(103)輔仁大學碩士班招生考試試題

考試日期:103年3月7日第2節

本試題共2頁(本頁為第1頁)

科目:計算機概論

系所組:電機工程學系(丙組)

有關測驗題(選擇題或是非題)之命題規定:

- 1. 未按作答格式(範例)作答者,扣該科總分10分。
- 2. 未在<u>彌封答案卷內</u>作答者,扣該科總分20分。

(範例) 選擇題作答格式:

1. A	2. A	3. B	4. B	5. C
6. A	7. A	8. D	9. C	10.B
11. A	12. A	13. D	14. A	15. D

請依照上述範例之格式,以橫式書寫方式將全部答案寫在彌封答案卷第1頁,答案字母請用正楷大寫(A,B,C,D...)。

- 1. () If we want to use **printf()** in C programs, which **header file** needs to be included for C preprocessor: (A) string.h, (B) stdio.h, (C) stdlib.h, (D) stddef.h, (E) math.h, (F) it does not need. (5%)
- 2. () In C language, which of the following statements can correctly **print "Passed"** if the student's grade is greater than or equal to 60, and can **print "Failed"** if the student's grade is less than 60? (The double quotes ("") are not printed.) (5%)
 - (A) grade >= 60 ? printf ("Failed\n") : printf ("Passed\n");
 - (B) printf ("%s\n", grade >= 60 : "Passed" ? "Failed");
 - (C) grade < 60 : printf ("Failed\n") ? printf ("Passed\n");
 - (D) printf ("%s\n", grade < 60 ? "Failed" : "Passed");
 - (E) grade < 60 ? printf ("Passed\n") : printf ("Failed\n");
 - (F) printf ("%s\n", grade >= 60 ? "Failed" : "Passed");
- 3. () In which **phase** of C program we can get the "object code"? (A) Edit, (B) Preprocess, (C) Compile, (D) Link, (E) Load, (F) Execute. (5%)
- 4. () In C language, if a function name is misspelled, the _____ will produce an error because it will not be able to find the function in the library. (A) Compile, (B) Preprocess, (C) Load, (D) Execute, (E) Edit, (F) Link. (5%)
- 5. () In the ____ method for synchronizing the operation of the CPU with an I/O device, a large block of data can be passed from an I/O device to memory directly. (A) DMA, (B) Interrupt-driven I/O, (C) Program I/O, (D) Isolated I/O, (E) All of the above, (F) None of the above. (5%)
- 6. () In _____ sort, the smallest item is moved gradually to the beginning of the unsorted list. It requires continuously comparing and swapping two adjacent items. (A) selection, (B) bubble, (C) insertion, (D) sequential, (E) all of the above, (F) none of the above. (5%)
- 7. () If Mary wants to send an E-mail to Bob, what protocol do Mary need? (A) POP3, (B) IMAP, (C) SNMP, (D) ICMP, (E) SMTP, (F) RTP. (5%)
- 8. Please show the real number -161.875 using floating-point representation of 32-bit IEEE format. (10%)
- ※ 注意:1.考生須在「彌封答案卷」上作答。
 - 2.本試題紙空白部份可當稿紙使用。
 - 3.考生於作答時可否使用計算機、法典、字典或其他資料或工具,以簡章之規定為準。

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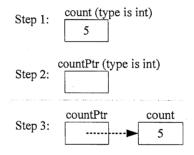
本試題共2頁(本頁為第2頁)

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9. In C language, what are the final values (not the printed values) of the variables 'x' and 'y' when the for loop finishes? (6%)

- 10. Since computer stores only digitalized data, audio has to be converted into digitalized form to store in computer. There are three steps to convert Audio data into digitalized data, including: sampling, quantization, and encoding. Assume that there are 256 (0~255) levels for each sample and 8000 samples per second. What is the **data rate** of the digitalized audio? (3%)
- 11. In 4 logic operations of "NOT, OR, AND, XOR": (a) If we want to "reset or clear" specific bits, which logic operation we can use? (b) If we want to "set" specific bits, which logic operation we can use? (6%)
- 12. About the definition and initialization of a pointer in C language, if the value of a variable "count" is "int" and is 5. There are three steps to define a pointer "countPtr" to point to the variable, refers to the following figure. Please write down the statements (program) of these three steps. (9%)



13. Please use pseudocode to write a recursive algorithm for finding the greatest common divisor $(\gcd(x, y))$ of two integers x and y. The definition of $\gcd(x, y)$ is showed as follows. (5%)

$$\gcd(x, y) = \begin{bmatrix} x & \text{if } y = 0 \\ \gcd(y, x \mod y) & \text{otherwise} \end{bmatrix}$$

- 14. Three processes (A, B, and C) are running concurrently and have the same priority. Process A has acquired File 1, but needs File 2. Process B has acquired File 3, but needs File 1. Process C has acquired File 2, but needs File 3. Is this a deadlock situation? Please explain your answer. (6%)
- 15. Please draw a figure of pipelining and briefly describe its purpose. (10%)
- 16. Memory mapped I/O is a method to handle the addresses of I/O devices. Please **give an example** and **briefly describe** the method. (10%)

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- 3.考生於作答時可否使用計算機、法典、字典或其他資料或工具,以簡章之規定為準。

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