國立勤益科技大學 99 學年度四技日間部轉學生招生考試試題卷

系級： 資訊管理系三年級

科目： 計算機概論

准考證號碼：＿＿＿＿＿＿＿＿＿＿＿＿（考生自填）

考生注意事項：

一、考試時間 80 分鐘。

二、本考科 □ 可　　使用電子計算機。
　　　　　　■ 不可

三、答案請寫在答案卷上，否則不予計分。試題請連同答案卷一併繳回。

一、 選擇題：〈40 分, 每題兩分〉

1. ＿＿＿ can occur if a process has too many resource restrictions. (A) Starvation (B) Synchronization (C) Paging (D) Deadlock

2. A ＿＿ controller is a high-speed serial interface that transfers data in packets. (A) SCSI (B) FireWire (C) USB (D) both B and C

3. In the ＿＿ method to synchronize the operation of the CPU with the I/O device, a large block of data can be passed from an I/O device to memory directly. (A) programmed I/O (B) interrupt-driven I/O (C) DMA (D) isolated I/O

4. Multiprogramming requires a ＿＿＿ operating system. (A) batch (B) time-sharing (C) personal (D) distributed

5. The ＿＿＿ manager is responsible for archiving and backup. (A) memory (B) process (C) device (D) file

6. We use a ＿＿＿ search for an unordered list. (A) sequential (B) binary (C) bubble (D) insertion

7. The three steps in executing instructions of a program on a computer are performed in the specific order ＿＿. (A) fetch, execute, and decode (B) decode, execute, and fetch (C) fetch, decode, and execute (D) decode, fetch, and execute

8. The ＿＿＿ layer of the TCP/IP protocol suite is responsible for node-to-node delivery of a frame between two adjacent nodes. (A) transport (B) network (C) data-link (D) physical

9. ＿＿＿ is a protocol for e-mail services. (A) FTP (B) SMTP (C) TELNET (D) HTTP

10. ＿＿＿ is a program's code in machine language. (A) A procedure (B) An object program (C) A source program (D) none of the above

11. Java is a(n) ＿＿＿ language. (A) procedural (B) functional (C) declarative (D) object-oriented

12. ＿＿ is a memory type with capacitors that need to be refreshed periodically. (A) DRAM　(B) SRAM　(C) ROM　(D) all of the above

13. A 32-bit code called ＿＿＿ represents symbols in all languages. (A) ANSI (B) Unicode (C) EBCDIC (D) ASCII

14. For the binary OR operation, only an input of ＿＿＿ gives an output of 0. (A) two 0s (B) two 1s (C) one 0 and one 1　(D) any of the above

15. A mask can flip the five rightmost bits of an 8-bit pattern. What is the result when the mask is operated on the following pattern 10100110? (A) 01011001 (B) 10111001 (C) 01011110 (D)

10111111

16. How many symbols can be represented by a bit pattern with 10 bits?　(A) 128　(B) 256　(C) 512　(D) 1024

17. In a computer, the _____ subsystem accepts data and programs and sends processing results to the outside world. (A) ALU (B) input/output (C) memory (D) control unit

18. In the _____ graphic method of representing an image in a computer, the image is decomposed into a combination of geometrical figures. (A) bitmap (B) vector (C) quantized (D) binary

19. The ____ is a storage device in which the user can write information only once to the disc.
(A) CD-R (B) CD-ROM (C) CD-RW (D) all of the above

20. There are ____ bytes in 16 Terabytes.　(A)2^{24}　(B)2^{34}　(C)2^{44}　(D)2^{54}

二、綜合題：〈60 分，每題 10 分。有任何計算過程務必寫出，否則不予計分〉

1. If integers are stored in two's complement format in a computer, how the computer does the following arithmetic operation? Please use an 8-bit allocation for each integer.

    9 - 24

2. Show the Excess_127 (single precision) representation of the decimal number -161.875.

3. An imaginary computer has sixteen data registers (R0 to R15), 1024 words in memory, and 64 different instructions (add, subtract, etc.).

    a. What is the minimum size of an instruction in bits if a typical instruction uses the following format: **INSTRUCTION M R**. (**INSTRUCTION** represents one of the 64 instructions, **M** represents a location of the memory, and **R** is one of the sixteen registers)

    b. What is the size of the instruction register of this computer?

    c. What is the size of the program counter of this computer?

4. A multiprogramming operating system uses paging. The available memory is 60 MB divided into 15 frames, each of 4 MB. The first program needs 14 MB. The second program needs 11 MB. The third program needs 26 MB.

    a. How many frames are used by the first program?

    b. How many frames are used by the second program?

    c. How many frames are used by the third program?

    d. How many frames are unused?

    e. What is the total memory wasted?

5. The Fibonacci sequence, Fib(n), is used in science and mathematics as shown as follows. Write a recursive algorithm in pseudocode to calculate the value Fib(n), where n is an integer.

$$\text{Fib(n)} = \begin{bmatrix} 0 & \text{if } n = 0 \\ 1 & \text{if } n = 1 \\ \text{Fib(n - 1) + Fib(n - 2)} & \text{if } n > 1 \end{bmatrix}$$

6. Write an algorithm in pseudocode to find the value of x^n, where x and n are two given integers.