

大同大學 99 學年度研究所碩士班入學考試試題

考試科目：計算機概論

所別：資訊經營研究所

第1/2頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

A. Mark T for True and F for False. (20%)

1. Many people believe that computer literacy is vital to success in today's world.
2. Because embedded computers are components in larger products, they usually are small hardware.
3. With online investing. The transaction fee for each trade usually is much more than when trading through a broker.
4. A Web page has a unique address, called a URL or Web address.
5. Hypertext combines text-based links with graphic, audio, and video links.
6. Flames are abusive or insulting messages.
7. Computer-aided design CAD software is a sophisticated type of application software that assists a professional user in creating engineering, architectural, and scientific designs.
8. Some communications software is considered system software because it works with hardware and transmission media.
9. Linux is open source software, which means its code can be modified and redistributed.
10. An adware remover is a program that detects and deletes spam.
11. The speed of the system clock is just one factor that influences a computer's performance.
12. A byte is the smallest unit of data the computer can process.
13. A touchpad is a small, flat, rectangular pointing device that is sensitive to pressure and motion.
14. Resolution is the smallest element in an electronic image.
15. A printout in landscape orientation is taller than it is wide.
16. A multifunction peripheral is also called an all-in-one device.
17. A typical hard disk contains only one platter.
18. The process of writing on an optical disc is called ripping.
19. A Web server is a computer that delivers requested Web pages to your computer.
20. An intranet is an internal network that uses Internet technologies.

B. Select the best answer. (20%)

1. _____ is/are a collection of unprocessed items, which can include text, numbers, images, audio, and video. (a) Data (b) Instruction (c) Program (d) Information
2. A(n) _____ message is a real-time Internet communication, where you exchange messages with other connected users. (a) text (b) instant (c) picture (d) video
3. _____ is a system that attempts to imitate the behavior of the human brain. (a) Telemedicine (b) a neural network (c) E-commerce (d) a kiosk.
4. As with an IP address, the components of a domain name are separated by _____. (a) commas (b) periods (c) colons (d) semicolons
5. A _____ is a Website that offers a variety of Internet services from a single location. (a) blog (b) wiki (c) portal (d) podcast
6. A(n) _____ is a small version of a larger graphic. (a) MP3 (b) wiki (c) portal (d) thumbnail
7. _____ is a collection of individual programs available together as a unit. (a) A software suit (b) Shareware (c) Packaged software (d) Custom software
8. _____ is the electronic equivalent of a user manual. (a) Web-based training (b) Online Help (c) E-learning (d) CAD
9. The _____ chip, which uses battery power, stores configuration information about the computer. (a) BIOS (b) CMOS (c) POST (d) RAM

<背面繼續>

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第2/2頁

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<接前頁>

10. A(n) _____ is a program that warns or blocks you from potentially fraudulent or suspicious Web sites. (a) Web filter (b) adware remover (c) phishing filter (d) all of the above
11. The processor also is called the _____. (a) chip (b) adapter card (c) motherboard (d) central processing unit
12. _____ is the process of obtaining a program instruction or data item from memory. (a) Fetching (b) Decoding (c) Executing (d) Storing
13. Dual-core/multi-core processors _____. (a) need more power (b) increase overall performance (c) increase heat output (d) all of the above
14. A _____ port is an interface that connects devices by transferring more than one bit at a time. (a) serial (b) parallel (c) USB (d) mouse
15. Many public locations are _____ that provide wireless Internet connections to users with mobile computers. (a) plug-ins (b) hot spots (c) Web logs (d) chat place
16. With _____, the computer will detect human motion. (a) an on-screen keyboard (b) an optical mouse (c) a computerized implant (d) gesture recognition
17. _____ is a technology that sends resistance to a device in response to actions of the user. (a) An interactive whiteboard (b) A CRT (c) A dance pad (d) Force feedback
18. A group of two or more integrated hard disks is called a _____. (a) backup (b) disk cache (c) portable disk (d) RAID
19. Two types of wireless home networks are _____. (a) Ethernet and power-line (b) phone-line and Home RF (c) Ethernet and Wi-Fi (d) Home RF and Wi-Fi.
20. When an online meeting takes place on the Web, it is called _____. (a) E-mail (b) MSN (c) a Web conference (d) a Web meeting

C. Write a detailed answer to each of the following questions. (60%)

1. How does the computing efficiency increase with the following methods (a) pipelining (b) parallel processing (c) cloud computing. (10%)
2. Applying the preorder traversal algorithm to a certain binary search tree produces the node ordering: 50, 20, 10, 40, 30, 70, 60, 80, 90.
(a) Construct and draw the binary search tree. (5%)
(b) List the node ordering under postorder traversal. (5%)
3. 9 integers are inserted into an initially empty min heap in the following order: 50, 20, 10, 40, 30, 70, 60, 80, 90.
(a) Draw the final min heap. (10%)
(b) Perform the heap sort on the min heap constructed at (a). You should show the partial intermediate result at each key step. (5%)
4. Sort the sequence 50, 20, 10, 40, 30, 70, 60, 80, 90 using selection sort. You should show the partial intermediate result at each key step. (5%)
5. Consider the function $f(n)$ defined as follows, where n is a nonnegative integer:

$$f(n) = \begin{cases} n & n \leq 1 \\ n + f\left(\frac{n}{2}\right) & n \text{ is even and } n > 1 \\ f\left(\frac{n+1}{2}\right) + f\left(\frac{n-1}{2}\right) & n \text{ is odd and } n > 1 \end{cases}$$

- (a) Draw the recursion tree and calculate the value of $f(6)$. (10%)
- (b) Write a recursive function to compute $f(n)$ in any computer language. (10%)