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一、是非題 (10 題，10%)

( )1. Like an IP address, the components of a domain name are separated by commas.
( )2. The arithmetic unit interprets each instruction issued by a program and then initiates the appropriate action to carry out the instruction.
( )3. Processors that use pipelining are slower because they have to wait for one instruction to complete the machine cycle before fetching the next.
( )4. A FireWire port allows a user to connect up to 15 devices together.
( )5. Regardless of the size of the computer, most operating systems provide similar functions.
( )6. The boot process is very different for large and small computers.
( )7. Power users seldom work with UNIX because of its rigidity and vulnerability.
( )8. Like a form, a report generator is used to maintain and retrieve data.
( )9. The nexus is the core of an operating system that manages memory and devices.
( )10. Many search engines use databases to store Web site descriptions.

二、選擇題 (15 題，15%)

( )1. A(n) ____ computer is a special-purpose computer that functions as a component in a larger product.
　　a. hard-coded　　　　　　　　　c. soft
　　b. embedded　　　　　　　　　 d. indexed

( )2. A ____ is a numeric password either assigned by a company or selected by a user.
　　a. passkey　　　　　　　　　　c. PIN
　　b. secure number　　　　　　　 d. secure key

( )3. ____ is a scam in which a perpetrator sends an official looking e-mail that attempts to obtain a user's personal and financial information.
　　a. Spam　　　　　　　　　　　c. Phishing
　　b. Spit　　　　　　　　　　　　d. Spyware

( )4. In sequence, most system development life cycles contain five phases: ____.
　　a. planning, analysis, design, implementation, support
　　b. analysis, implementation, support, design, planning
　　c. support, design, planning, analysis, implementation
　　d. implementation, analysis, support, planning, design

( )5. ____ means that the people who are conversing on a computer are online at the same time.
　　a. Automatic　　　　　　　　　c. Real time
　　b. Real-world　　　　　　　　　d. Mainline

( )6. ____ enables users to speak to other users over the Internet.
　　a. IrDA　　　　　　　　　　　c. TCP/IP
　　b. VoIP　　　　　　　　　　　 d. An Internet news server

( )7. The faster the clock speed, the more ____ the processor can execute per second.
　　a. registers　　　　　　　　　　c. arguments
　　b. functions　　　　　　　　　　d. instructions

( )8. Two types of system software are ____.
　　a. application software and utility programs　　c. operating systems and utility programs
　　b. Web browsers and application software　　　d. operating systems and Web browsers

( )9. DSL ____.
　　a. uses a modem that sends digital data and information from a computer to a DSL line
　　b. is much slower than dial-up service
　　c. uses a line that is shared with other users in the neighborhood
　　d. all of the above

( )10. In a relational database, each row ____.
　　a. and each column has a primary key
　　b. has a unique name and each column has a primary key
　　c. has a primary key and each column has a unique name
　　d. and each column has a unique name

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( )11. Bluetooth technology is ____.
　　a. similar to a USB port in that it can connect multiple types of devices that require faster data transmission speeds
　　b. a special high-speed parallel port that allows users to attach peripherals such as disk drives and printers
　　c. a special type of serial port that connects the system unit to a musical instrument
　　d. an alternative to IrDA that uses radio waves to transmit data between two devices

( )12. Computer communications describes a process in which two or more computers or devices transfer ____.
　　a. data　　　　　　　　　　　　　c. instructions
　　b. information　　　　　　　　　　d. all of the above

( )13. For best performance of a communications channel, ____.
　　a. bandwidth and latency should be low　　c. bandwidth should be high and latency low
　　b. bandwidth should be low and latency high　　d. bandwidth and latency should be high

( )14. ____ is the time it takes a signal to travel from one location to another on a network.
　　a. Latency　　　　　　　　　　　c. Frequency
　　b. Symmetry　　　　　　　　　　d. Delay register

( )15. ____ cable consists of one or more twisted-pair wires bundled together.
　　a. Dual　　　　　　　　　　　　c. Twisted-pair
　　b. Coaxial　　　　　　　　　　　d. Fiber-optic

三、簡答題 (2 題，5 個小答案, 15%)

1. Please convert/compute each of the following values:
　(a) $(B17)_h$(Hexadecimal) $= (W)_{BCD}$, W=?
　(b) $(10001010.01110)_2 = (X)_8$, X=?
　(c) Y = the 8's complement of $(CE)_h$, Y=?
　(d) $(17)_{10} + (16)_{10} = (Z)_{2\text{'s complement}}$, Z=? (Please use the patterns of 6 bits)

2. What is NFC? Briefly explain it and give the full name of it.

四、配合題 (10 小題，10%)

A. Identify the letter of the choice that best matches the phrase or definition.

a. Bluetooth	f. 3G	k. parallel	p. CMOS
b. twisted-pair	g. 4G	l. multi-core	q. ROM
c. eSATA	h. AGP	m. serial port	r. nonvolatile
d. IrDA	i. PCI	n. pipelining	s. byte
e. 2G	j. external	o. nanosecond	t. P2P

1. Category of cellular transmission that transmits digital data at speeds up to 15 Mbps.
2. Frees processors from having to wait for one instruction to complete the machine cycle before fetching the next.
3. This kind of processor is a chip with two or more processor cores.
4. Type of processing used by supercomputers.
5. Allows you to connect an external hard disk to a computer. This hard disk is popular because of its fast data transmission speeds.
6. Examples of standards in this category include GSM and UMTS.
7. Port that allows a device to transmit data via infrared light waves.
8. Kind of network that is sometimes called a file sharing network.
9. Kind of cable designed to reduce noise.
10. Category of cellular transmission that transmits digital data at speeds from 9.6 Kbps to 19.2 Kbps.

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五、何謂陣列(array)？何謂鏈結串列(linked list)？其優缺點各為何？(10%)

六、有七個資料如下：20, 10, 30, 80, 90, 40, 100，試以 Heap sort 和 Binary tree sort 由小到大加以排序之。注意！要寫出其過程，否則不予計分(20%)

七、試在主程式中，以傳址的方式(call by address)呼叫 average 函數，此函數旨在計算由主程式傳送過來陣列元素(假設有 5 個元素)的平均值，之後，再將此平均值回傳主程式，並加以印出。(可用任何語言，並請註明使用何種語言)(20%)