

國立臺北科技大學九十四學年度學士班轉學考試

資工系 計算機概論試題

填 准 考 證 號 碼

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注意事項：

1. 本試題共 3 題，共 100 分。
2. 請按順序標明題號作答，不必抄題。
3. 全部答案均須答在試卷答案欄內，否則不予計分。

I. True/False questions (use T for true and F for false): (2% each)

1. ___ USB uses the polling mechanism to support interrupt transfer.
2. ___ It's faster to access data located at lower address than to access data at higher address in a RAM.
3. ___ Higher CPU clock rate always yields higher performance.
4. ___ Both MIPS and MFLOPS are used to measure the performance of a computer system.
5. ___ All circuits can be implemented with NAND and NOR gates.
6. ___ An interpreter is used to translate a program written in a high level language into its corresponding machine codes.
7. ___ Because C is a high level language, it is not suitable to write system programs such as the operating systems.
8. ___ Java and C++ are both object oriented programming language.
9. ___ Tables are used in relational databases to store data.
10. ___ Virtual memory is a technique used to speed up memory accesses.

II. Multiple choice: (3% each)

1. ___ Which of the following stages is executed first during compiling a program?
 - A. Scanner
 - B. Linker
 - C. Loader
 - D. Assembler
 - E. Parser
2. ___ Which of the following mechanisms is irrelevant to wireless communication?
 - A. IrDA
 - B. IEEE 802.11
 - C. Bluetooth

- D. RF
E. Non of the above
3. ____ Which of the following items is not related to security?
A. Firewall
B. VPN
C. DES
D. HTTPS
E. Non of the above
4. ____ Which attack is used to paralyze an internet server by sending a huge number of requests?
A. DoS
B. Virus
C. Bomb
D. Backdoor
E. Trojan Horse
5. ____ Which one is not a process state in an operating system?
A. Waiting
B. Suspend
C. Ready
D. Linking
E. Non of the above
6. ____ Which of the following products is not an example of the embedded systems?
A. Tablet PC
B. PDA
C. Smart phone
D. Home gateway
E. iPod
7. ____ Which one is not an essential characteristic of OOP?
A. Inheritance
B. Polynomial
C. Abstract data type
D. Dynamic binding
E. Encapsulation
8. ____ Which of the following mechanisms is often adopted to allow a user to login to a Linux/UNIX system securely?
A. TCL
B. SSH
C. X-protocol
D. TELNET
E. FTP
9. ____ What is the complement of the following expression?

$$n \parallel a \leq b \ \&\& \ c \neq 100$$
A. $!n \parallel a > b \parallel c == 100$
B. $!(n \ \&\& \ (a > b \parallel c == 100))$
C. $!n \ \&\& \ (a > b \parallel c == 100)$
D. $!(n \parallel (a > b \parallel c == 100))$
E. none of the above
10. ____ What is the result of the variable a in the following program after it is executed?

```

int f(int *x) {
    return x--;
}

```

```
int g(int x) {
    return x--;
}

main() {
    int a = 10;
    g(f(&a));
}
```

- A. 11
- B. 10
- C. 9
- D. 8
- E. 7

III. Briefly answer the questions:

1. What is the value of the 2's complement of $(101)_{10}$? Please represent it in the Hexadecimal format. (5%)
2. List the lower five layers defined in the ISO's OSI network reference model? (5%)
3. What is SoC? (10%)
4. Describe the advantages and disadvantages of First-Come-First-Served (FCFS) scheduling and Round-Robin scheduling, respectively. (15%)
5. Describe the advantages and disadvantages of sequential files and direct files (i.e., random access file), respectively. (15%)