

科目：計算機概論(300G)

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共二十題單選題，每題五分。

- 一、The following table represents the addresses and contents (in hexadecimal notation) of some cells in a machine's main memory. Starting with this memory arrangement, follow the sequence of instructions and record the final contents of each of these memory cells:

Address	Contents
30	FB
31	5D
32	AC
33	DC

Step 1. Move the contents of the cell whose address is 32 to the cell at address 33.

Step 2. Move the value 30 into the cell at address 32.

Step 3. Move the value stored at address 33 into the cell at address 31.

Which is the final contents of these memory cells?

- (A) 30:FB, 31:5D, 32:1E, 33:20;
 (B) 30:FB, 31:AC, 32:FB, 33:AC;
 (C) 30:FB, 31:AC, 32:1E, 33:AC;
 (D) 30:FB, 31:AC, 32:FB, 33:20;
 (E) 30:FB, 31:DC, 32:1E, 33:AC.
- 二、Which is the sum of the numbers (in binary notation) 010101000110, 100001011001 and 010000110101 in hexadecimal notation?
 (A) 11D4; (B) 12B5; (C) 10CC; (D) 1357; (E) 1B2A.
- 三、Which of the following is a lossy data compression method?
 (A) Huffman coding; (B) Run-length encoding; (C) Lempel-Ziv-Welsh (LZW) encoding; (D) JPEG compression; (E) Burrows-Wheeler transform.
- 四、Suppose a machine language is designed with an op-code field of 6 bits, how many different instruction types can the language contain? (A) 63; (B) 64; (C) 65; (D) 66; (E) 6.
- 五、Which of these memory storage types can be accessed fastest by the CPU?
 (A) Hard disk; (B) DVD; (C) Main memory; (D) General purpose registers; (E) USB 3.0 removable HDD.
- 六、Suppose three items R, S and T are placed in a queue in that order. Then one item is removed before a fourth item X is placed in the queue. Then another item is removed and Y, Z are placed in the queue. Then the queue is emptied by removing one item at a time. Which is the order in which the items were removed from the queue?
 (A) X, Y, Z, R, S, T; (B) R, X, S, Y, Z, T; (C) R, S, T, X, Y, Z; (D) Z, Y, X, T, S, R; (E) T, X, Z, Y, S, R.
- 七、Suppose a computer contained 512MB (MiB) of main memory, and an operating system needed to create a virtual memory of twice that size using 2KB (KiB) pages, how many pages are required?
 (A) 824,288; (B) 524,288; (C) 512; (D) 512,000; (E) 224,288.

參考用

注意：背面有試題

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- 八、 Which of the following is *not* an advantage of a distributed computing system?
(A) Reliability; (B) Scalability; (C) Security; (D) Cost-effectiveness; (E) Message passing.
- 九、 Which of the following is *not* an internet protocol?
(A) HTML; (B) FTP; (C) HTTP; (D) UDP; (E) DHCP.
- 十、 Which of the following "programs" *does* terminate?
(A) $\text{Var} \leftarrow 0$; while ($\text{Var} < 10$) do ($\text{Var} \leftarrow \text{Var} - 3$)
(B) $\text{Var} \leftarrow 0$; while ($\text{Var} < 10$) do nothing
(C) $\text{Var} \leftarrow 0$; while (Var not 10) do ($\text{Var} \leftarrow \text{Var} + 3$)
(D) $\text{Var} \leftarrow 3$; while (Var is Odd) do ($\text{Var} \leftarrow \text{Var} + 2$)
(E) $\text{Var} \leftarrow 2$; while (Var is Even) do ($\text{Var} \leftarrow \text{Var} + 3$)
- 十一、 Which of the following is an iteration keyword in the programming language C?
(A) return; (B) while; (C) if; (D) break; (E) switch.
- 十二、 Apply the procedure MysteryPrint (defined below) to the value 3, what is the output?
 procedure MysteryPrint(N)
 if (N>0) **then** (print the value of N and apply the procedure MysteryPrint to the value N-2)
 Print the value of N+1
(A) 3, 1, -1, -3, -5, -7, ...; (B) 3, 1, 0, 2, 4; (C) 3, 1, 0, 2, 4, 6, 8, ...; (D) 3, 4, 1, 2, 0; (E) 3, 4, 5, 6, 7,
- 十三、 Which is *not* a disadvantage of using an assembly language?
(A) slow development time; (B) slow program execution; (C) difficult to debug; (D) difficult to maintain code; (E) code is not portable to another platform.
- 十四、 Suppose there are two functions f and g , both expect two numeric inputs. f returns the larger and g returns the smaller value, respectively, of the two inputs. If x, y, z, w represent numeric values, what is returned by $g(f(w, x), g(y, z))$ when $x > y > z > w$?
(A) x ; (B) y ; (C) z ; (D) w ; (E) none of the above.
- 十五、 Suppose the operator precedence is +, - before *, / before ^, which expression evaluates to the largest value?
(A) $3^4 * 4 + 6$; (B) $3 + 4^4 * 5$; (C) $3 * 4 + 17^10$; (D) $3^13 * 3$; (E) $4 * 2^4 + 15$.
- 十六、 Suppose a homogeneous array with 5 rows and 7 columns is stored in row major order starting at address 100 (base 10), if each entry requires 4 memory cells, what is the address of the entry at the 3rd row and 4th column?
(A) 117; (B) 123; (C) 192; (D) 168; (E) none of the above.

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- 十七、 In problem 六, suppose a stack is used in place of a queue, what would be the order in which the items were removed from the stack?
(A) X, Y, Z, R, S, T; (B) R, X, S, Y, Z, T; (C) R, S, T, X, Y, Z; (D) Z, Y, X, T, S, R; (E) T, X, Z, Y, S, R.
- 十八、 What is the advantage of using a DBMS over a flat file system?
(A) Enforces user-defined rules to ensure the integrity of data.
(B) Enforces data access authorization.
(C) Keeps a tight control on data redundancy.
(D) Ensures that data can be shared across all applications.
(E) All of the above
- 十九、 Which of the following tasks are *not* concerned with the designer of a DBMS?
(A) How should data be stored on a disk to maximize efficiency?
(B) How should a relation be organized in mass storage?
(C) How many times should a user be allowed to mistype a password?
(D) All of the above
(E) None of the above
- 二十、 Analyze an ATM machine as an agent with sensors and actuators. Which of the following is most appropriately considered its actuator?
(A) ATM card detection unit; (B) PIN verifier unit; (C) Cash amount calculator; (D) Cash dispenser;
(E) ATM buttons.



