADSL?
2. What is CMMI?
3. What is RFID?
4. What is mobile App?
5. What is UDP?
6. What is SQL?
7. What is RAM?
8. What is SPAM?

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科 目：計算機概論

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四、程式題 (30%) 請完成下列 5 個副程式的設計，並回答最後 4 個問題

```
// data structure of stack (堆疊)
int stack[32];
int sp=0; // stack pointer

// data structure of queue (佇列)
int queue[32];
int header=0; // queue header
int tail=0; // queue tail
int qcount=0; // queue count

// functions of stack and queue
int push(int k){
    // to do here of answer 1
}

int pop(void) {
    // to do here of answer 2
}

void enqueue(int k){
    // to do here of answer 3
}

int dequeue(void) {
    // to do here of answer 4
}

int empty(int select) {
    // to do here of answer 5
    // 0:queue, 1:stack
}

// random boolean value (亂數)
int seed=0;
int seed2=5;
int RandomBoolean(void){
    static int k=5;
    if(k==0) {
        seed++;
        k=seed2;
    }
    return (seed>> --k)&1;
}

// 排列
void permutation(int select) {
    int count;
    for(count=1; count<=5; ++count)
        if (RandomBoolean())
            printf("%d", count);
        else // 0:queue, 1:stack
            if (select) push(count);
            else enqueue(count);
    while (!empty(select))
        if (select) printf("%d", pop());
        else printf("%d", dequeue());
    printf("\n");
}

// 主程式
main() {
    int k;
    for(k=1;k<=32;++k)
        permutation(1); // stack
    for(k=1;k<=32;++k)
        permutation(0); // queue
}
```

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所 別：資訊科技與管理學系碩士班

80 分鐘

科 目：計算機概論

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請回答最後 4 個問題

1. The following output is possible using a **queue**: 23514
(A) True (B) False (C) Not enough information
2. The following output is possible using a **queue**: 13542
(A) True (B) False (C) Not enough information
3. The following output is possible using a **stack**: 24531
(A) True (B) False (C) Not enough information
4. The following output is possible using a **stack**: 35124
(A) True (B) False (C) Not enough information

-----考題結束，以下空白供計算使用-----